

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness



D4.5 – Annex 2.2- training content for Carrousel Project

DAY 2 : Use a BIM model for a better implementation of ventilation and airtightness

- Target for the training session
 - Multi-skilled public: Company managers
 - Design office compan
 - Site Manager
- BIM process training programme:
 - Ventilation system
 - Airtightness

- Part 1 : Managing the information system
- Part 2 : Integration of the ventilation batch in the phases of a BIM process
- Part 3 : Understanding and analysing a MEP Model
- Part 4 : Impact of the MEP model on other trade models
- Part 5 : Location of airtightness weak points with "ifc opening".
- Part 6 : Application to the Carousel Project

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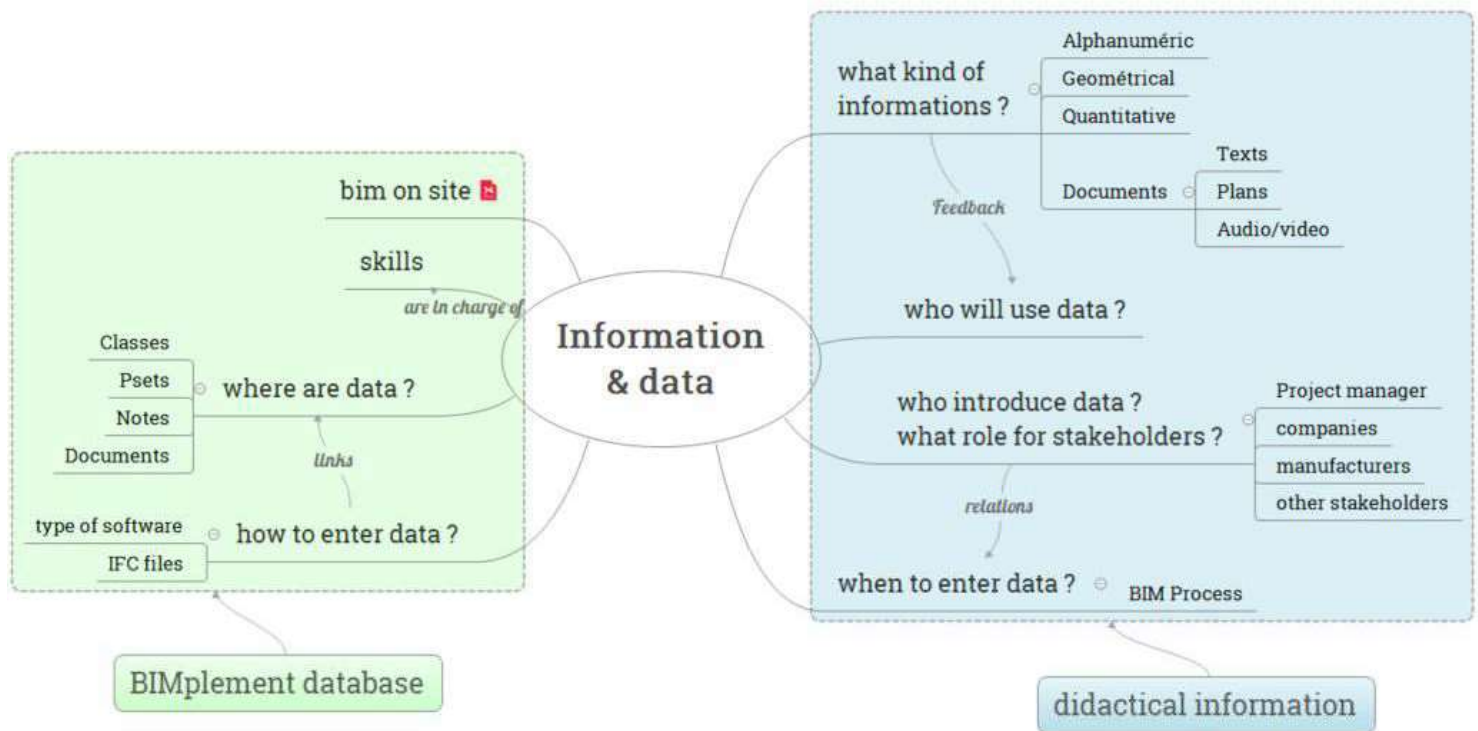
*apply BIM models to ventilation &
airtightness*

Part 1 : manage the information system

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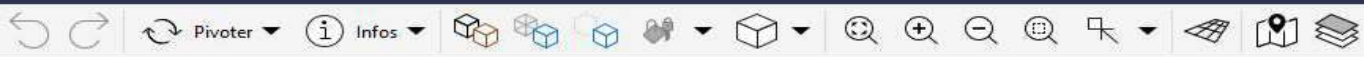
Part 1 : manage the information system



Part 1 : manage the information system

Start from the objects in the model:

- What information should be integrated?
- Who enters this information / Who uses this information?
- What skills are needed to integrate/read this information?
- These skills require what knowledge?



ARBORESCENCE MODÈLE

ING_JFC_BC_CVC_M14

Système

Default

Lycée Champollion

Sous-sol

Rez-de-chaussée

Mezz RDC

Etage 1er

Mezz 1er

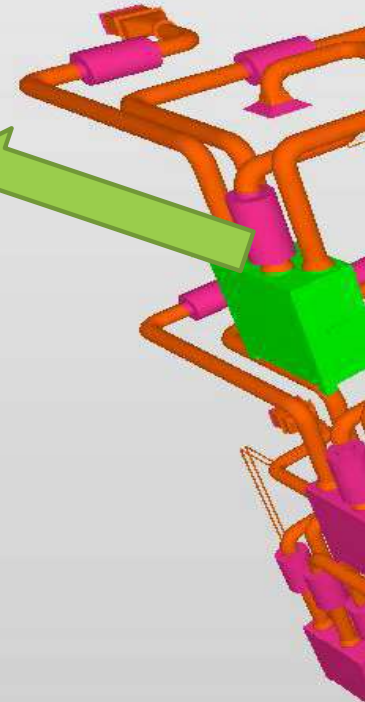
INFO

Convertisseur d'énergie.4.2

MEP_Proxy	Phase de construction	Pset_BuildingElementProxyCommon
Contraintes	Données d'identification	Electricité - Charges
Identification	Emplacement	Quantités
Relations	Classification	Liens hypertexte
AC_Pset_RenovationAndPhasing		

Propriété	Valeur
Modèle	ING_JFC_BC_CVC_M14
Discipline	Architecture
Nom	CTA double flux avec récupération de chaleur - Vertical - 7...
Type	1500 m3h
Nom du type	
Description	
Type prédéfini	
Calque	M-EQPM-___-OTLN
Système	AR 7
Géométrie	Représentation limites
Application	Autodesk Revit 2014 (FRA)
GUID	11P0IHq712pOFAtYpYAfbG
BATID	1255345
Catégories de modèles	

What kind of information is provided for the object ?



ARBORESCENCE MODÈLE

Système.b.105 : AR 7

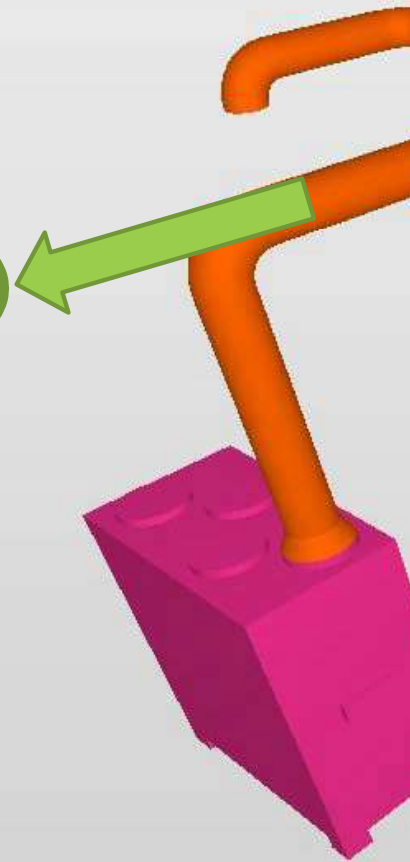
- Conduit.4.1
- Conduit.4.22
- Conduit.4.23
- Conduit.4.31
- Conduit.4.139
- Contrôleur de Flux.4.1
- Convertisseur d'énergie.4.2
- Raccord Conduit.4.5

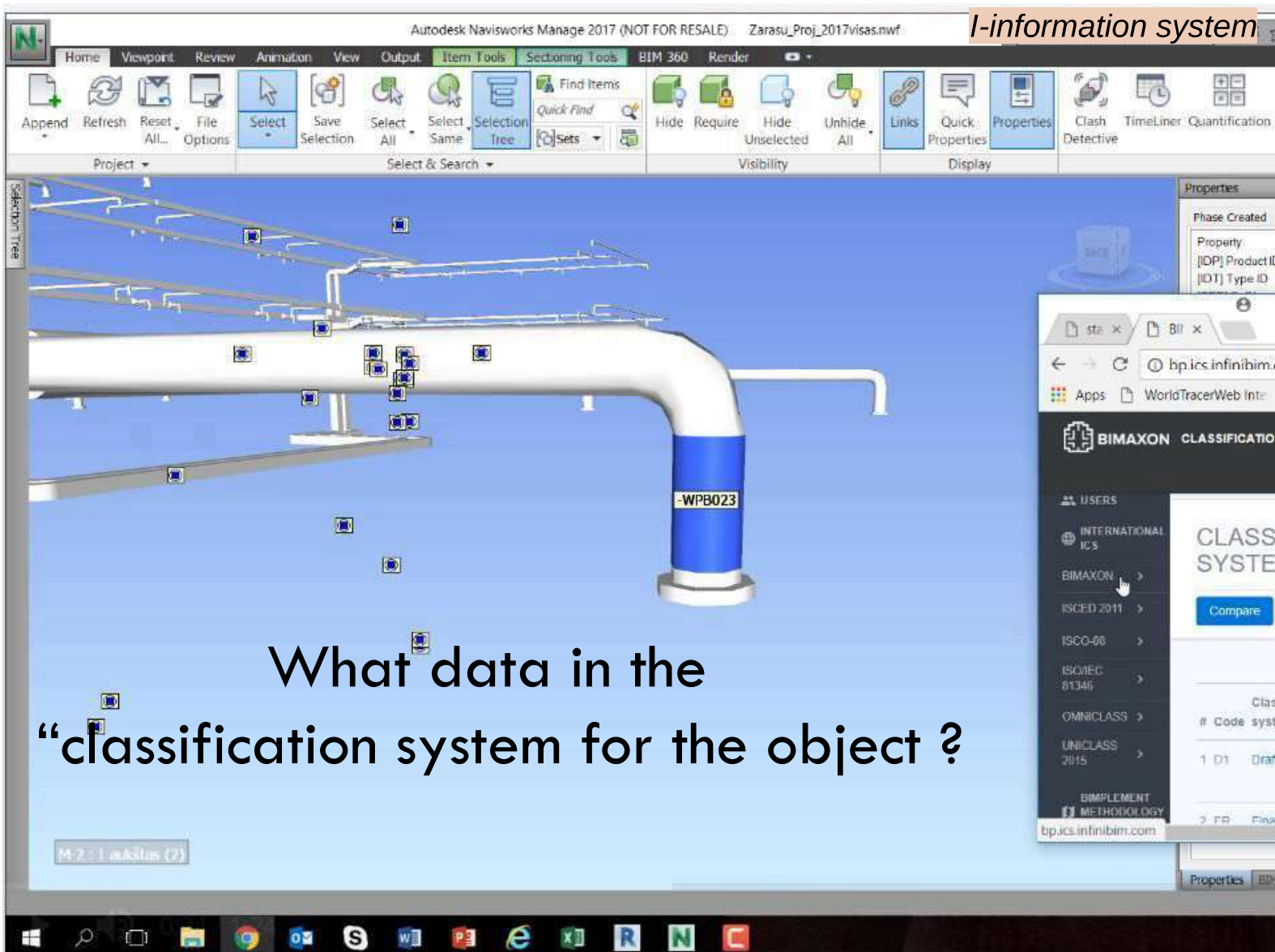
INFO

Système.b.105 : AR 7

Données d'identification		Génie climatique	Génie climatique - Ecoulement	
Identification	Emplacement	Relations	Classification	Liens hypertexte
Propriété		Valeur		
Modèle		ING_JFC_BC_CVC_M14		
Discipline		Architecture		
Nom		AR 7		
Type		INGP_CVC_AR		
Nom du type				
Description				
Application		Autodesk Revit 2014 (FRA)		
GUID		11P0IHq712pOFAtYpYAfBI		
Catégories de modèles				

What kind of information for the system ?





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Example BIM classification Luxembourg



I-information system

Classification Unifomat :

D				SERVICES
D	30			HVAC
D	30	60		Ventilation
D	30	60	10	Air soufflé
D	30	60	20	Air extrait
D	30	60	30	Air expulsé
D	30	60	40	Air neuf extérieur
D	30	60	60	Récupération d'énergie
D	30	60	70	Nettoyage d'air
D	30	60	90	Composants supplémentaires ventilation

Objets IFC associés :

Bouches	IfcAirTerminal
Echangeur de chaleur	IfcAirToAirHeatRecovery
Filtres	IfcFilter
Diffuseur d'air	IfcAirTerminalBox
Ventilateur	IfcFan

I-information system



lfcSpace	
lfcZone	

IfcSpace/Pset_SpaceLight Illuminance	Lighting Illuminance
---	---------------------------------

Max & min temperature while cooling	$IfcSpace/Pset_SpaceThermalProperties/SpaceTemperatureSummerCooling$
Max & min temperature while heating	$IfcSpace/Pset_SpaceThermalProperties/SpaceTemperatureWinterHeating$
Humidity while cooling	$IfcSpace/Pset_SpaceThermalProperties/SpaceHumiditySummerCooling$
Humidity while heating	$IfcSpace/Pset_SpaceThermalProperties/SpaceHumidityWinterHeating$
Required ventilation (Vol/h -mechanical or natural)	$IfcSpace/Pset_SpaceThermalProperties/NaturalVentilationRateAndMechanicalVentilationRate$
lighting	$IfcSpace/Pset_SpaceLighting/SpaceLightingIlluminance$

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Définition des exigences d'échanges d'informations (EIR)

-> Instructions

Uniformat Level					Omniclass Level						
1	2	3	4	5	Table	1	2	3	4	5	
D	30	60				21-	04	30	60	00	00
										Termes anglais	Termes français (et liens vers les fiches)
										Ventilation	Ventilation

Which objects?



Element to be modelled	Detail
Air vents	Position of air vents
	Length/width or Diameter of elements
	elements
	Height
Ventilation unit: position and dimensioning of the jig	Location
	Length
	Width
	Height
Ventilation unit: inlets and outlets	Position of air intakes and discharges
	Length/width or Diameter of inlets and outlets
Modelling the specific elements (supports, ...)	as the case may be
representative model of the element	see supplier object

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Part 1 : manage the information system

Elément à informer	Détail	Paramètres IFC (4) associés
Nommage / identification (selon convention, peut changer d'une phase à l'autre)	Nom de l'objet	<i>IfcRoot : Name</i>
	identifiant numérique de l'objet (tag)	<i>IfcElement : Tag</i>
Classification	Selon la classification choisie (ex. C1030)	<i>IfcClassification</i>
Statut	Distinguer NOUVEAU et EXISTANT (si nécessaire DEMOLI, TEMPORAIRE)	<i>IfcXXX/Pset_XXXCommon : Status</i>
Type (bouches)	Type de bouche (grille, grille avec valve, diffuseur, lucarne)	<i>IfcAirTerminalTypeEnum</i>
	Type de flux d'air (supply, exhaust, return)	<i>PsetAirTerminalCommon : Airflowtype</i>
Fixation des bouches	Positionnement : Sur mur (position haute), sur mur (position basse), sur plafond (périmère), sur plafond (intérieur), sur sol, autre...	<i>PsetAirTerminalCommon : Location</i>
	Mode de fixation : Fixé, Fixé dans l'alignement d'une surface, encastré	<i>PsetAirTerminalCommon : MountingType</i>
Débit d'air des bouches	Débit d'air volumique tel que conçu	<i>PsetAirTerminalCommon : AirFlowRate</i>
	Débit d'air volumique mesuré	<i>Pset_AirTerminalPHistory : AirFlowRate</i>
Température d'air soufflé mesurée	en chauffage	<i>Pset_AirTerminalPHistory : SupplyAirTemperatureHeating</i>
	en refroidissement	<i>Pset_AirTerminalPHistory : SupplyAirTemperatureCooling</i>
Type (échangeurs)	Type de fonctionnement (à co-courants, à contre-courants, à courants croisés, échangeur rotatif...)	<i>IfcAirToAirHeatRecoveryTypeEnum</i>
débit CTA (Centrale de Traitement d'Air)	débit d'air de la CTA	<i>Pset_AirTerminalBoxTypeCommon : NominalAirFlowRate</i>
Garantie	Date de fin de garantie	<i>Pset_Warranty : WarrantyEndDate</i>
Condition	Date de l'évaluation	<i>Pset_Condition : AssessmentDate</i>
	Condition évaluée	<i>Pset_Condition : AssessmentCondition</i>

What are the properties of IFC object to be filled in ?

- BY WHOM?
- FOR WHOM?
- AT WHAT TIME?

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Part 1 : manage the information system

What related documents?

- TO WHAT PURPOSE?
- BY WHOM?
- FOR WHOM?

NIVEAU DE DOCUMENTATION*				
Type de document	Détail	GID XX1	GID XX2	GID XX3
Schéma	Dessin unifilaire du réseau		X	
	Schéma d'emprise	X	X	
Note descriptive	Type d'élément et équipements	X	X	X
	préconisations techniques	X	X	X
Fiche technique	De chaque équipement			
Protocole de mesure	De chaque équipement			
Notice	Notice de montage			
	Notice de maintenance			
Rapport	Carnet d'entretien			
Image représentative	de l'objet choisi puis en place		selon les besoins	selon les besoins

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What documents to be linked ?

150b901a-bee6-4443-ac00-2acfcf84198e.pdf - Adobe Acrobat Re...

chier Edition Affichage Fenêtre Aide

Accueil Outils Alltransf... A < > ? Se connecter

VERSION VERTICALE (VDDI) - SERVITUDE DROITE - CONFIGURATION D

CARACTÉRISTIQUES

DUOTECH 600

	Unité	DUOTECH 600
Débit jusqu'à	m³/h	550
Tension alim. moteurs (1)	V	Mono 230
I Max	A	2,6
Puiss. max	W	445
Calibre protec.	A	6
Type de protection (2)		BI-D-10.000A-AC3

(1) Attention si SET intégrée, les tensions d'alimentation passent directement en TRI 400 V+N : 1 seule alimentation jusqu'à la taille 2000

Logged in as: Perreau Philippe [ONLINE](#) [INVITE COLLEAGUE](#) Settings Help Center

13-CTA DF...

Open Open with... Remove

13-CTA DF.pdf

PDF

Type: Adobe Acrobat Document
Author: Vimeux Thibaut
Added: 26/05/2016 10:56:45

Object(s): 2 [+ Link to Selected](#) [X Unlink Selected](#)

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What object, from which E-catalog?
with what data ?

only BIM models to ventilation 2

Type Properties

Family: Window-Awning-JELD-WEN-DF-Vinyl-Hybrid Load...

Type: Not A Type - Load Type Catalog Duplicate... Rename...

Type Parameters

Parameter	Value
Constraints	
Int Trim Visible	☐
Flat Trim	☐
Ext Trim Visible	☒
Construction	
Int Grille	☒
Grille Between Glass	☐
Ext Grille	☒
Wall Closure	By host
Construction Type	-
Graphics	
Materials and Finishes	
Material main	Vinyl
Material secondary	Aluminium
Window Cladding Material	Metal - JELD-WEN - DF White
Int Trim	Wood
Glazing Material	Glass - JELD-WEN - Low E
Finish	Vinyl - JELD-WEN - White
Ext Trim	Metal - JELD-WEN - DF White
Dimensions	
Sizing Statement	We offer a variety of designs, sizes and customizable o
Size Note	-
Rough Width	482.6
Rough Height	939.8
Inset Note	To set Window into wall use Inset parameter found in I
Height	914.4
Default Sill Height	914.4
Width	457.2
Identity Data	
EAN code	
Installation instructions	http://www.jeld-wen.com/images/pdf/installation/inst
Product Guid	405bb8ca-1c2e-4fe5-96e5-b947874fe082
Product certification	http://www.jeld-wen.com/en-us/search?document=te
Product data url	https://bimobject.com/jeld-wen-us/product/df-hybrid-
Product url	http://www.jeld-wen.com/en-us/products/windows/hr

<< Previous OK Cancel Apply

Family Types

Name: Office Desk

Parameter	Value	Formula	Lock
Materials and Finishes			
Top Material	<By Category>	=	
Leg Material	Paint Black	=	
IFC Parameters			
BIMobject category	Office Desks & Tables	=	
COBie Type Category		=	
IFC Classification	Furnishing Element	=	
Masterformat 2014 Co	12 51 23	=	
Masterformat 2014 De	Office Tables	=	
NBS Reference Code	31-22	=	
NBS Reference Descrip	Desks, Tables And Wor	=	
OmniClass Code	23-21 13 25	=	
OmniClass Description	Office Equipment	=	
UNSPSC Code	56	=	
Uniclass 1.4 Code	L053	=	
Uniclass 1.4 Descriptio	Office furniture	=	
Uniclass 2.0 Code	PR-35-12-58	=	
Uniclass 2.0 Descriptio	Office Desks	=	
Uniclass 2015 Code	Pr_40_50_21_59	=	
Uniclass 2015 Name	Office desks	=	
Unifomat II Code	E20	=	
Unifomat II Descriptio	FURNISHINGS	=	
General			
Brand url		=	
Date of publishing		=	
Design country	Sweden	=	

OK Cancel Apply Help

Family Types

New... Rename... Delete

Parameters

Add... Modify... Remove Move Up Move Down

Sorting Order

Ascending Descending

Lookup Tables

Manage...

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data for maintenance?

- Who enters this data?
- Which skills for this job?

Liste des attributs «BIM pour le FME» pour l'équipement					
Designation de l'équipement :			Niveau de modélisation LOD :		
Photo/Illustration	Catégorie de l'équipement :		Codification unifiée II :		
	Description :		Documents à associer à l'équipement :		
Catégorie de l'attribut (Type d'information)	Attribut requis (Description)	Unité (M, RL, L/Ma)	Format (Texte, numérique, mixte)	Source de l'information	Destinataire de l'information (BIM, GMAO, GTB)
Information de localisation	Nom du bâtiment				
Information de localisation	Numéro de l'étage				
Information de localisation	Numéro ou nom du local				
Information de localisation	Numéro de bureau				
Information fabricant	Nom du fabricant				
Information fabricant	Coordonnées				
Information fabricant	Référence équipement fabricant				
Information fabricant	Numéro de série				
Information fabricant	Année de fabrication				
Information fabricant	Code-barres/QR fabricant				
Facilities/Asset Management	Code d'identification FM				
Facilities/Asset Management	Code-barres/QR FM				
Facilities/Asset Management	Coûts de remplacement				
Facilities/Asset Management	Coûts d'installation				
Facilities/Asset Management	Coûts de l'équipement				
Facilities/Asset Management	Désignation de l'équipement				
Facilities/Asset Management	Type de réseau				
Facilities/Asset Management	Référence du manuel équipement				
Facilities/Asset Management	Type de garantie				
Facilities/Asset Management	Responsable de la garantie				
Facilities/Asset Management	Date de démarrage de la garantie				
Facilities/Asset Management	Date de fin de garantie				
Facilities/Asset Management	Liste des pièces détachées				
Facilities/Asset Management	Fournisseur des pièces détachées				
Facilities/Asset Management	Instructions de maintenance				
Facilities/Asset Management	Type de contrôle				
Facilities/Asset Management	Dernières valeurs relevées				
Facilities/Asset Management	Mise en sécurité				
Informations de planning	Date de mise en service				
Informations de planning	Périodicité de contrôle				
Informations de planning	Date du dernier contrôle				
Spécifications	Dimensions				
Spécifications	Poids				
Spécifications	Type de connectiques électriques				
Spécifications	Dimension des connectiques électriques				
Spécifications	Type de connectiques plomberie				
Spécifications	Dimension des connectiques plomberie				
Spécifications	Type de connectiques ventilation				
Spécifications	Dimension des connectiques ventilation				
Spécifications	Couleurs/initiation				
Spécifications	Capacité				
Spécifications	Niveau sonore				
Spécifications énergétiques	Type d'alimentation				
Spécifications énergétiques	Consommation				
Spécifications énergétiques	Températures de fonctionnement				
Spécifications énergétiques	Débit d'air				
Spécifications énergétiques	Débit d'eau				
Spécifications énergétiques	Taux d'humidité				
Spécifications énergétiques	Pression de fonctionnement				
Spécifications énergétiques	Consommation eau				
Spécifications énergétiques	Consommation gaz				
Spécifications énergétiques	Consommation électrique				
Spécifications énergétiques	Valeurs relevées à l'installation				



BIMplement

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Part 2 : Integration of the ventilation batch into the phases of a BIM process

Integration of the ventilation batch into the phases of a BIM process

Background: details of the "BIM" actions to be carried out during a project to IMPLEMENT a ventilation system

1. What are the recommendations of the system operator ?
2. What are the objectives of the contracting authority?
3. What are the requests of the control office
4. What decisions does the architect make on this project
5. What does the MEP Study Office plan to do
6. How the company must respond to the call for tenders on this project
7. What are the obligations of the company's design office?
8. How is the preparation of the site organized
9. Organization on the building site
10. Commissioning of the end of work

} Building
companies

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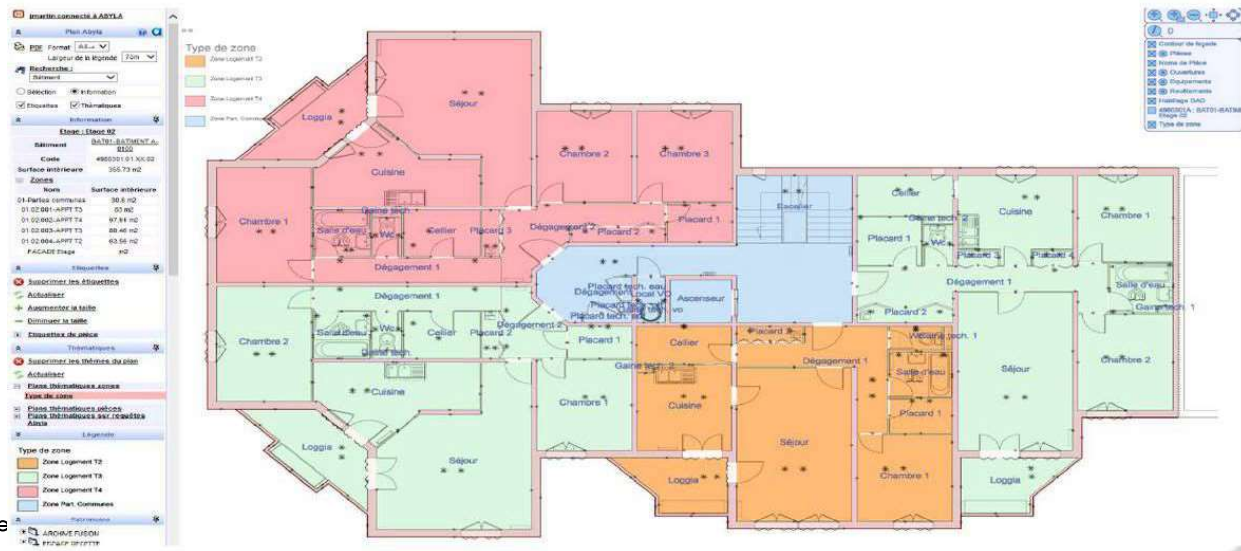
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1. What are the system operator's recommendations ?

For example:

- use of asset management software
- using a spreadsheet with a nomenclature
- connection with the building automation (BMS)

ABYLA EN CONSULTATION



BIMpleme

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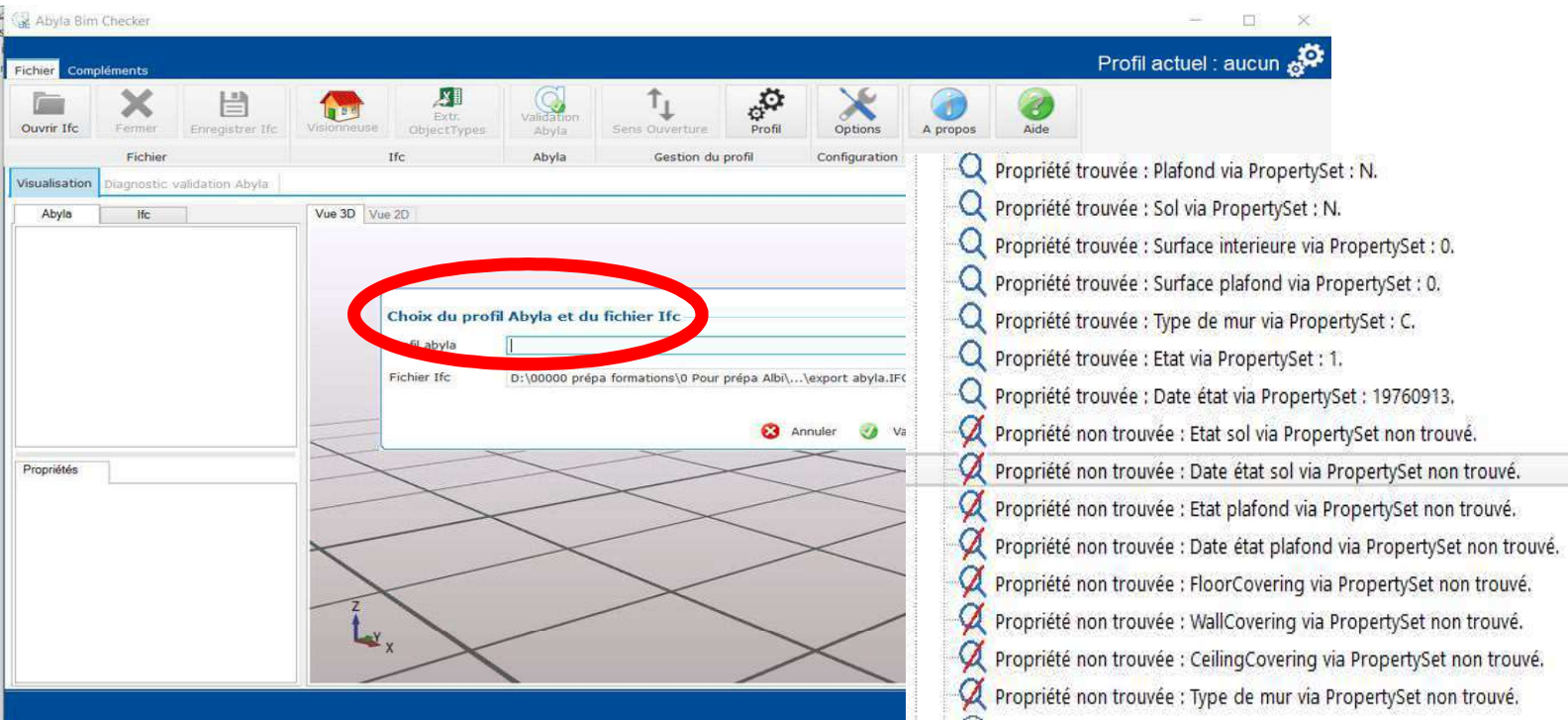
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For example:

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Data control with specific software: Abyla BIM Checker



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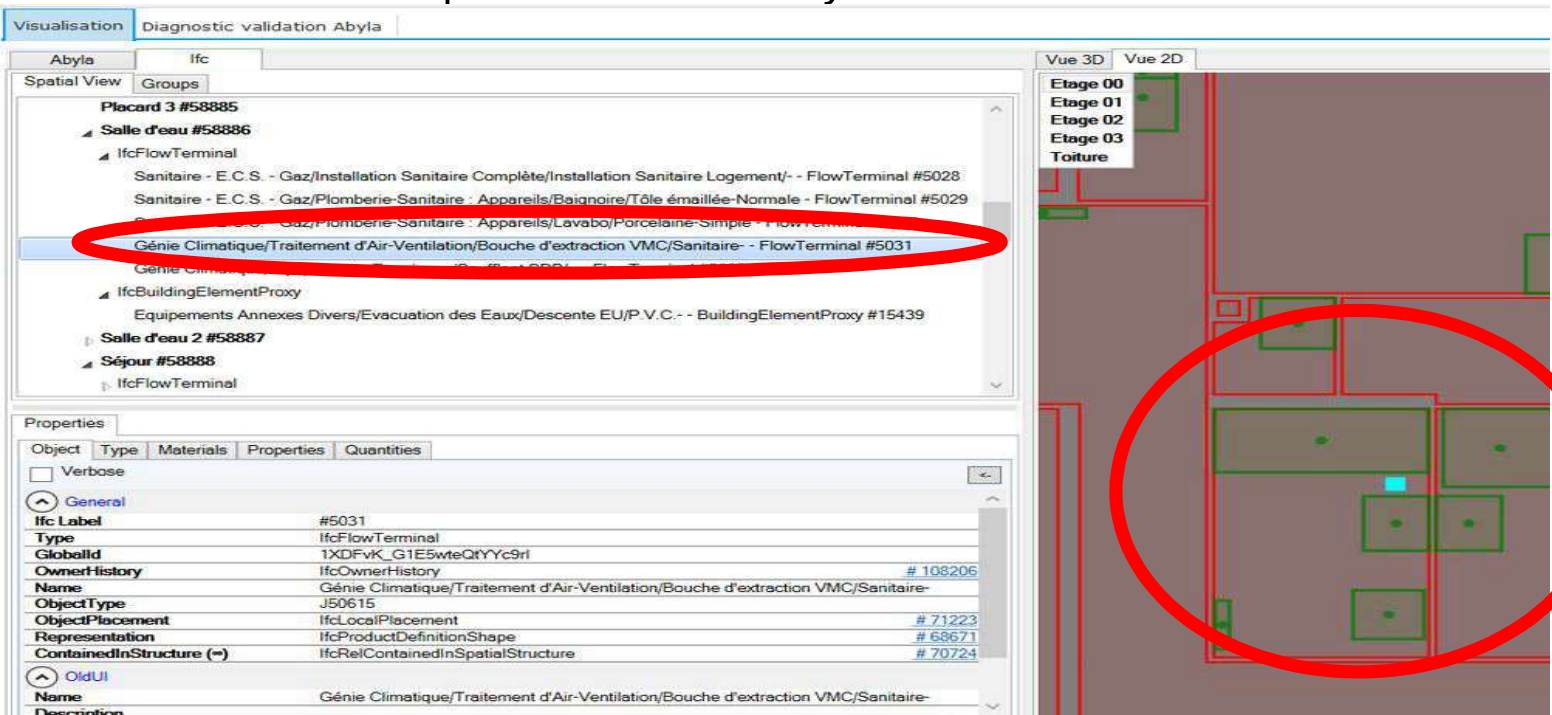
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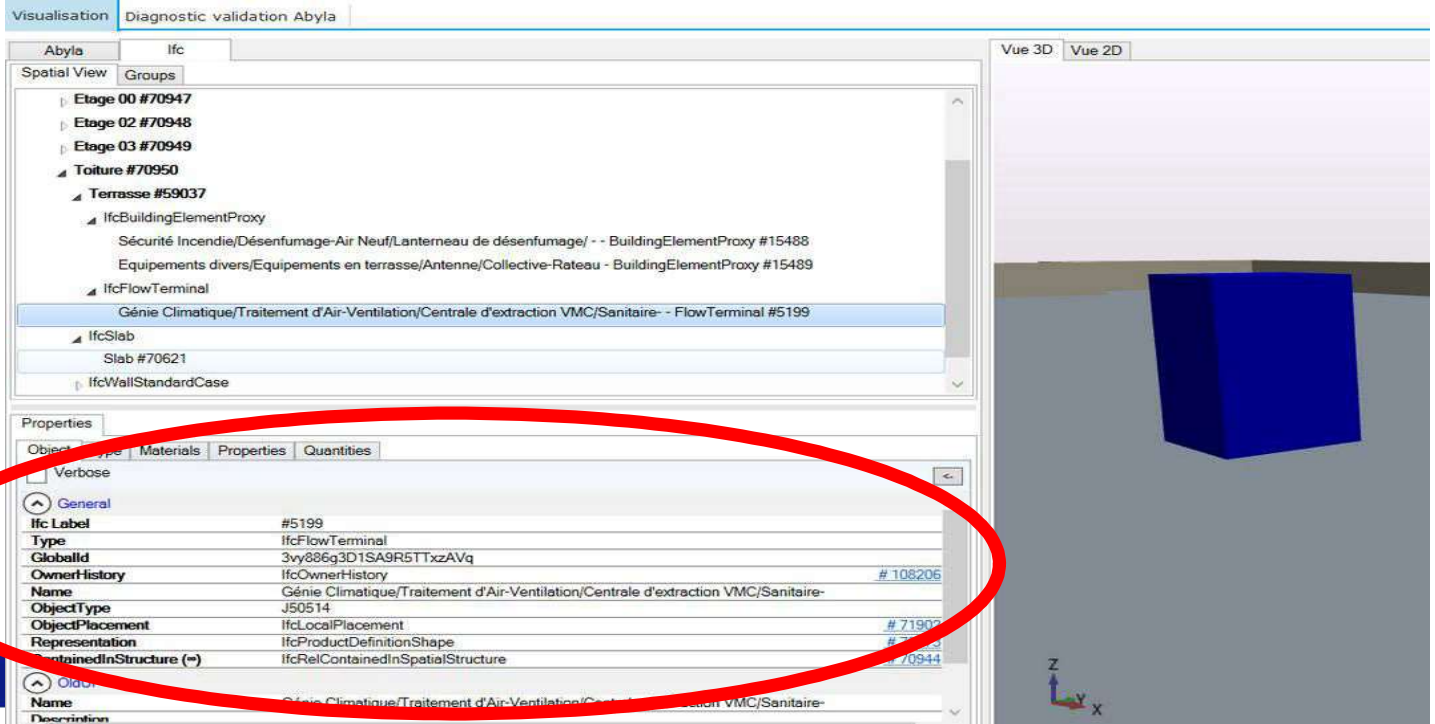
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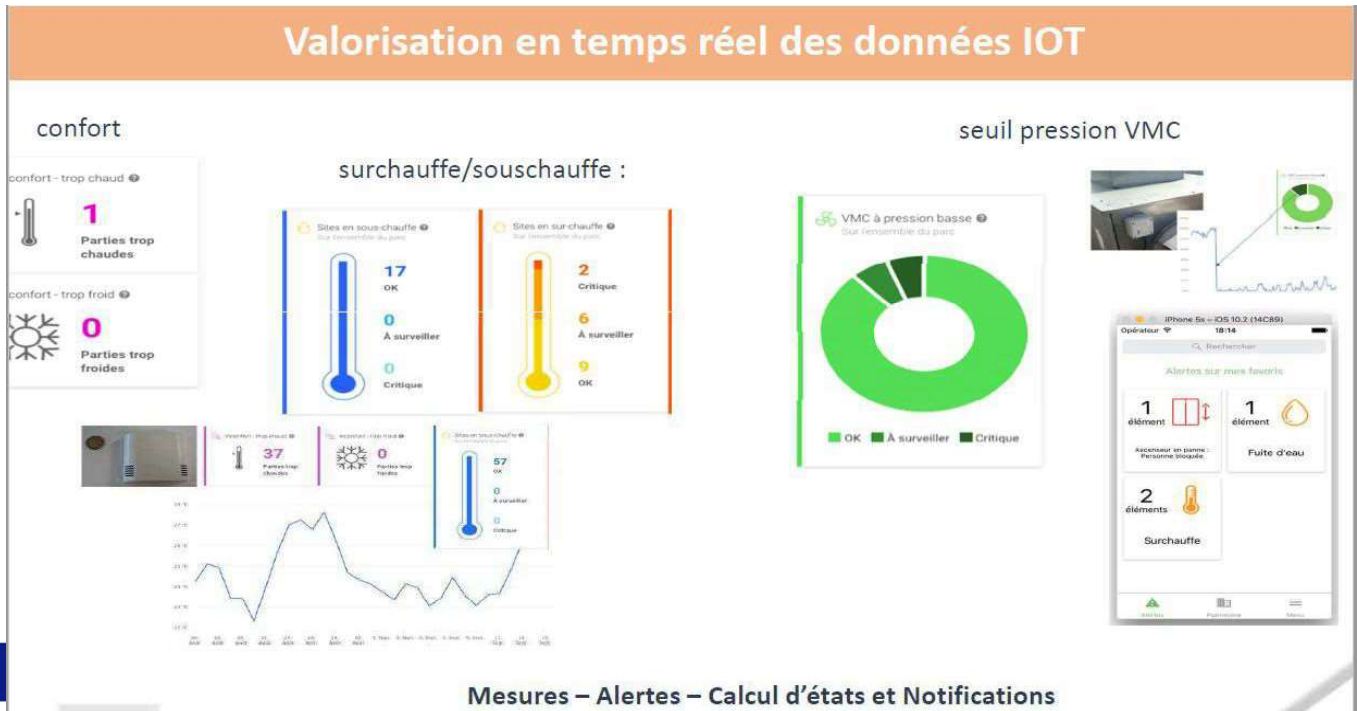
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1. What are the system operator's recommendations ?

For example:

-use of asset management software

Data control with specific software: Abyla BIM Checker



2. What are the objectives of the contracting authority?

- formalized in the BIM specifications

Other terminal equipment	The Class best suited to the function of the equipment Example : IfcFlowTerminal for sanitation Or else, IfcBuildingElementProxy	The following terminal equipment is described as objects so that it is possible to know their location and to count them according to their type: • sanitary equipment, • kitchen equipment, • heat production equipment (boiler, generator, radiators,...) • hot water production equipment (water heater, gas heater,...) • ventilation equipment (VMC, VMC gas,...) • fire safety equipment (smoke extraction system, emergency unit,...) • electrical cabinets,
Ducts, conduits and ducts	IfcFlowSegment IfcFlowFitting	Flue pipes and dry columns are described as objects. Flue canalization and ducts are described as objects or, failing that, are only shown in drawings.
Technical ducts	IfcSpace	

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2. What are the objectives of the contracting authority?

- formalized in the BIM specifications

Appareils de ventilation	Déstratificateur	IfcFanType	S	Local	Dénomination Code Marque-modèle ref: Fiche produit	DEST
	Ventilateur	IfcFanType	S	Local	Dénomination Code Marque-modèle ref: Fiche produit	VENT
	Thermostats de régulation	IfcBuildingElementProxy	S	Local	Dénomination Code Marque-modèle ref: Fiche produit	TERM
	Ventilo-convecteur et caissons	IfcSpaceHeaterType	E	Local	Dénomination Code Marque-modèle ref: Fiche produit	VTCN

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2. What are the objectives of the contracting authority?

- formalized in the BIM specifications

D30 - HVAC											
Baseline		Part 1 - Attribute Description					Part 2 - LOD Profile				
Additional											
Attribute		Commentary					100	200	300	350	400
Global Attributes											
Component ID		Project assigned number for components (e.g. tag number)						x	x	x	x
Condition Status		Status of the element, predominately used in renovation or retrofitting projects						x	x	x	x
Room Number		Room number where component to be /is installed						x	x	x	x
Room Name		Room name where component to be /is installed							x	x	x
Story Number		Floor or level room is located						x	x	x	x
Manufacturer Name		The organization that manufactured and/or assembled the item.								x	x
Product Name		The descriptive model name of the product model (or product line) as assigned by the manufacturer of the manufactured								x	x
Model Designation		The model number or designator of the product model (or product line) as assigned by the manufacturer of the								x	x
Component characteristics		Defines properties of individual instances of manufactured products that may be given by the manufacturer.									
Acquisition Date		The date that the manufactured item was purchased.									x
Assembly Place		Enumeration defining where the assembly is intended to take place, either in a factory, other offsite location or on the									x
Bar Code		The identity of the bar code given to an occurrence of the product.									x
Batch Reference		The identity of the batch reference from which an occurrence of a product is taken.									x
Production Year		The year of production of the manufactured item.									x
Serial Number		The serial number assigned to an occurrence of a product.									x
Design Performance		design performance parameters as defined in the BIMXP to be associated with model elements as non-graphic information.							x	x	x
Target LOD											
Current LOD											
Service Life		Captures the period of time that an artifact will last.									
► ... B – Ext. Doors B – Cladding B – Roof B – Ext. Wall C – Int. Windows C – Int. Doors C – Partitions C – Raised Floor C – Susp. Clg. D20 - Plumbing 22											

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3. What are the requests of the control office

Model	Type of element	sketch	detailed design	Final design	commissioning	Specific data for the project
MEP Plumbing Fire safety Kitchen ...	Main networks [Pipes / Ducts/ [Gaines/ Sprinklers]		X	X	X	location, sizing, modelling and identification typology Basic quantity [Diameter and length] Materials
	Singular points Bends, fittings...			X	X	location, sizing, modelling and identification typology Base quantity [Diameter] Materials
	Main equipment Yc modeling lift systems]			X	X	location, sizing, modelling and identification Overall dimensions (width, height, length)

3. What are the requests of the control office

RISK/HAZARD OF DATA RELATED PROPERTY MANAGEMENT

In order to enable integrated risk and hazard management, via the digital BIM model made available to the technical controller and the client, SOCOTEC will rely on the [Pset] Pset_Risk property set which allows the following properties to be associated with the elements of the work:

- Nature of risk [NatureOfRisk].
- Sub-category level 1 risk [SubNatureOfRisk1]
- Sub-category level 2 risk [SubNatureOfRisk2]
- Risk level [AssessmentOfRisk].
- Cause [RiskCause]
- RiskType [RiskType]
- Preventive Measures [PreventiveMeasures]
- Impact on other objects [AffectSurroundings]
- Risk Rating [RiskRating]
- Possible Consequences [RiskConsequence]
- Responsible [RiskOwner]

These properties can be filled in and used internally at SOCOTEC to allow the monitoring of hazards during the different phases of the project.

4. What decisions does the architect make on this project

What are the architect's decisions in terms of ventilation?

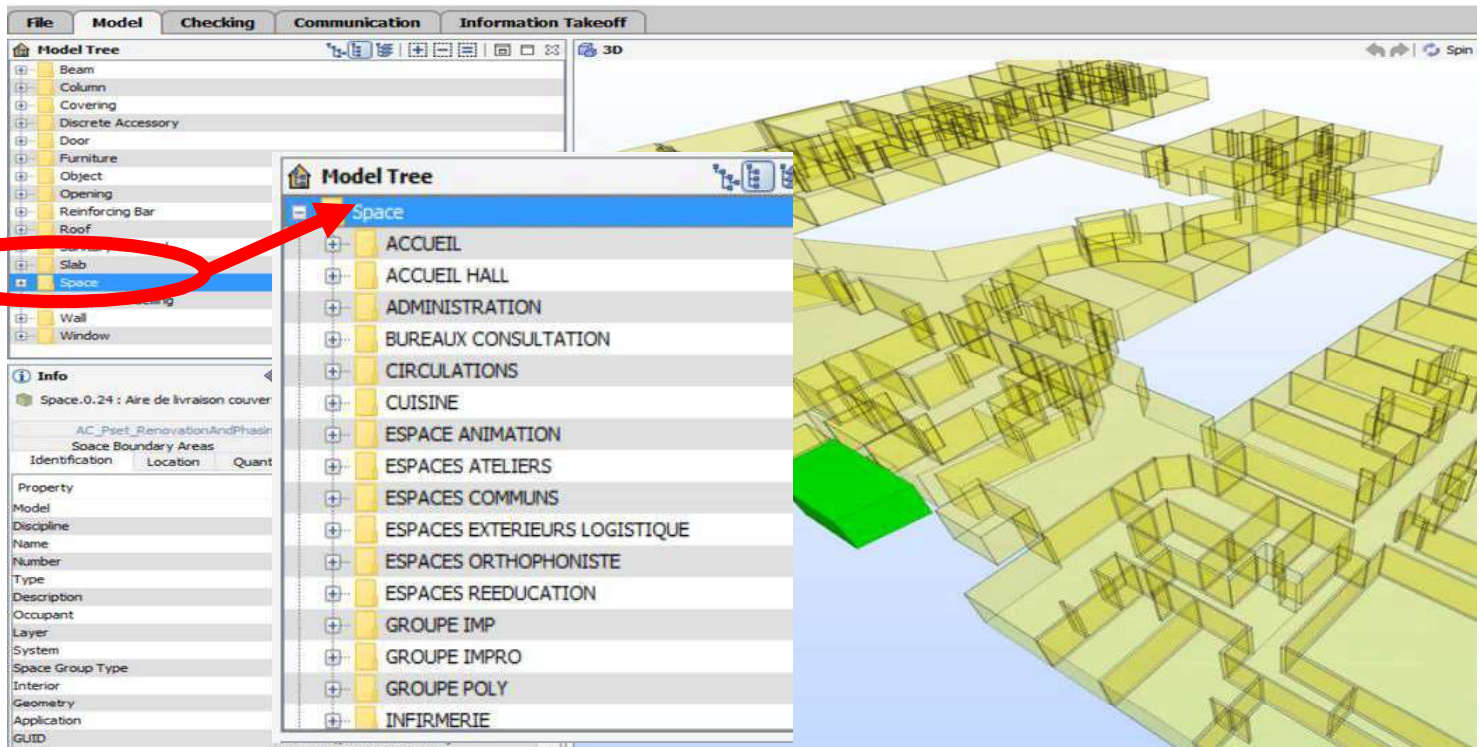
- decision on the typology of the ventilation system
- location of rooms/technical sheaths
- height of false ceilings
- zoning of the project

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4. What decisions does the architect make on this project

- location of rooms/technical sheaths

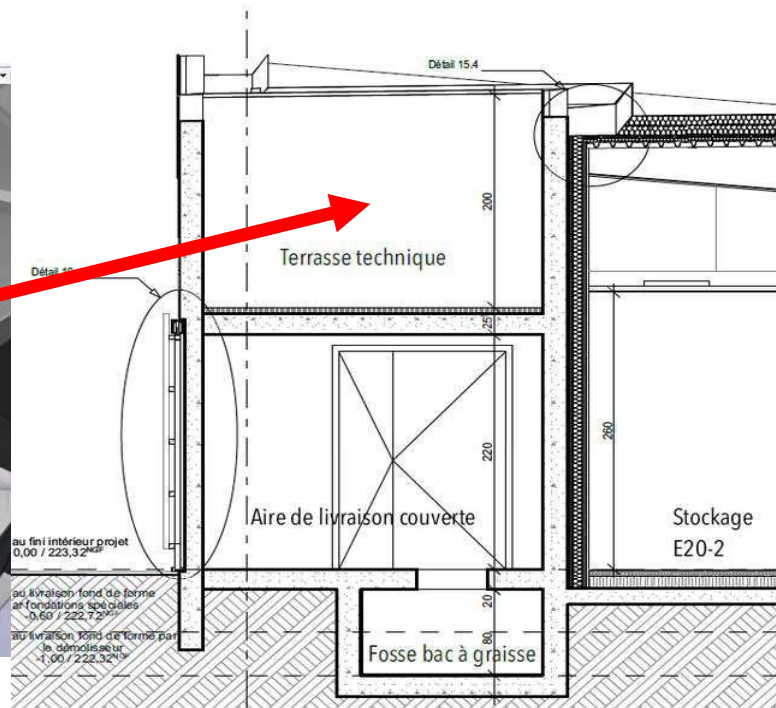
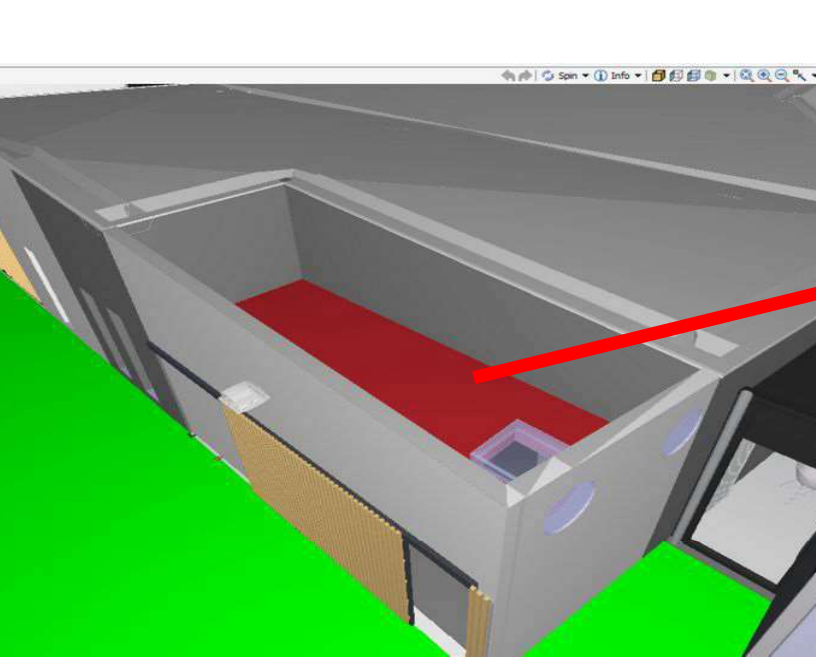


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

4. What decisions does the architect make on this project

- location of rooms/technical sheaths

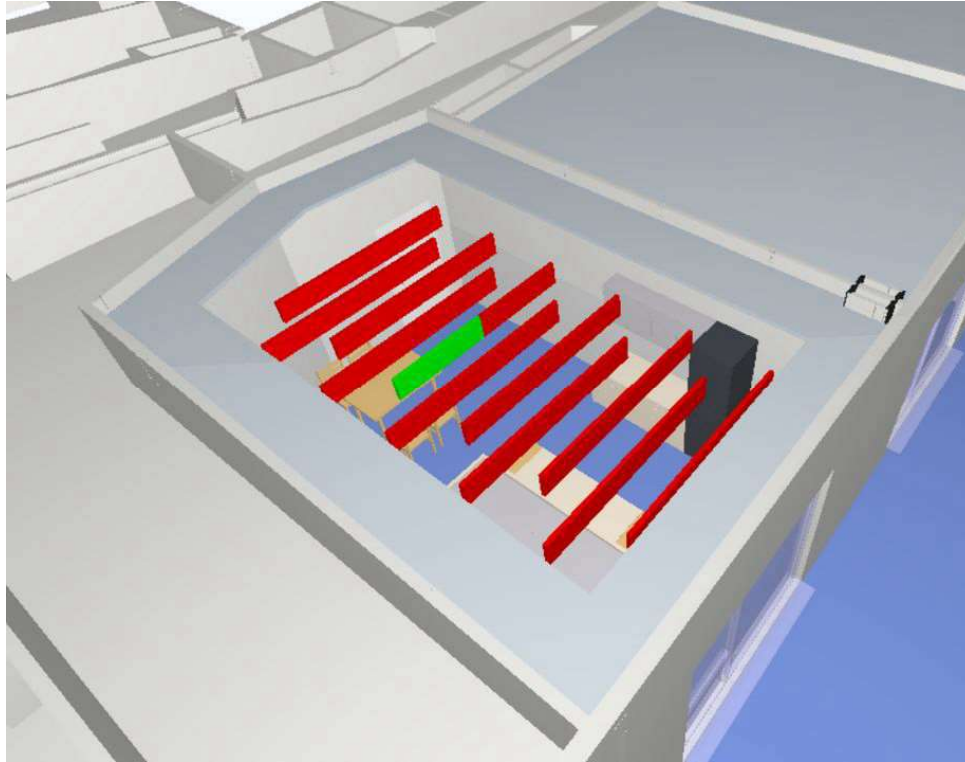
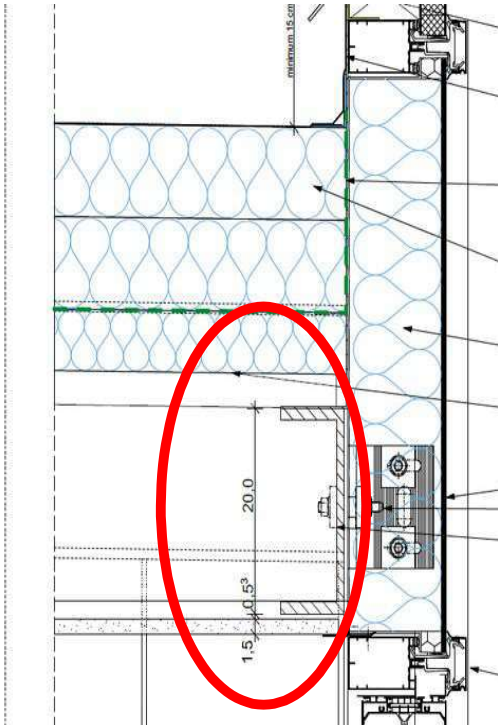


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

4. What decisions does the architect make on this project

- False ceilings

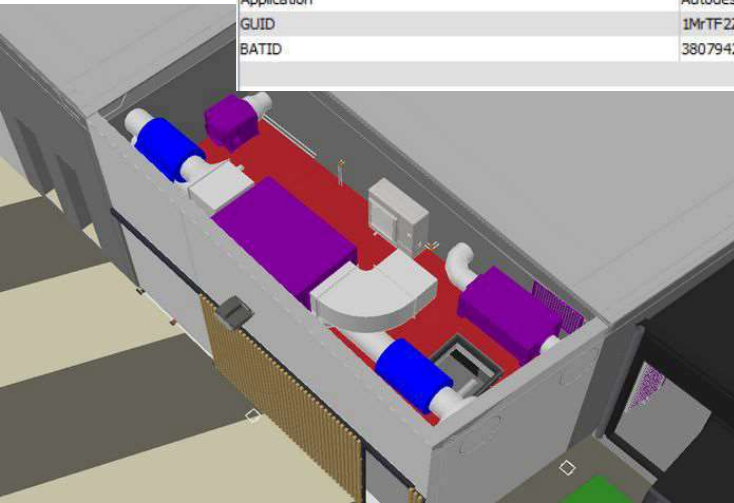
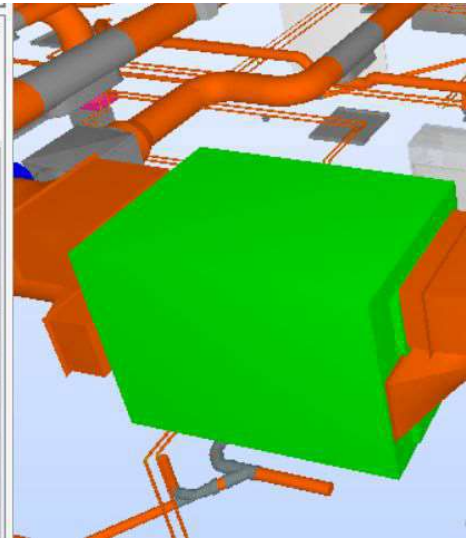


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

5. What does the MEP Study Office plan to do

Pset_BuildingElementProxyCommon			Pset_ManufacturerTypeInfo		
Identification	Location	Quantities	Relations	Classification	Hyperlinks
Property	Value				
Model	1475 IME Camille veyron DCE REVIT2016				
Discipline	Architectural				
Name	CTA Double Flux Raccord Rectangulaire:Standard:3807942				
Phase	DCE				
Type	Standard				
Description					
Material					
Layer	M-EQPM-____OTLN				
System					
Geometry	Boundary Representation				
Application	Autodesk Revit 2016 (FRA)				
GUID	1MrtF2ZcvF5RAcq7YQIRmf				
BATID	3807942				

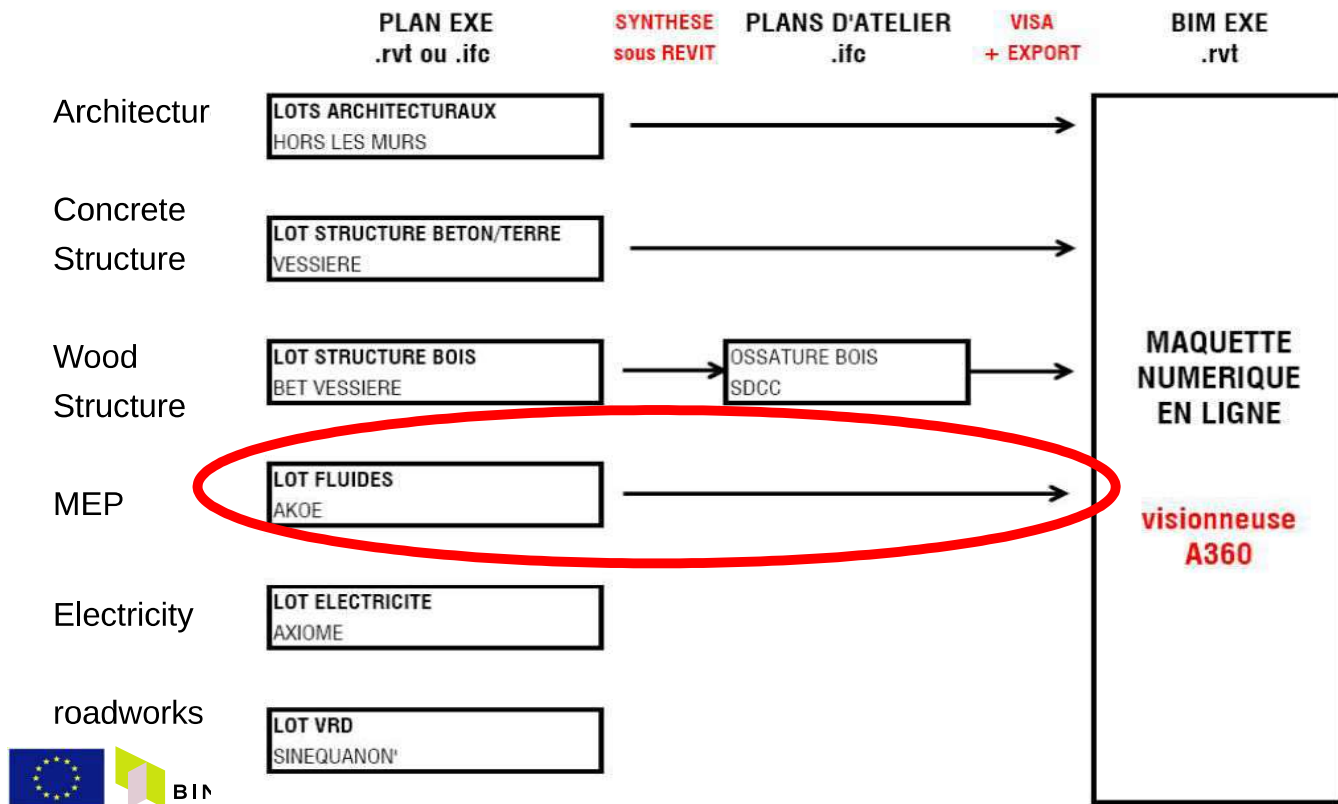


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

6. How the company must respond to the call for tenders on this project

- BIM BEP on the work site

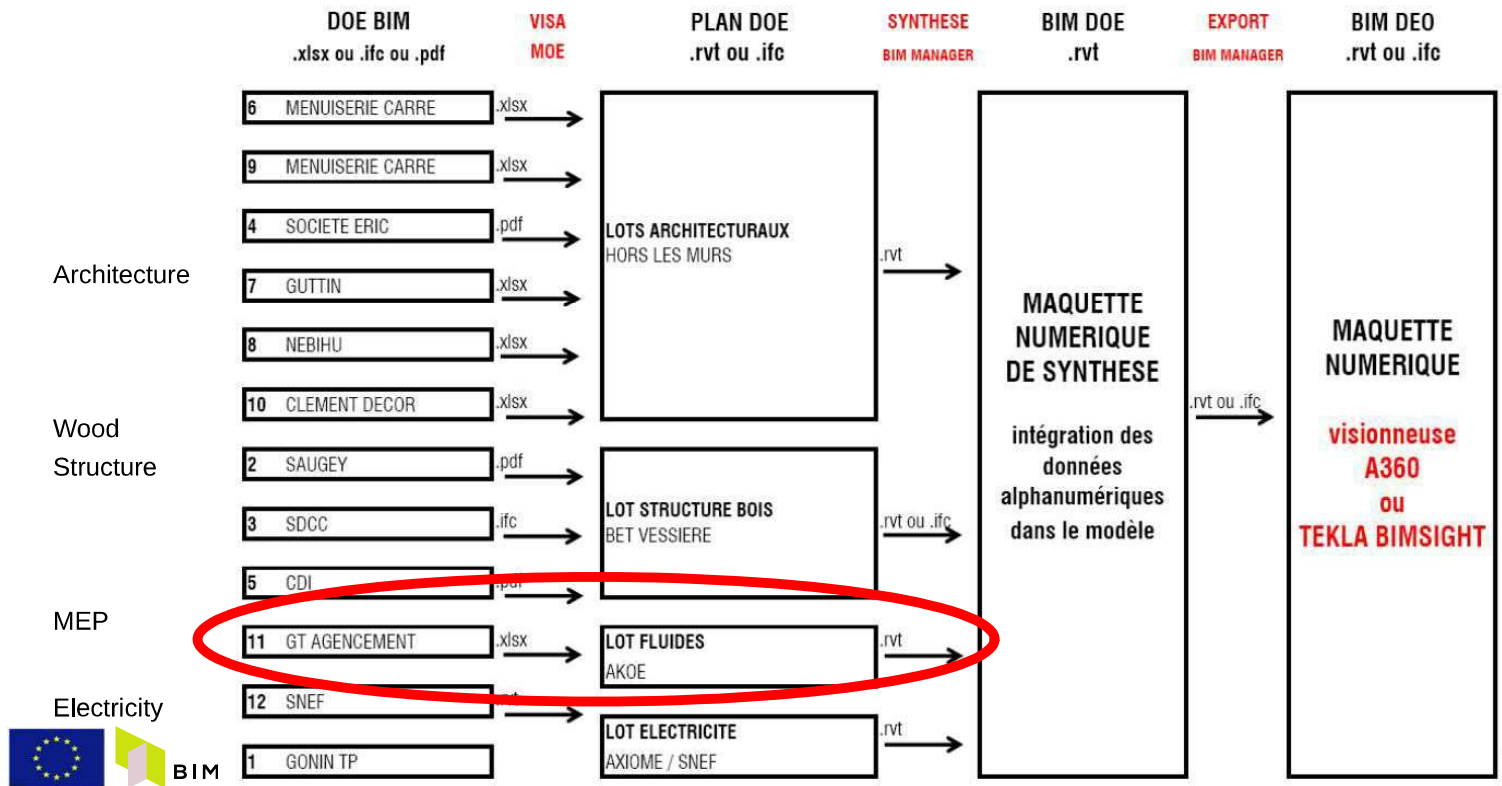


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

6. How the company must respond to the call for tenders on this project

- BIM BEP on the work site



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

7. What are the obligations of the company's design office?

(B) Object.0.277

Génie climatique	Phase de construction	Plomberie	Pset_BuildingElementProxyCommon
Identification	Location	Quantities	Relations
Property			Value
Code d'assemblage			
Description de l'assemblage			
Fabricant			ATLANTIC
Identifiant			2422H779
Modèle			DUOTECH 2700VGAI
Nom de code			
Nom du type			DUOTECH 2700VGAI
Numéro OmniClass			23.75.70.00
Titre OmniClass			HVAC Distribution Devices
URL			
Version			0-1.2012-03-01

Info

(B) Object.0.277

Phase de construction	Plomberie	Pset_BuildingElementProxyCommon	Pset_ManufacturerTypeInformation	Visibilité
Identification	Location	Quantities	Relations	Classification
Property				Value
Model				(B) IME-EXE-CVC-GILLET-MAQUETTE FLUIDE REVIT V4
Discipline				Ventilation
Name				CTA Double Flux Raccord Rectangulaire:DUOTECH 2700VGAI:3807942
Type				DUOTECH 2700VGAI
Description				
Functional Type				NOTDEFINED
System				M-EQPM-____OTLN
Geometry				Boundary Representation
Application				
GUID				1M7TF22cvFSRAcq7YQRmf
BATID				3807942

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Phases 8, 9 & 10 are dedicated to building companies

- How is the preparation of the site organized
- Organization on the building site
- Commissioning of the end of work **pas trouvé !!!**

VOIR SUITE DU DIAPORAMA ???

**JE SUPPOSE QU'IL S'AGISSAIT D'UN AUTRE PWT
QUI A ÉTÉ AJOUTÉ ICI ??**

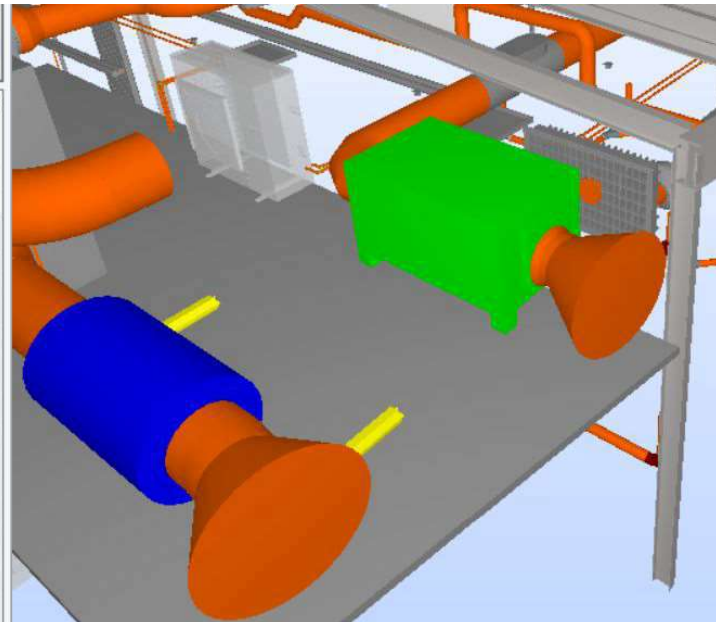
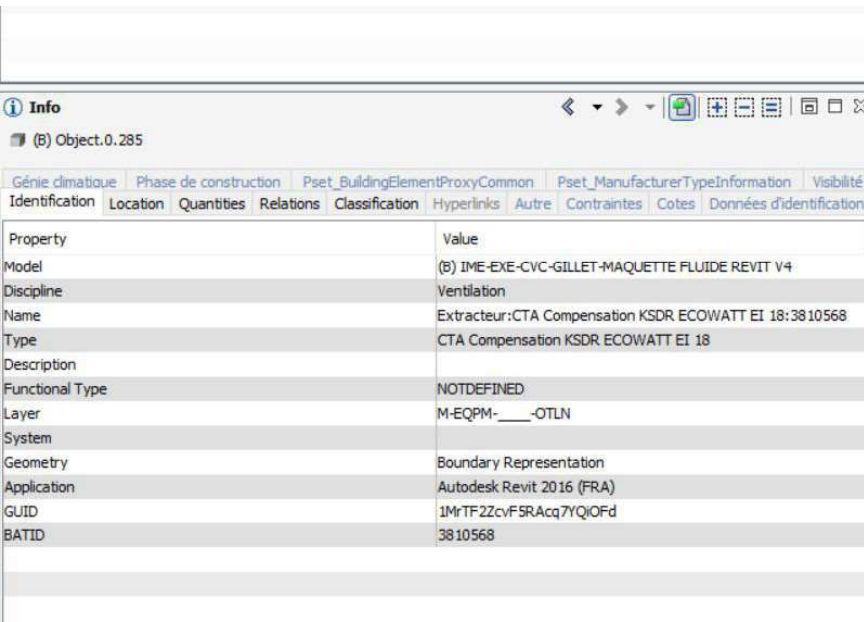
TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

8. Preparation of the worksite organisation

BIM actions to be carried out by the site team manager

- Ventilation system installation work



8. Preparation of the worksite organisation

BIM actions to be carried out by the site team manager

1. Identification of the "BIM" actors of the project

- BIM Manager of the client
- Bim Fluid BE coordinator
- Bim coordinator of the company's design office

2. Overall understanding of the project

- Visit of the architect's model (+ structure ?) for location of elements and objects
- use of a Viewer and all its tools

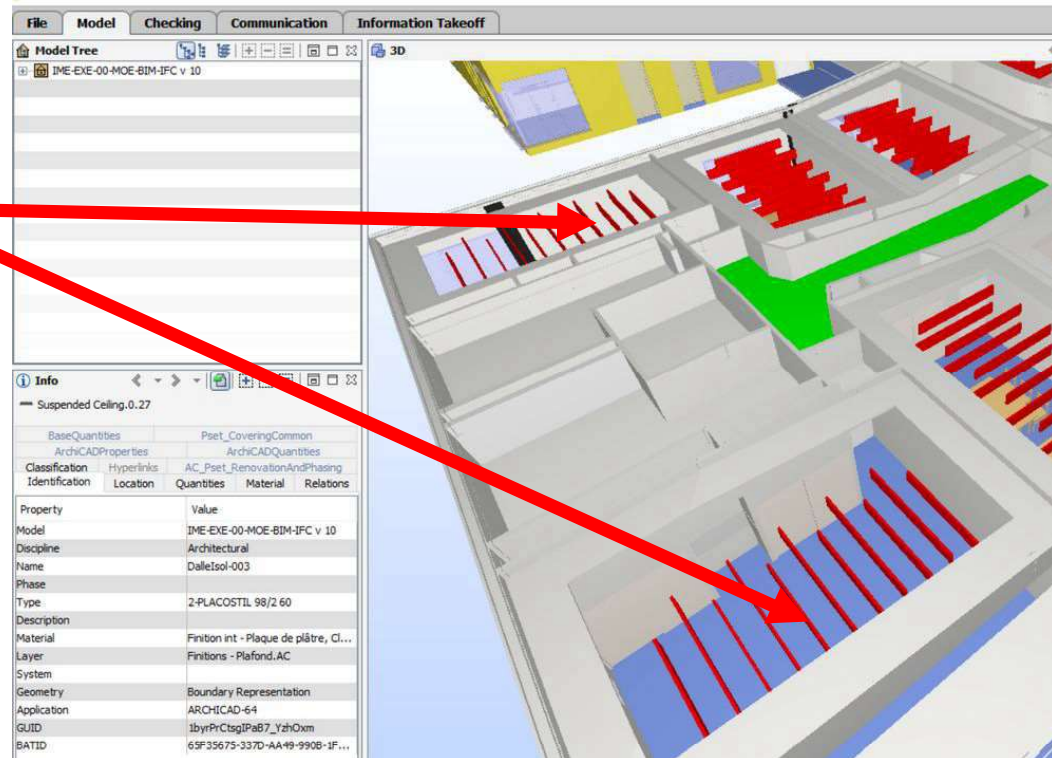
TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

8. Preparation of the worksite organisation

2. Overall understanding of the project models

- Visit of the archi model (+ structure ?) for location of
 - technical rooms
 - technical sheaths
 - false ceilings



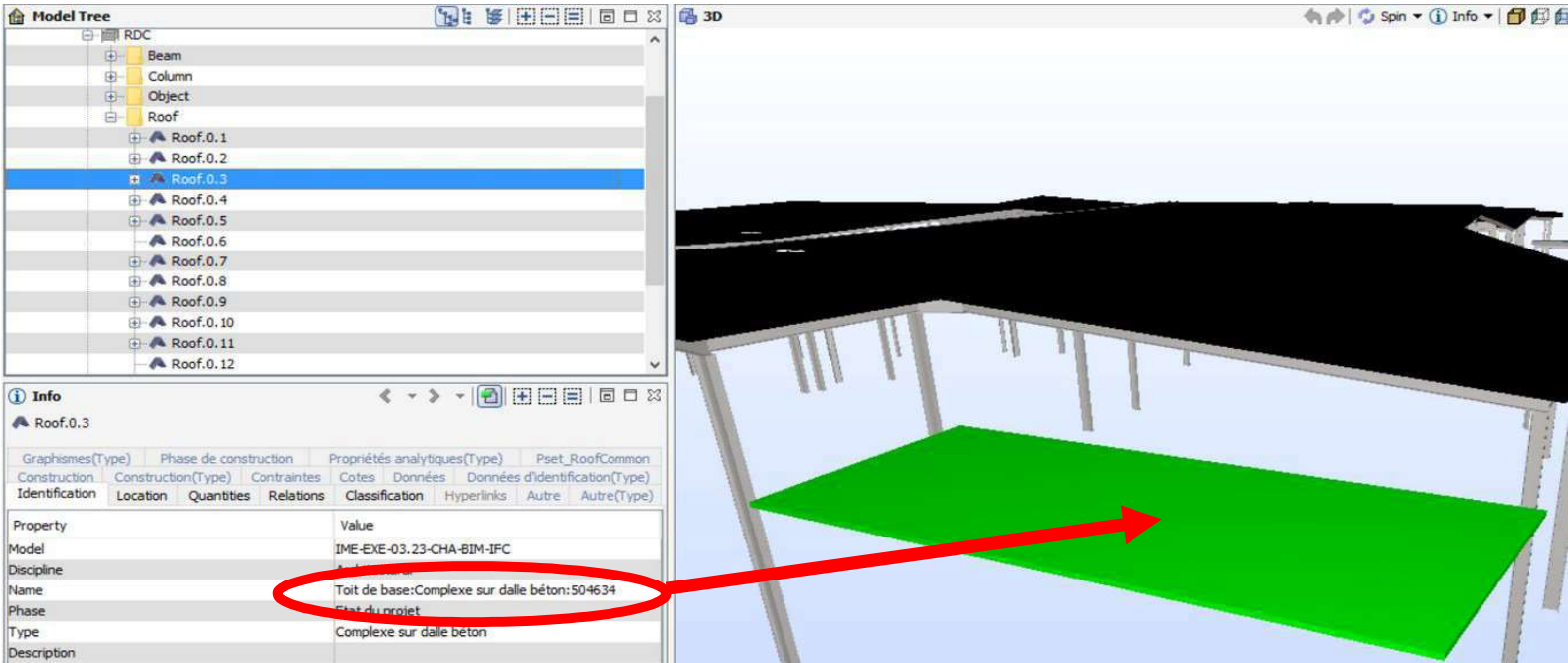
TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

8. Preparation of the worksite organisation

2. Overall understanding of the project models

- typology of the supports / elements to be cut through



BIMplement

TRAINING FOR COMPANIES

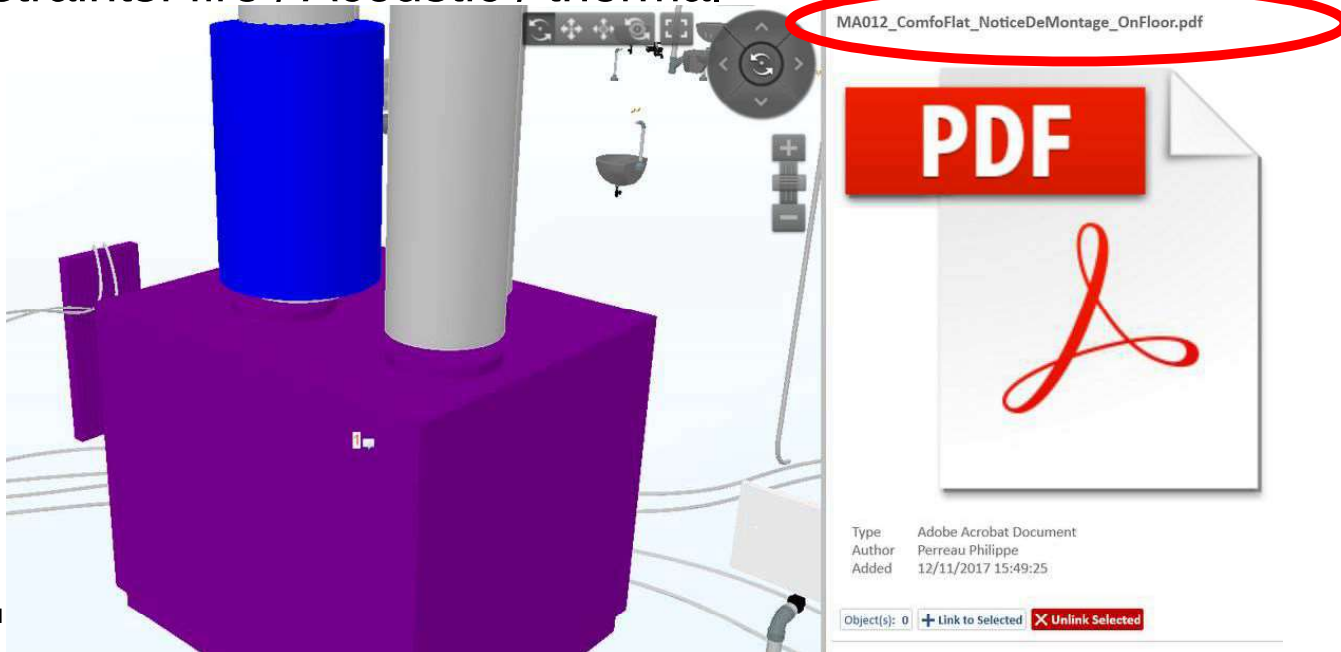
apply BIM models to ventilation & airtightness

8. Preparation of the worksite organisation

3. architect's and design offices models organized for the construction site

- details on airtightness to be respected

→ constraints: fire / Acoustic / thermal



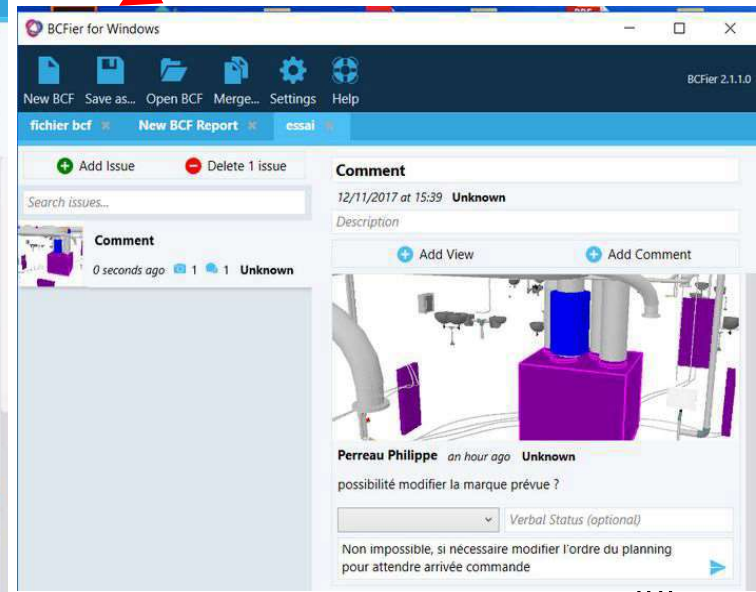
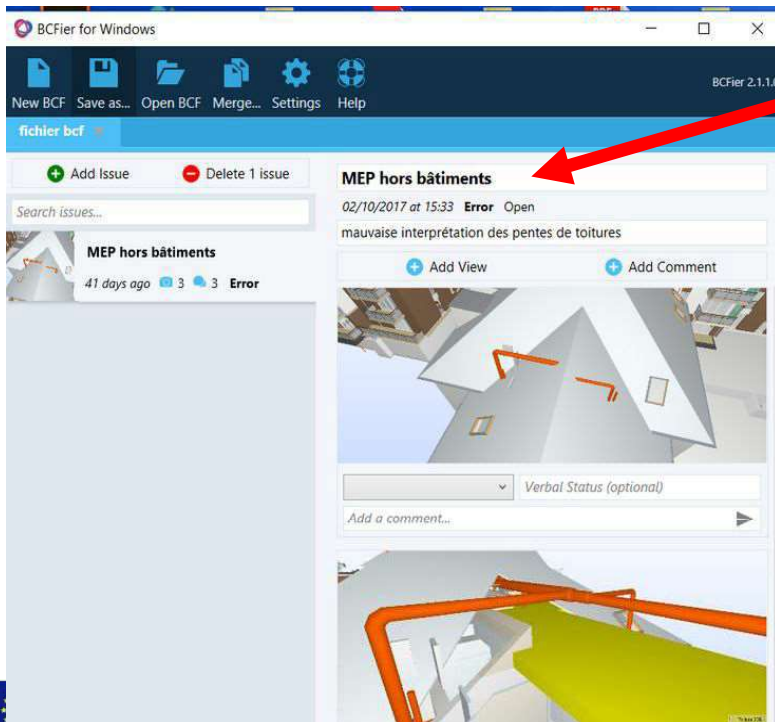
TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

8. Preparation of the worksite organisation

4. First opportunity to communicate to ask questions

- using collaborative platform / making a BCF file



8. Preparation of the worksite organisation

5. Handling of the trade model, ventilation

Study of the model:

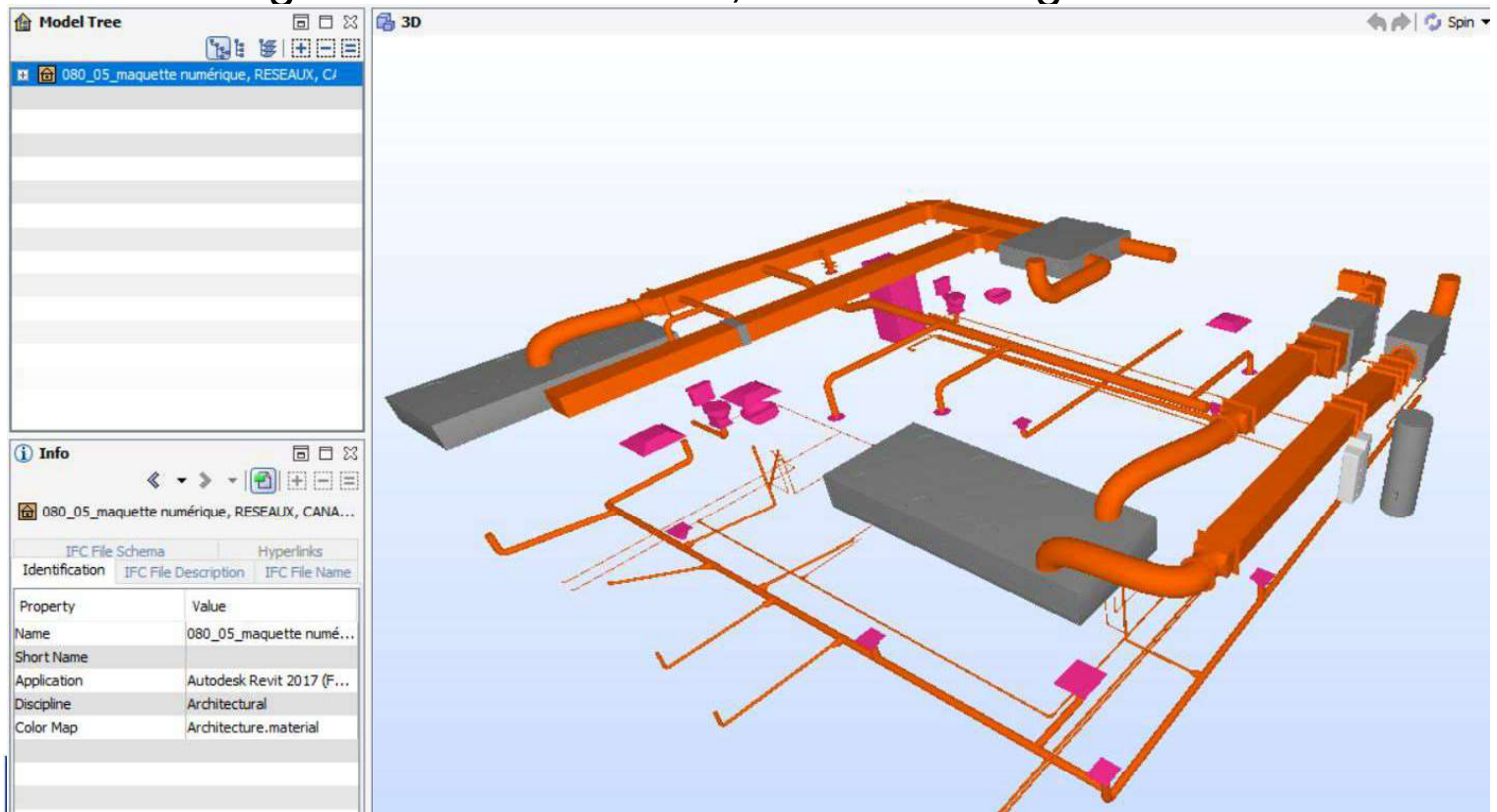
- global
- by objects
- by systems
- by elements

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

8. Preparation of the worksite organisation

5. Handling of the trade model, ventilation : global view

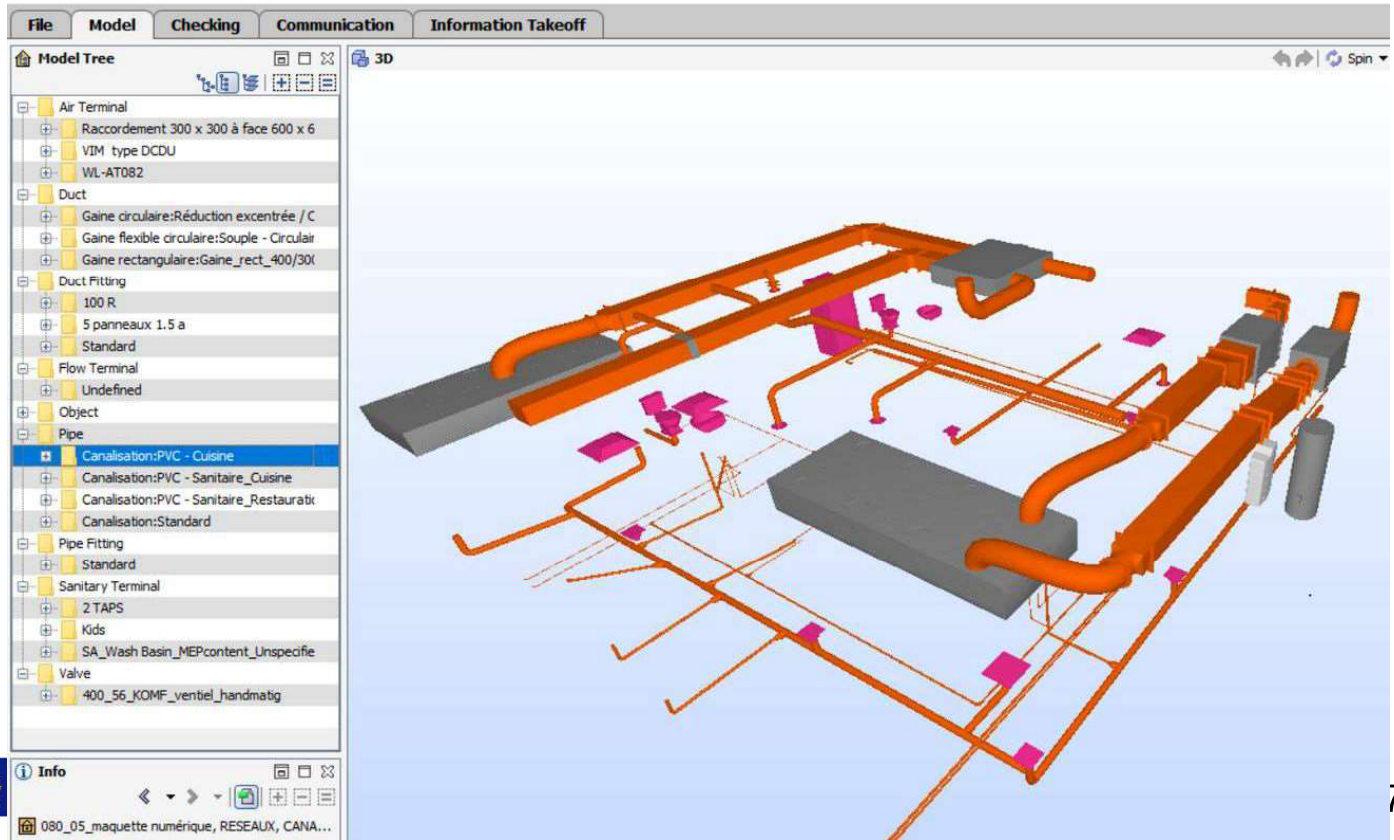


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

8. Preparation of the worksite organisation

5. Handling of the trade model, ventilation : view per object

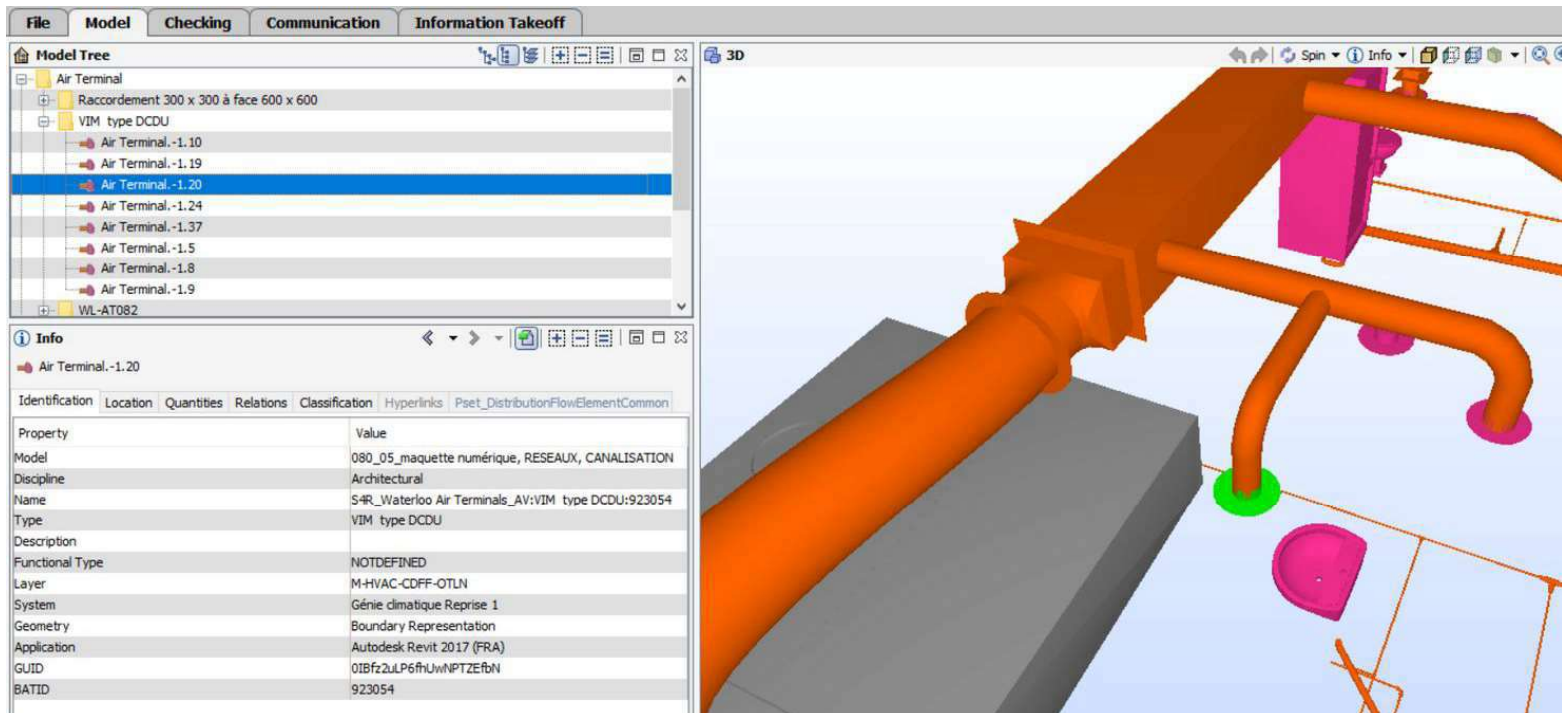


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

8. Preparation of the worksite organisation

5. Handling of the trade model, ventilation : view per element



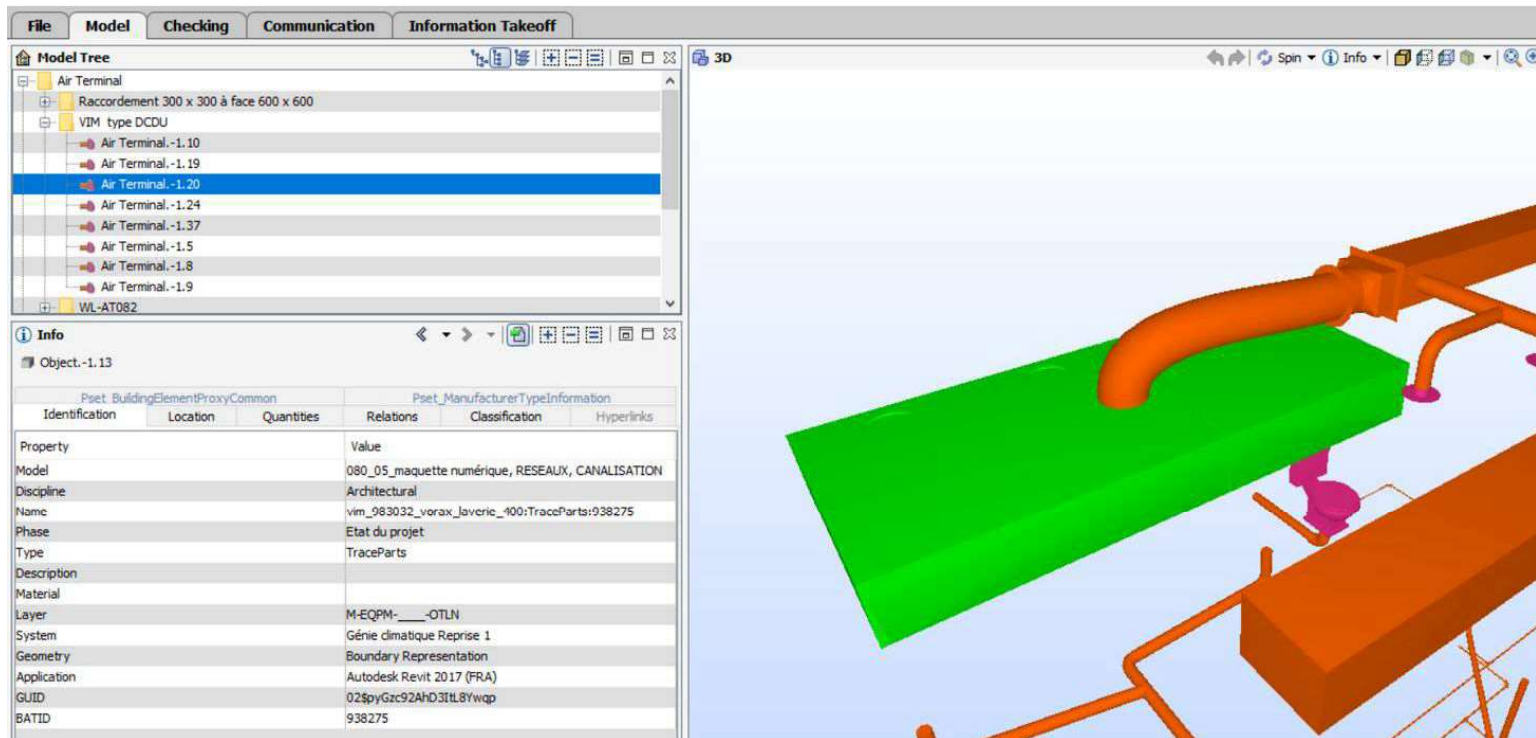
BIMplement

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

8. Preparation of the worksite organisation

5. Handling of the trade model, ventilation : view per element

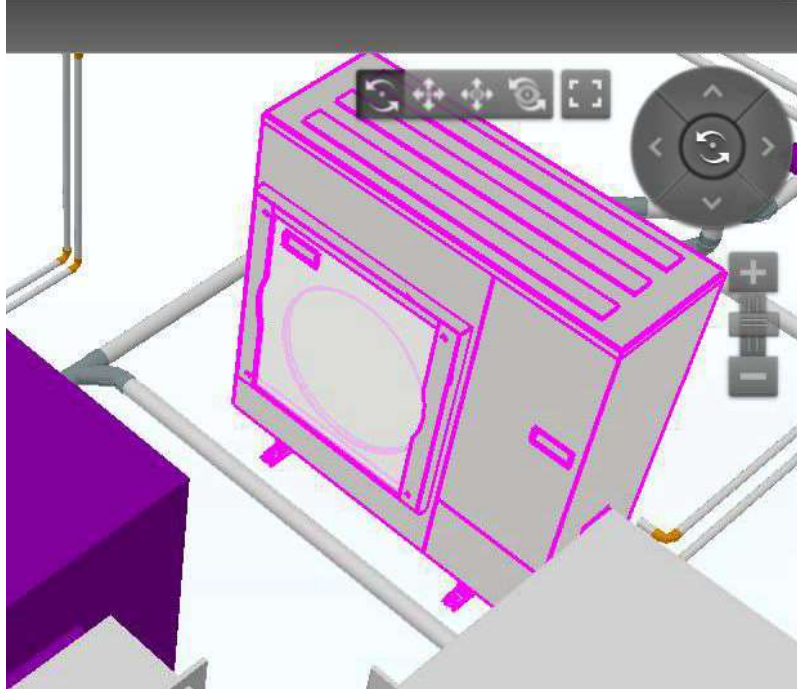


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

8. Preparation of the worksite organisation

5. Handling of the trade model, ventilation : communicate with the company or project manager MEP design office



Add Note

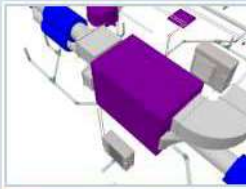
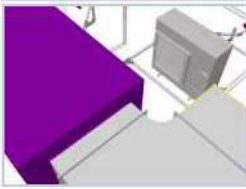
Comment No tag

☐ Public note ☒ Private note

Perreau Philippe less than a minute ago

est il possible de décaler l'emplacement de cet équipement ?

Object(s): 1 [+ Link to Selected](#) [X Unlink Selected](#)

[Add Current View](#)

[Save](#) [Cancel](#)

TRAINING FOR COMPANIES

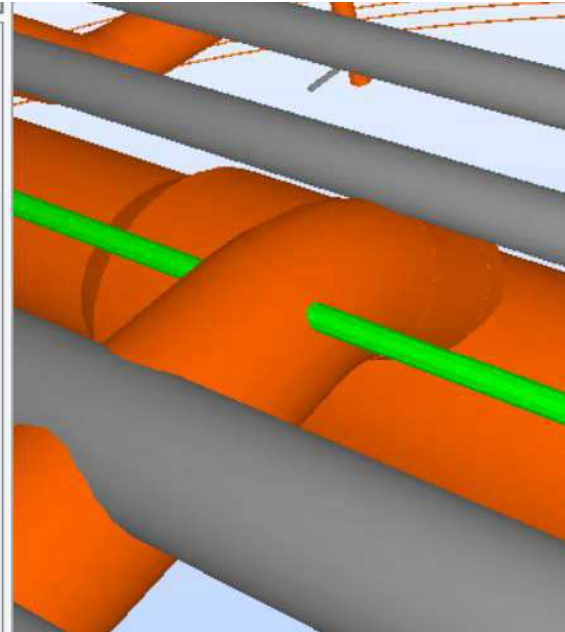
apply BIM models to ventilation & airtightness

8. Preparation of the worksite organisation

6. Simultaneous visualization of all models :

-fastener search / connection with other batches / blackout

Info	
(B) Pipe.3.937	
Isolation	Phase de construction
Pset_DistributionFlowElementCommon	
Données d'identification	
Génie climatique	
Génie climatique - Ecoulement	
Identification	Location
Issues	Quantities
Profile	Relations
Classification	Hyperlinks
Autre	Contraintes
Cotes	
Property	Value
Model	(B) IME-EXE-CVC-GILLET-MAQUETTE FLUIDE REVIT V4
Discipline	Ventilation
Name	Canalisation:Cuivre avec coude cintré main:4068759
Type	Canalisation:Cuivre avec coude cintré main
Description	
Functional Type	NOTDEFINED
Layer	P-PIPE-____OTLN
System	BOU 1
Geometry	Extrusion
Application	Autodesk Revit 2016 (FRA)
GUID	0ge5zcuN5Cq8w6_slkZNU
BATID	4068759



BIMplement

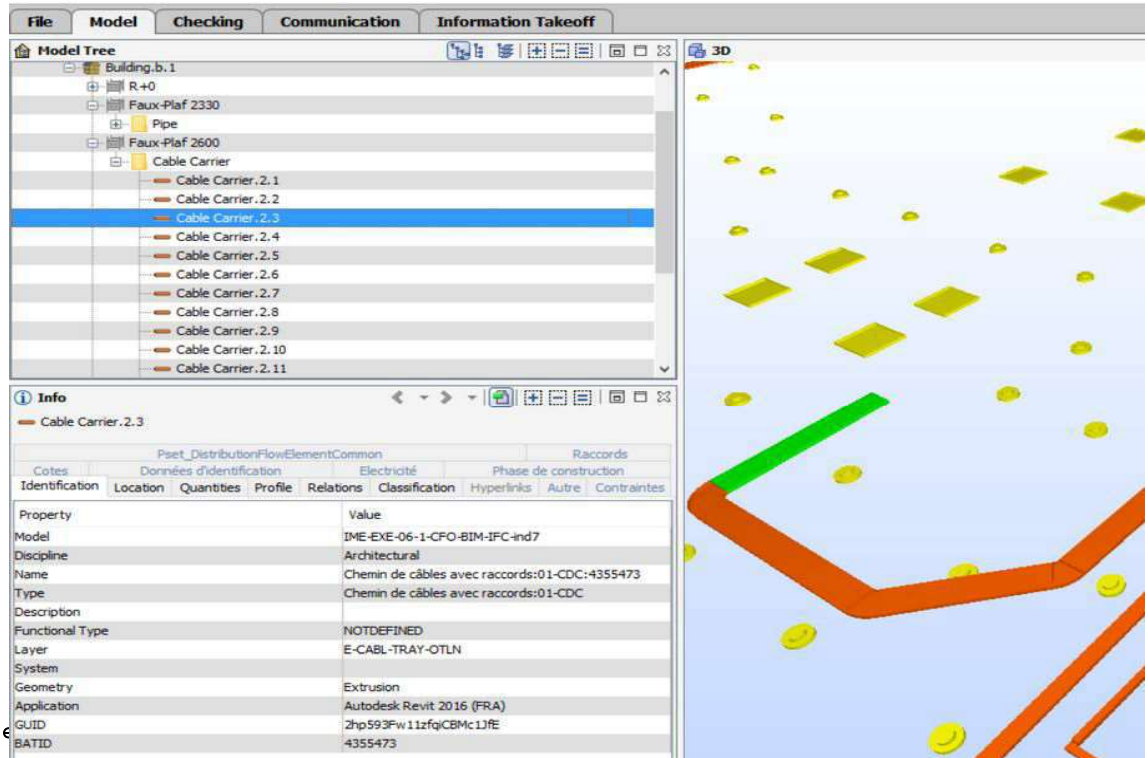
TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

8. Preparation of the worksite organisation

6. Simultaneous visualization of all models :

- typology of models : plumbing / heating / VRD / Electricity



BIMpleme

8. Preparation of the worksite organisation

7. Kick-off meeting of the construction site

→ preparation of questions

Issues to be analysed with the other batches

- study of blockout
- model modification
- study of the 4D planning
- management of the building site organization (storage ...)

9. Organization on the building site

Site preparation

- Excel export for hardware order/verification
- preparation of models for operator teams
- study of blockout
- model modification

9. Organization on the building site

Site preparation : Excel export for hardware order/verification

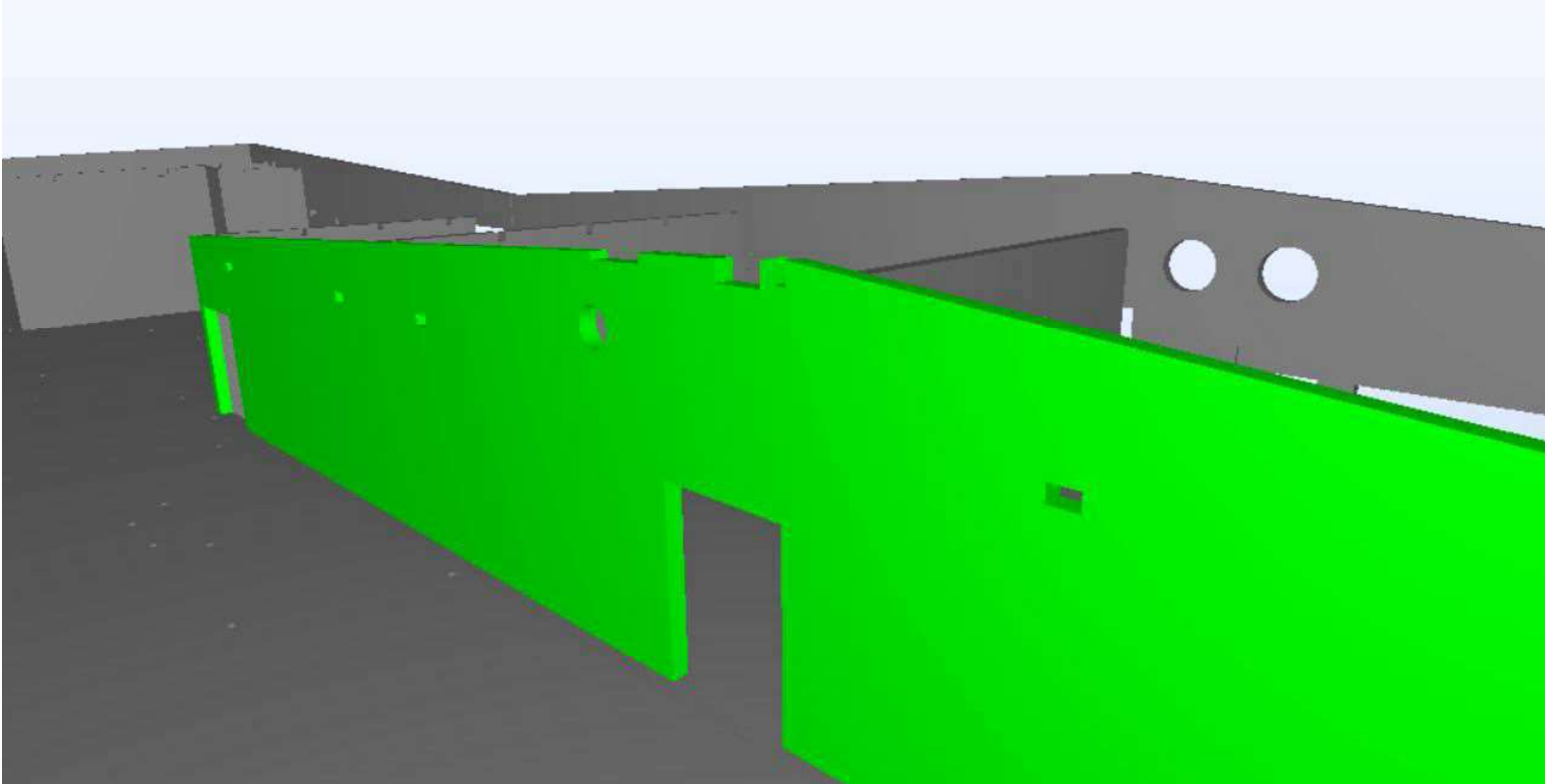
	A	B	C	D	E
1	Flow Terminal				
2					
3	Name	Tag	Object Class	Layer Assignment Name	GlobalId
4	Bouche de soufflage:Raccordement 300 x 300 à face 600 x 600:712422	712422	Flow terminal	M-HVAC-CDFF-OTLN	0x_v4ps6T5DfK1uBtiacAx
5	Bouche de soufflage:Raccordement 300 x 300 à face 600 x 600:712429	712429	Flow terminal	M-HVAC-CDFF-OTLN	0x_v4ps6T5DfK1uBtiacAm
6	S4R_Waterloo Air Terminals_AV:WL-AT082:741042	741042	Flow terminal	M-HVAC-CDFF-OTLN	0erRWWIV55Gv\$ij9_QvClo
7	S4R_Waterloo Air Terminals_AV:VIM type DCDCU:904163	904163	Flow terminal	M-HVAC-CDFF-OTLN	1L2GKDK650WQdgSr0m1a3n
8	S4R_Waterloo Air Terminals_AV:VIM type DCDCU:922162	922162	Flow terminal	M-HVAC-CDFF-OTLN	007MPKM7XAoxzonZKqy2Dk
9	S4R_Waterloo Air Terminals_AV:VIM type DCDCU:922975	922975	Flow terminal	M-HVAC-CDFF-OTLN	0IBfz2uLP6fhUwNPTZEfcc
10	S4R_Waterloo Air Terminals_AV:VIM type DCDCU:923054	923054	Flow terminal	M-HVAC-CDFF-OTLN	0IBfz2uLP6fhUwNPTZEfbN
11	S4R_Waterloo Air Terminals_AV:VIM type DCDCU:923746	923746	Flow terminal	M-HVAC-CDFF-OTLN	2OfakJeGP0t8w8ezdQKyBv
12	S4R_Waterloo Air Terminals_AV:VIM type DCDCU:923822	923822	Flow terminal	M-HVAC-CDFF-OTLN	2OfakJeGP0t8w8ezdQKy8r
13	S4R_Waterloo Air Terminals_AV:VIM type DCDCU:923869	923869	Flow terminal	M-HVAC-CDFF-OTLN	2OfakJeGP0t8w8ezdQKy96
14	S4R_Waterloo Air Terminals_AV:VIM type DCDCU:924014	924014	Flow terminal	M-HVAC-CDFF-OTLN	2OfakJeGP0t8w8ezdQKyFr
15	Bouche de soufflage:Raccordement 300 x 300 à face 600 x 600:974830	974830	Flow terminal	M-HVAC-CDFF-OTLN	0ydt_mDEf97eFc4LgHQhql
16					

TRAINING FOR COMPANIES

*apply BIM models to ventilation &
airtightness*

9. Organization on the building site

Site preparation : study of blackout



9. Organization on the building site

Kick-off meeting of the ventilation implementation

- Presentations of the MEP models to operator teams
- Exchange for planning and assembly order management
 - safety anticipation
- Organization of communication
- Management of self-checking quality sheets

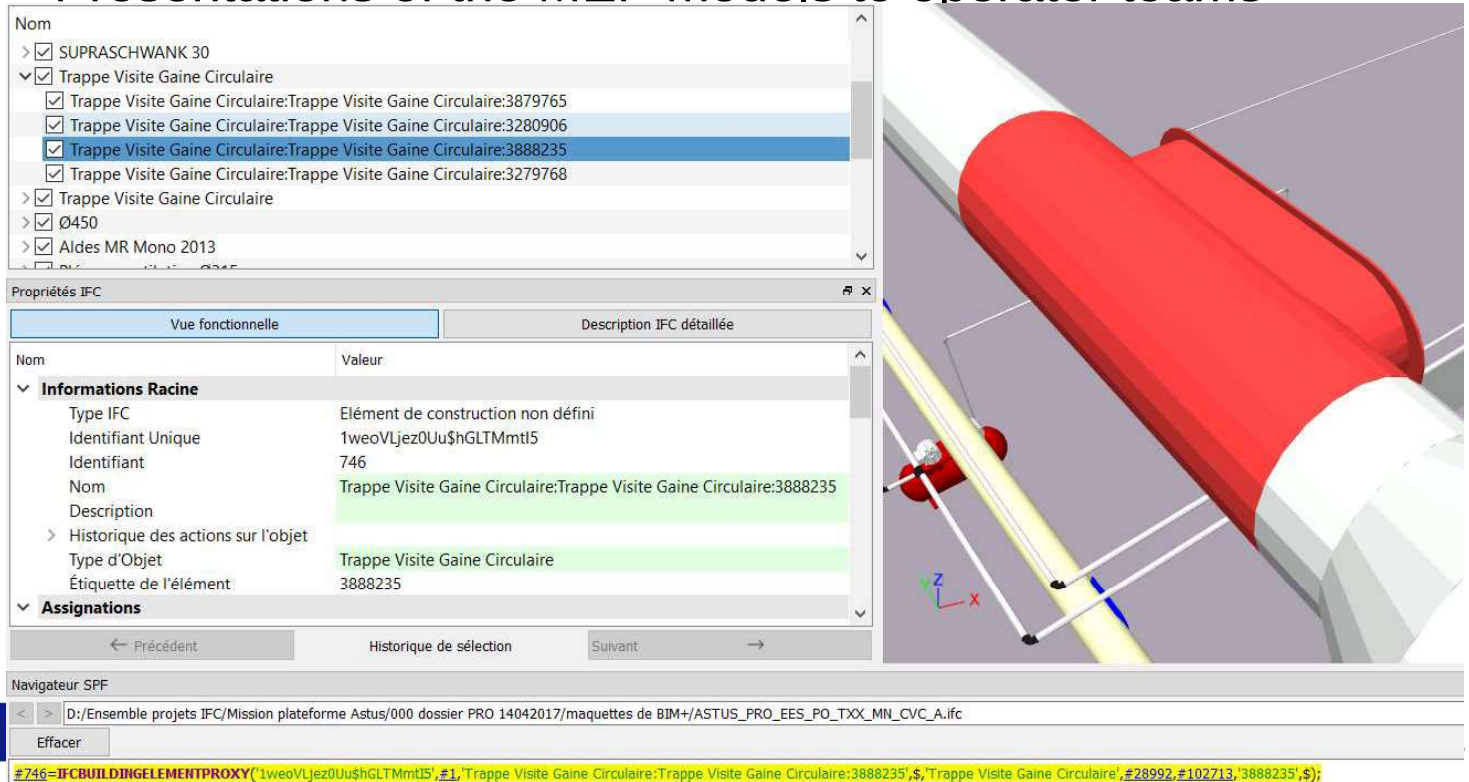
TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

9. Organization on the building site

Kick-off meeting of the ventilation implementation

-Presentations of the MEP models to operator teams



The screenshot displays a BIM software interface with a list of components on the left and a 3D model of a red cylindrical duct on the right. The list includes:

- Nom
 - > ☒ SUPRASCHWANK 30
 - > ☒ Trappe Visite Gaine Circulaire
 - ☒ Trappe Visite Gaine Circulaire:Trappe Visite Gaine Circulaire:3879765
 - ☒ Trappe Visite Gaine Circulaire:Trappe Visite Gaine Circulaire:3280906
 - ☒ Trappe Visite Gaine Circulaire:Trappe Visite Gaine Circulaire:3888235
 - ☒ Trappe Visite Gaine Circulaire:Trappe Visite Gaine Circulaire:3279768
 - > ☒ Trappe Visite Gaine Circulaire
 - > ☒ Ø450
 - > ☒ Aldes MR Mono 2013

The 3D model shows a red cylindrical duct with a white end cap, connected to a yellow pipe. A coordinate system (X, Y, Z) is visible at the bottom left of the model.

Propriétés IFC

Vue fonctionnelle | Description IFC détaillée

Nom	Valeur
Informations Racine	
Type IFC	Elément de construction non défini
Identifiant Unique	1weoVLjez0Uu\$hGLTMmtI5
Identifiant	746
Nom	Trappe Visite Gaine Circulaire:Trappe Visite Gaine Circulaire:3888235
Description	
> Historique des actions sur l'objet	
Type d'Objet	Trappe Visite Gaine Circulaire
Étiquette de l'élément	3888235
Assignations	

Précédent | Historique de sélection | Suivant

Navigateur SPF

< > D:/Ensemble projets IFC/Mission plateforme Astus/000 dossier PRO 14042017/maquettes de BIM+/ASTUS_PRO_EES_PO_TXX_MN_CVC_A.ifc

Effacer

#746=IFCBUILDINGELEMENTPROXY('1weoVLjez0Uu\$hGLTMmtI5',#1,'Trappe Visite Gaine Circulaire:Trappe Visite Gaine Circulaire:3888235',\$,'Trappe Visite Gaine Circulaire',#28992,#102713,'3888235',\$);

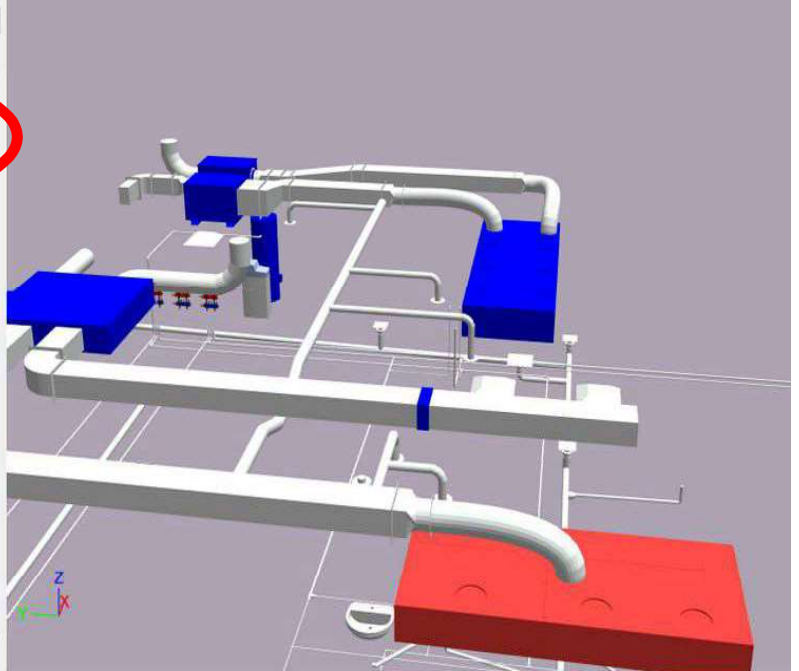
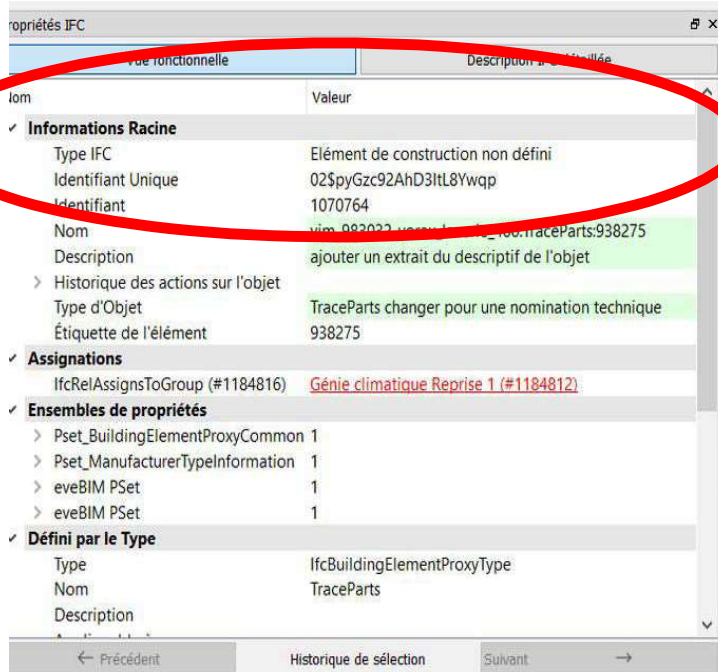
TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

9. Organization on the building site

Kick-off meeting of the ventilation implementation

-Presentations of the MEP models to operator teams

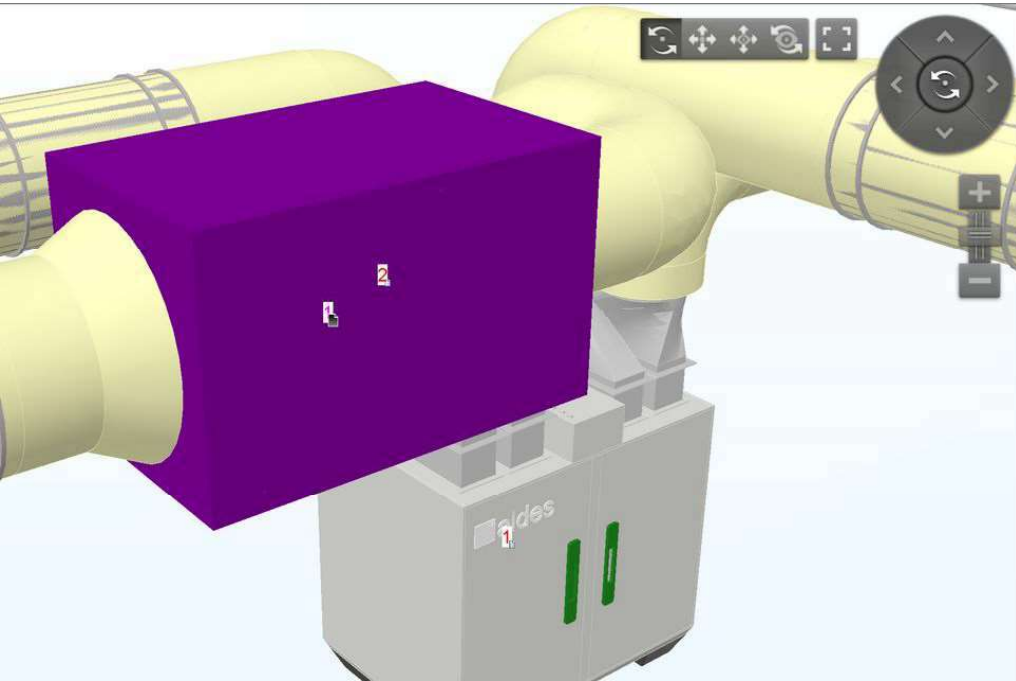


**TRAINING FOR
COMPANIES**

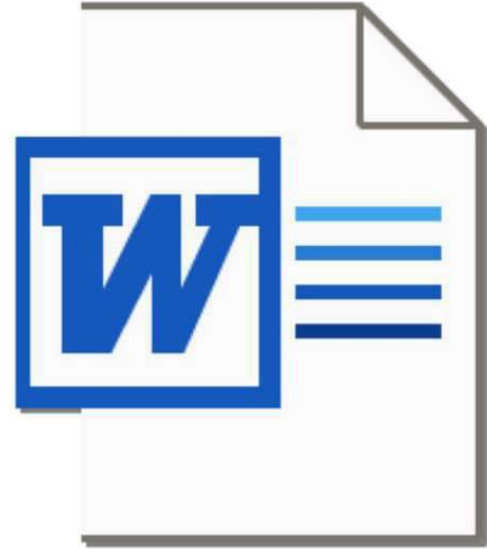
*apply BIM models to ventilation &
airtightness*

10. Commissioning of the end of work

Control quality sheet, linked to the model, and to be filled on site



analyse qualité.doc



Part 3

Understanding and analysing a MEP model

Understanding the MEP model in its native format (here REVIT-MEP)

Analysis of the original MEP model

- What are the representations of the objects?
- What information?
- What information is missing? Why is it missing ?
- What kind of use of industrial objects?
- What "IFC" export anticipation can be visualized?
- What skills to acquire for :
 - Modelling
 - Data integration

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model in its native format (here REVIT-MEP)

Analysis of the original MEP model

Modifier | Equipement de génie climatique

Propriétés

ALDES - Everest XV
XV 1200

Equipement de génie climatique (1)

Contraintes

Niveau	Plan Niveau NA-TCE
Hôte	Niveau : Plan Niveau NA-TCE
Décalage	0.0

Electricité - Charges

Panneau	
Numéro de circuit	

Génie climatique

Classification du système	Extraction d'air,Soufflage,Reprise,Souff...
Nom du système	EXT 1,AN 1,REP 2,SOUF 2

Données d'identification

Paragraphe CCTP	6.1.2. Centrale de traitement d'air (CTA)
Description équipement	CTA double flux type EVEREST XV1200...
Image	
Commentaires	CTA double flux type EVEREST XV1200...
Identifiant	357
Classification.Element	
Sous-projet	13 - CVC
Modifié par	

Phase de construction

Phase de création	Nouvelle construction
Phase de démolition	Aucun(e)

Arborescence du projet - ASTUS_PRO_...

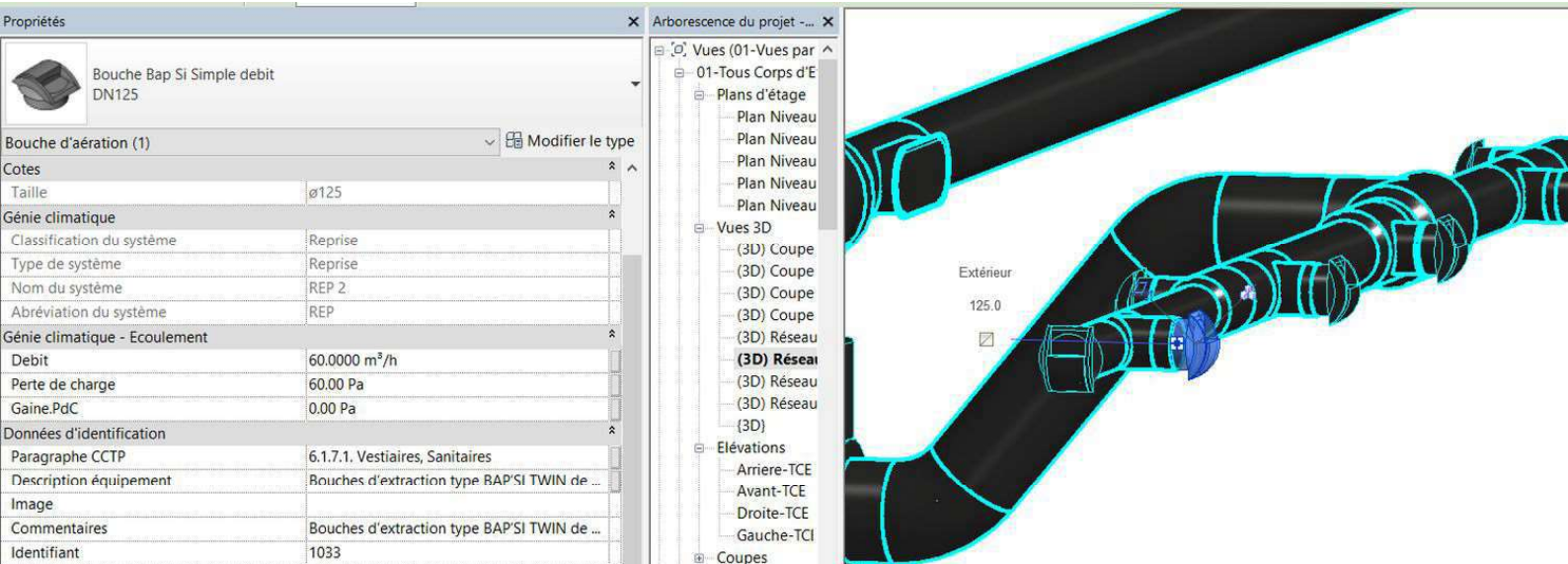
- Vues (01-Vues par lots techniqu...
 - 01-Tous Corps d'Etat
 - Plans d'étage
 - Plan Niveau 0-TCE
 - Plan Niveau 1-TCE
 - Plan Niveau 2-TCE
 - Plan Niveau NA-TCE
 - Plan Niveau T-TCE
 - Vues 3D
 - (3D) Coupe Galerie
 - (3D) Coupe Halle
 - (3D) Coupe N0
 - (3D) Coupe N1
 - (3D) Réseaux
 - (3D) Réseaux CVC**
 - (3D) Réseaux ELEC
 - (3D) Réseaux PB
 - (3D)
 - Elévations
 - Arrière-TCE
 - Avant-TCE
 - Droite-TCE
 - Gauche-TCE
 - Coupes
 - 02-Genie Climatique
 - Plans d'étage
 - Plan Niveau 0-CVC
 - Plan Niveau 1-CVC
 - Plan Niveau 2-CVC
 - Plan Niveau NA-CVC
 - 03-Plomberie Sanitaire
 - Plans d'étage
 - Plan Niveau 0-PB

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model in its native format (here REVIT-MEP)

Analysis of the original MEP model



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model in its native format (here REVIT-MEP)

Analysis of the original MEP model

Propriétés du type		
Famille:	Bouche Bap Si Simple debit	Charger...
Type:	DN125	Dupliquer...
		Renommer...
Paramètres du type		
Paramètre	Valeur	
Contraintes		
Elévation par défaut	1219.2	
Matériaux et finitions		
Matériau bouche	Plastique, blanc opaque	
Segments et raccords		
DN Raccord	125.0	
Cotes		
largeur saillie	114.0	
hauteur saillie	130.0	
RN Raccord	62.5	
Hauteur de la bouche	162.0	
Epaisseur	0.0	
Coté de la bouche	154.0	
Génie climatique - Ecoulement		
Flux min.	15.0000 m³/h	
Flux max.	60.0000 m³/h	

Understanding the MEP model in its native format (here REVIT-MEP)

Analysis of the original MEP model

Données d'identification	
Modèle	Bouche BAP Si Simple Debit
Fabricant	Aldes
Image du type	
Note d'identification	
Commentaires du type	
Description	
Coût	
URL	
Code d'assemblage	
Description de l'assemblage	
Marque de type	
CLASSIFICATION	
Classification.Famille	
Sous-projet	Famille : Bouche d'aération :
Modifié par	
Numéro OmniClass	23.75.70.21.31
Titre OmniClass	Exhaust Terminals
Nom de code	
Paramètres IFC	
IfcExportAs	IfcAirTerminal
IfcExportType	IfcAirTerminalType

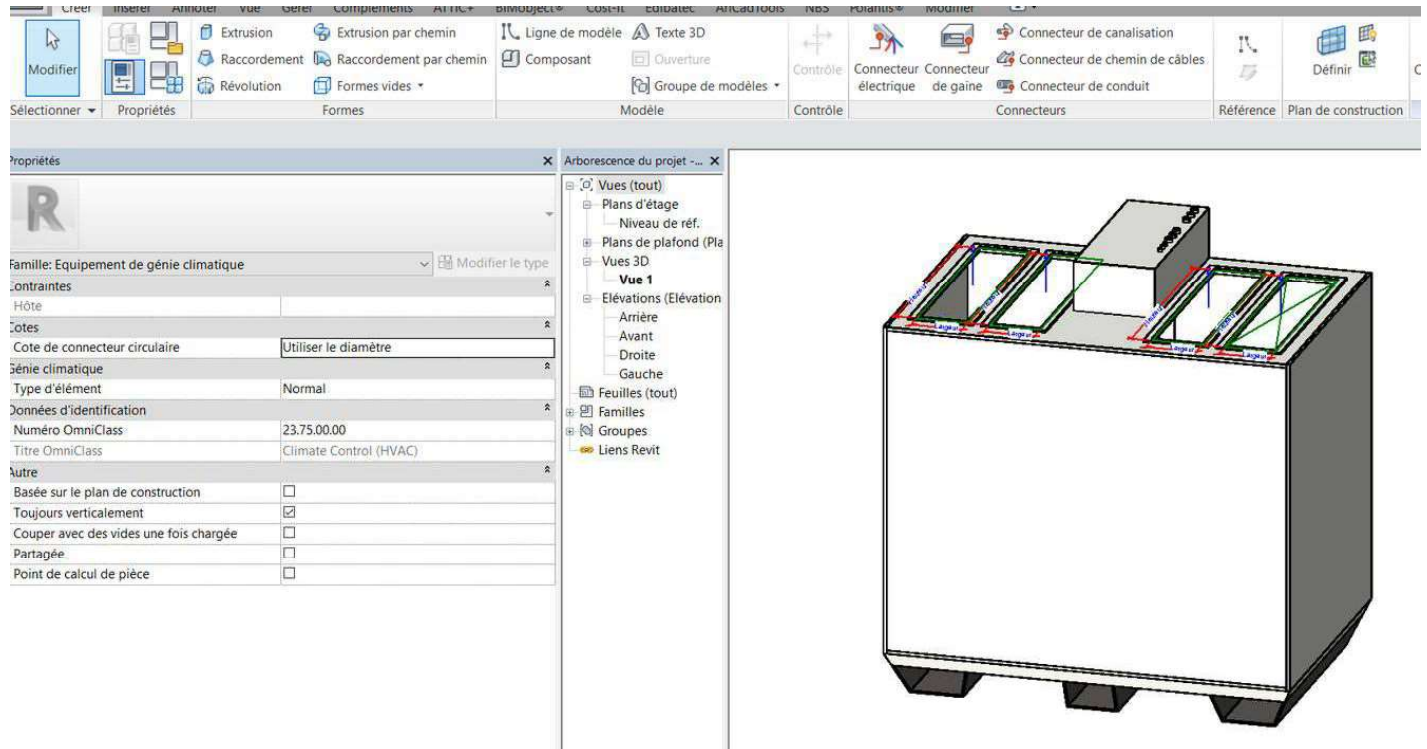


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model in its native format (here REVIT-MEP)

Analysis of the original MEP model



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model in its native format (here REVIT-MEP)

Analysis of the original MEP model

Propriétés du type

Famille: ALDES - Everest XV

Type: XV 1200

Paramètres du type

Paramètre	Valeur
Graphismes	
image	Everest_XVphoQ1.jpg
Matériaux et finitions	
Centrale	Acier AISI 1006 85 LC
Pieds	Acier AISI 1015
poignée	Plastique vert
Electricité	
Alimentation	1~230VAC + T 50Hz
P max (W)	1100
Cotes	
Hauteur	1260.0
longueur	1200.0
largeur	840.0
longueur plaque extérieure	685.0
largeur plaque extérieur	190.0
longueur plaque intérieur	645.0
largeur plaque intérieur	150.0

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model in its native format (here REVIT-MEP)

Analysis of the original MEP model

Données d'identification	
Image du type	Everest_XVphoQ1.jpg
Note d'identification	
Modèle	Everest XV
Fabricant	ALDES
Commentaires du type	
URL	http://www.aldes.com/fr/
Description	Centrale double flux haute effi
Code d'assemblage	
Coût	
Description de l'assemblage	
Marque de type	
CLASSIFICATION	
Classification.Famille	
Sous-projet	Famille : Equipement de géni
Modifié par	
Numéro OmniClass	23.75.00.00
Titre OmniClass	Climate Control (HVAC)
Nom de code	
Paramètres IFC	
IfcExportAs	IfcFan
IfcExportType	IfcFanType
Données	
Débit nominal (m3/h)	1200
Poids (kg)	230
Puissance absorbée (W)	780



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model in its native format (here REVIT-MEP)

Analysis of the original MEP model

The screenshot displays the Revit MEP interface. On the left, the 'Propriétés' (Properties) panel shows the 'Helios - Batterie d'échange' (Ø450) equipment. The 'Contraintes' (Constraints) section shows it is placed on 'Plan Niveau NA-TCE'. The 'Génie climatique' (HVAC) section shows it is part of a 'Soufflage, Alimentation hydraulique' (Blow, Hydraulic supply) system. The 'Génie climatique - Ecoulement' (HVAC - Flow) section shows a flow rate of 745.0000 m³/h. The 'Données d'identification' (Identification data) section shows the paragraph '5.6.3.2 Batterie d'échange' and the description 'Batterie d'échange type SEWT de marque HE...'. The 'Phase de construction' (Construction phase) is 'Nouvelle construction' (New construction).

On the right, the 'Arborescence du projet' (Project browser) shows the hierarchy of the model. The 'Vues' (Views) section is expanded, showing 'Vues (01-Vues par défaut)' (Views (01-Views by default)) and 'Vues 3D' (3D Views). The 'Vues 3D' section is further expanded, showing '(3D) Coupe' (3D Section) and '(3D) Réseau' (3D Network). The '(3D) Réseau' section is expanded, showing '(3D) Réseau' and '(3D) Réseau'.

The main view shows a 3D model of the mechanical equipment, a blue rectangular box, connected to a network of pipes. The pipes are colored blue and red, representing different fluid types. The equipment is labeled 'Helios - Batterie d'échange' and 'Ø450'. The pipes are labeled '12.0 mm' and '450.0 mm'.

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model in its native format (here REVIT-MEP)

Analysis of the original MEP model

Propriétés du type

Famille: Helios - Batterie d'échange

Type: Ø450

Charger...

Dupliquer...

Renommer...

Paramètres du type

Paramètre	Valeur
Cotes	
Diamètre	450.0
Diamètre hydraulique bas	12.0
Diamètre hydraulique haut	12.0
Hauteur Batterie	645.0
Largeur Batterie	645.0
Longueur Batterie	1045.0
Données d'identification	
Image du type	
Note d'identification	
Modèle	
Fabricant	
Commentaires du type	
URL	
Description	
Code d'assemblage	
Coût	
Description de l'assemblage	
Marque de type	
CLASSIFICATION	
Classification.Famille	
Sous-projet	Famille : Equipement de géni
Modifié par	
Numéro OmniClass	
Titre OmniClass	
Nom de code	

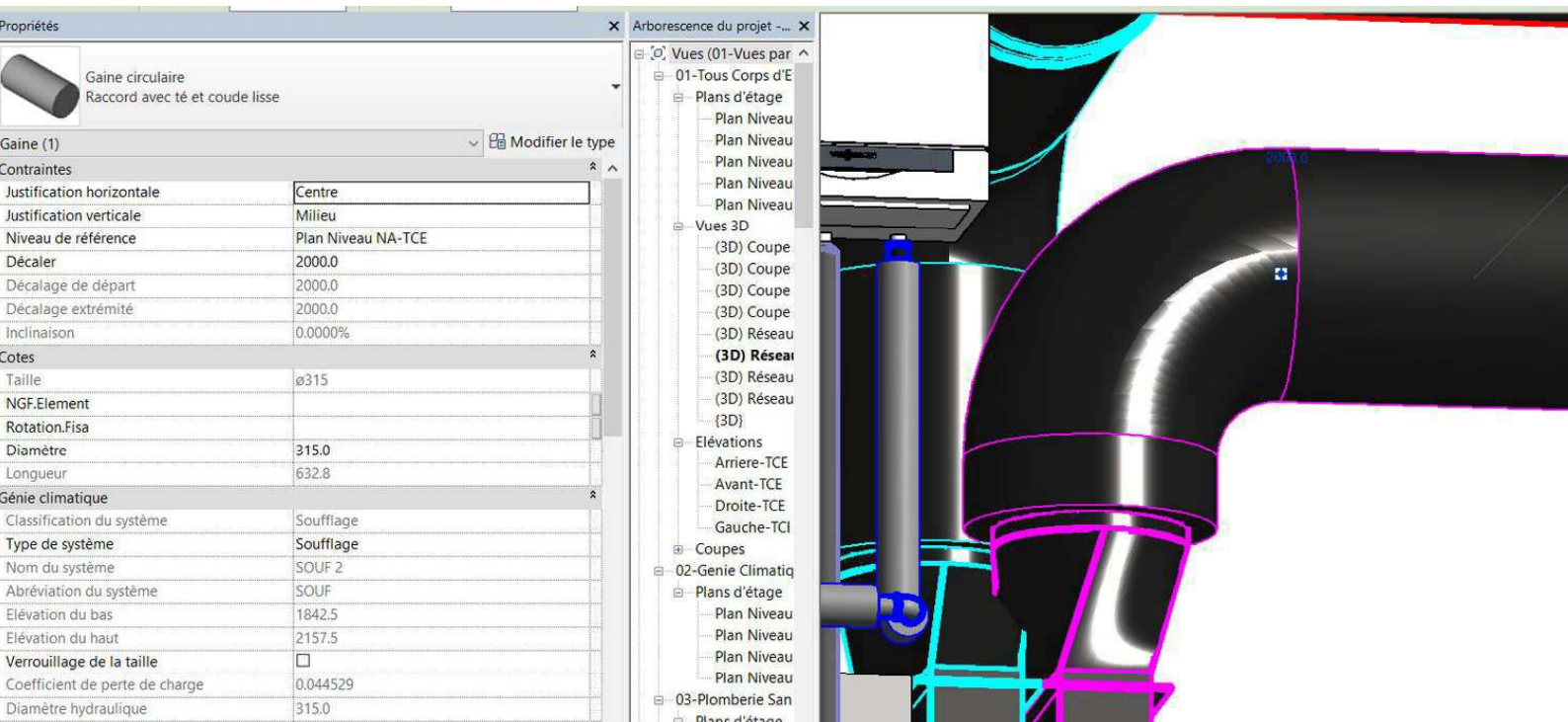


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model in its native format (here REVIT-MEP)

Analysis of the original MEP model



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model in its native format (here REVIT-MEP)

Analysis of the original MEP model

Coupe	6
Surface	0.626 m ²
Génie climatique - Ecoulement	
Gaine.PdC	
Flux	775.0000 m ³ /h
Flux supplémentaire	0.0000 m ³ /h
Vitesse	2.76 m/s
Frottement	0.3229 Pa/m
Perte de charge	0.20 Pa
Pression de vitesse	4.59 Pa
Nombre de Reynolds	57979.973027
Données d'identification	
Image	
Commentaires	
Identifiant	1768
Classification.Element	
Gaine.Troncon	
Sous-projet	13 - CVC
Modifié par	
Phase de construction	
Phase de création	Nouvelle construction
Phase de démolition	Aucun(e)

Isolation

Taille globale	ø415 mm
Epaisseur d'isolation	50.0 mm
Type d'isolation	Isolant

Revêtement

Taille libre	ø315 mm
Epaisseur du revêtement	0.0 mm
Type de revêtement	

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model in its native format (here REVIT-MEP)

Analysis of the original MEP model

Propriétés du type

Famille: Famille système: Gaine circulaire

Type: Raccord avec té et coude lisse

Charger...

Dupliquer...

Renommer...

Paramètres du type

Paramètre	Valeur
Construction	
Rugosité	0.1500 mm
Raccords	
Préférences d'acheminement	Modifier...
Données d'identification	
Image du type	
Note d'identification	
Modèle	Gaine galva circulaire
Fabricant	
Commentaires du type	
URI	
Description	
Description de l'assemblage	
Code d'assemblage	
Marque de type	
Coût	
CLASSIFICATION	
Classification.Famille	
Sous-projet	Gaine
Modifié par	
Paramètres IFC	
Renovation Status	
NameOverride	
Tag	

Understanding the native MEP model introduced in Navisworks Manage

→ for viewing in Navisworks Freedom

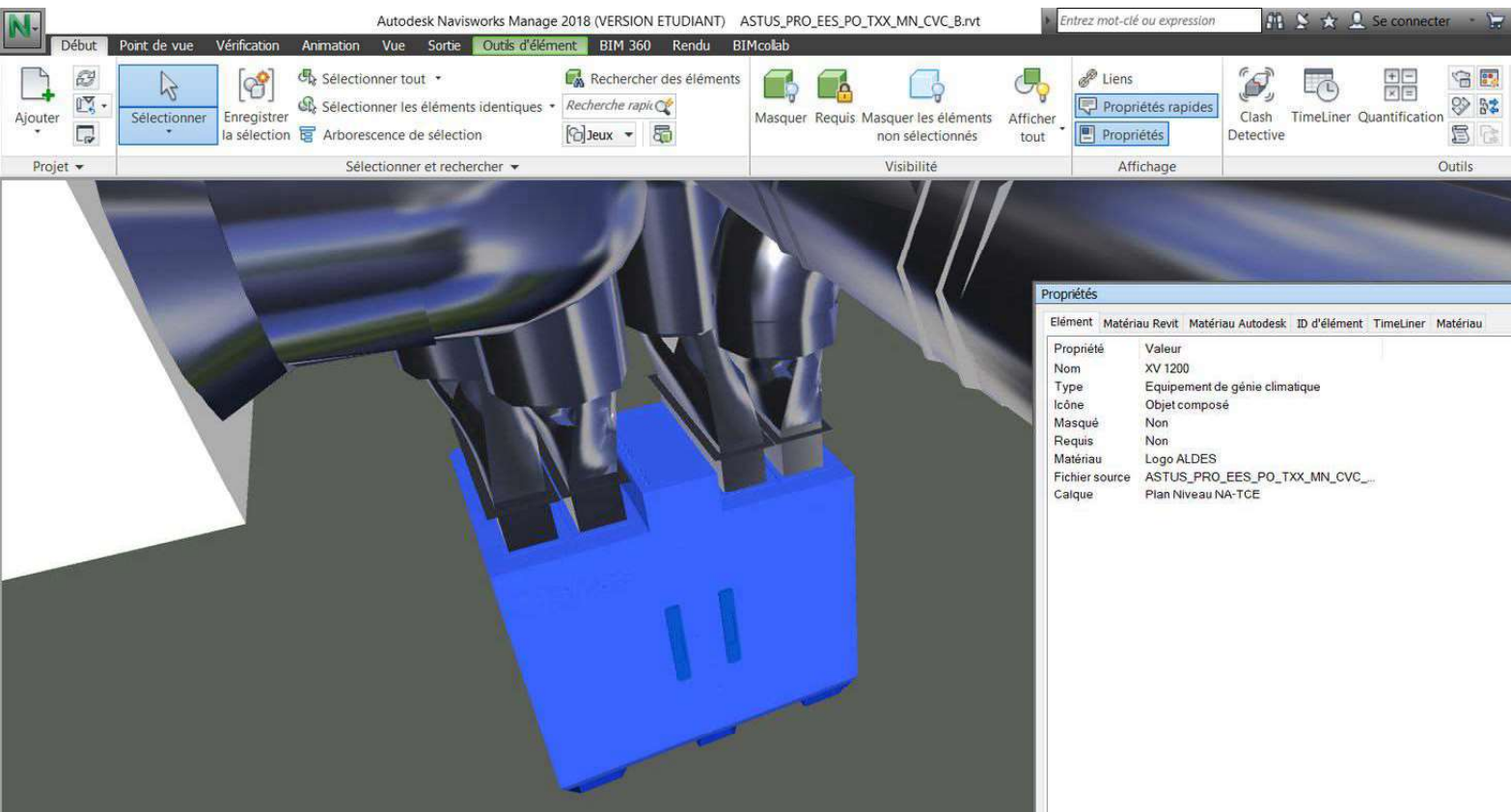
- What are the representations of the objects?
- What information?
- What information is missing? Why is it missing?
- What use for 4D planning?
 - modification of the modelling of the Native file?
- What ability to link documents?
- What skills are needed to use this software?

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the native MEP model introduced in Navisworks Manage

→ for viewing in Navisworks Freedom

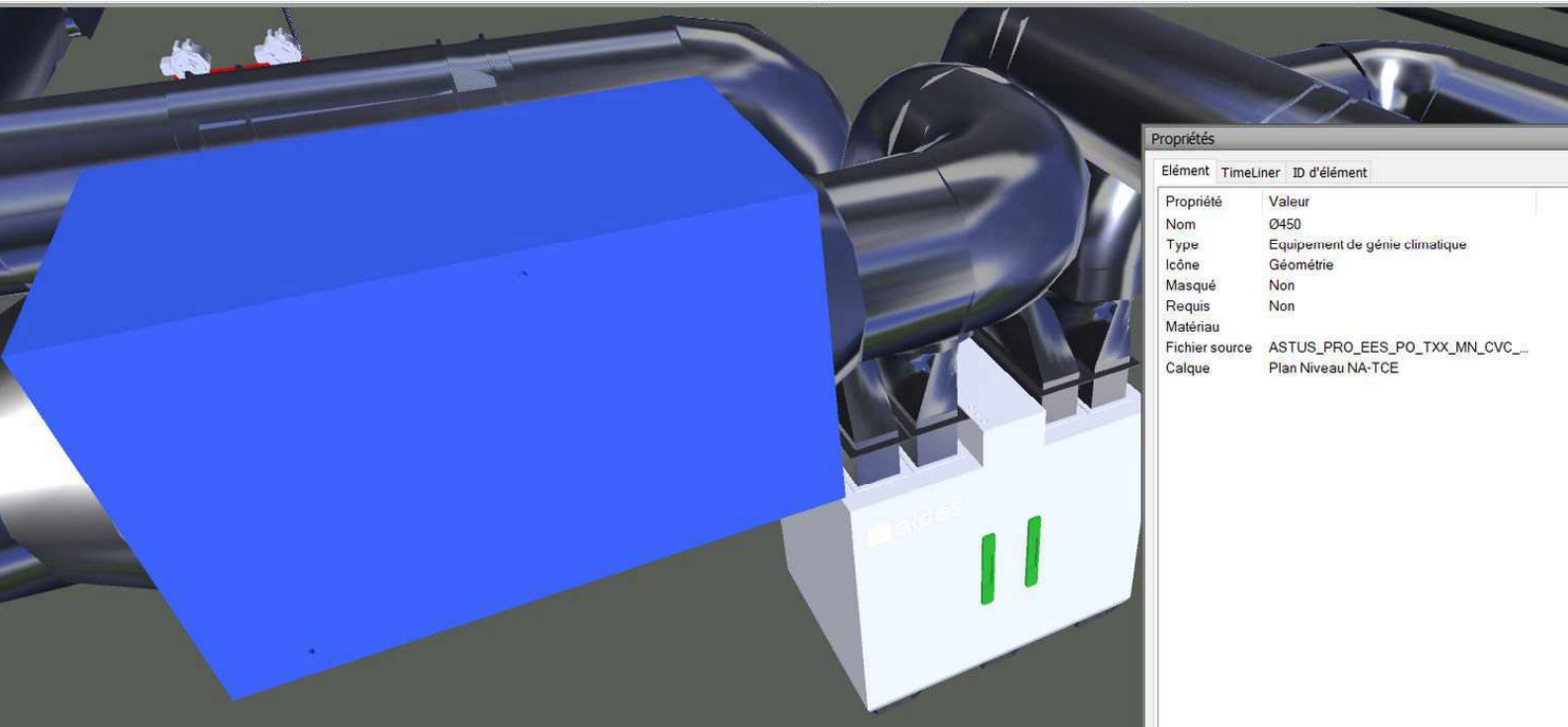


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the native MEP model introduced in Navisworks Manage

→ for viewing in Navisworks Freedom

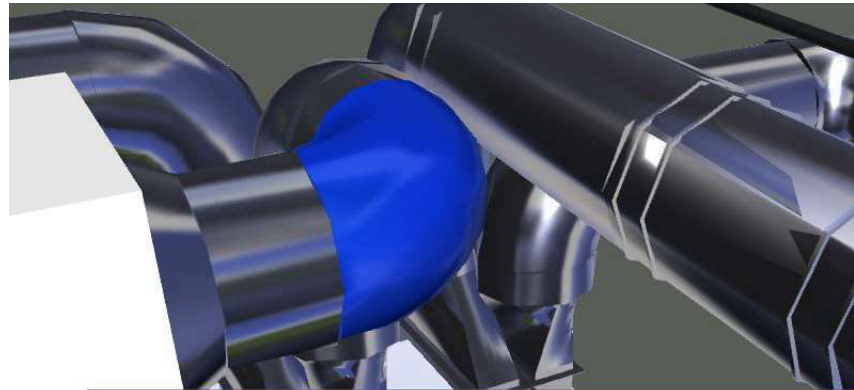
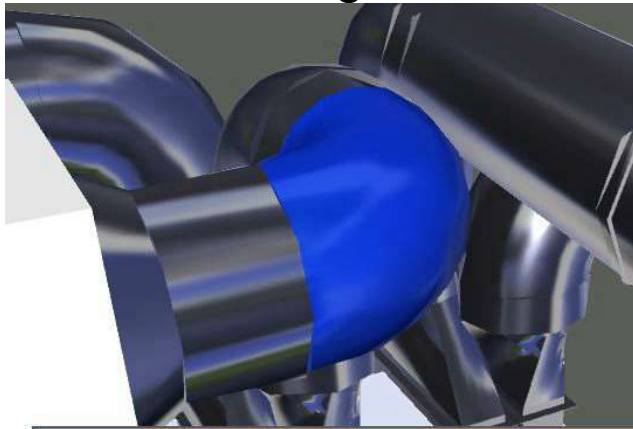


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the native MEP model introduced in Navisworks Manage

→ for viewing in Navisworks Freedom



Propriétés	
Elément	Valeur
Nom	Isolation des gaines
Type	Isolations des gaines: Isolation des gain...
GUID	88253b3d-5d06-40a3-b00d-925a2615fd75
Icône	Géométrie
Masqué	Non
Requis	Non
Matériau	Acier, galvanisé air neuf
Fichier source	ASTUS_PRO_EES_PO_TXX_MN_CVC_...
Calque	<Pas de niveau>

Propriétés							
Elément	Matériau	Matériau Revit	Matériau Autodesk	ID d'élément	Objet	Phase de création	Type de système
Propriété	Valeur						
Nom	Air Neuf						
Catégorie	Systèmes de gaines						
ID	797588						
Matériau	Material "Acier, galvanisé air neuf", #39...						
Classification ...	Soufflage						
Nom du type	Air Neuf						
Abréviation	AN						
CLASSIFICA...	CVC						
Sous-projet	Types de système de gaines						
Symbole de ...	12						
Calculs	-1						
Nom de la fa...	Système de gaines						



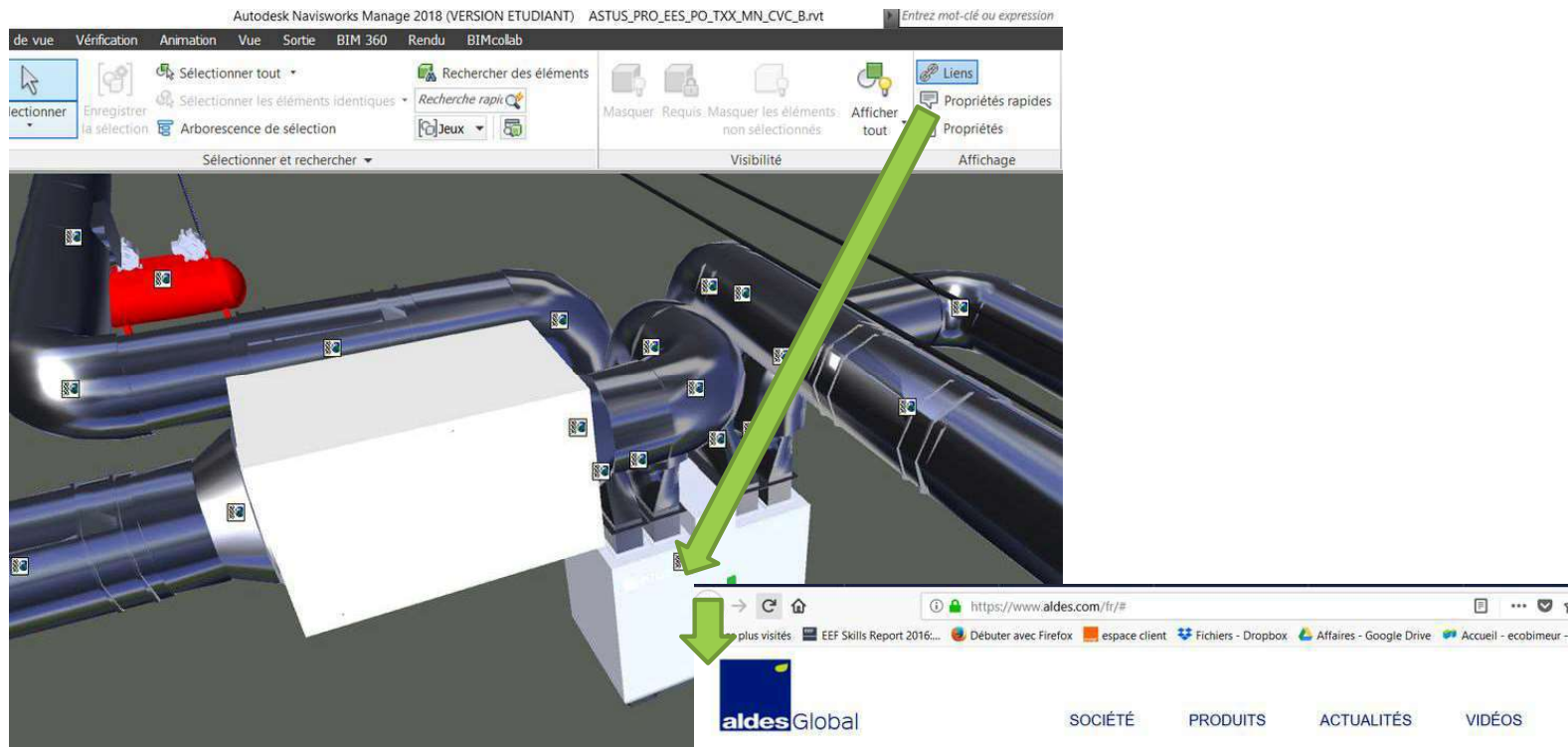
BIMplement

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the native MEP model introduced in Navisworks Manage

→ for viewing in Navisworks Freedom



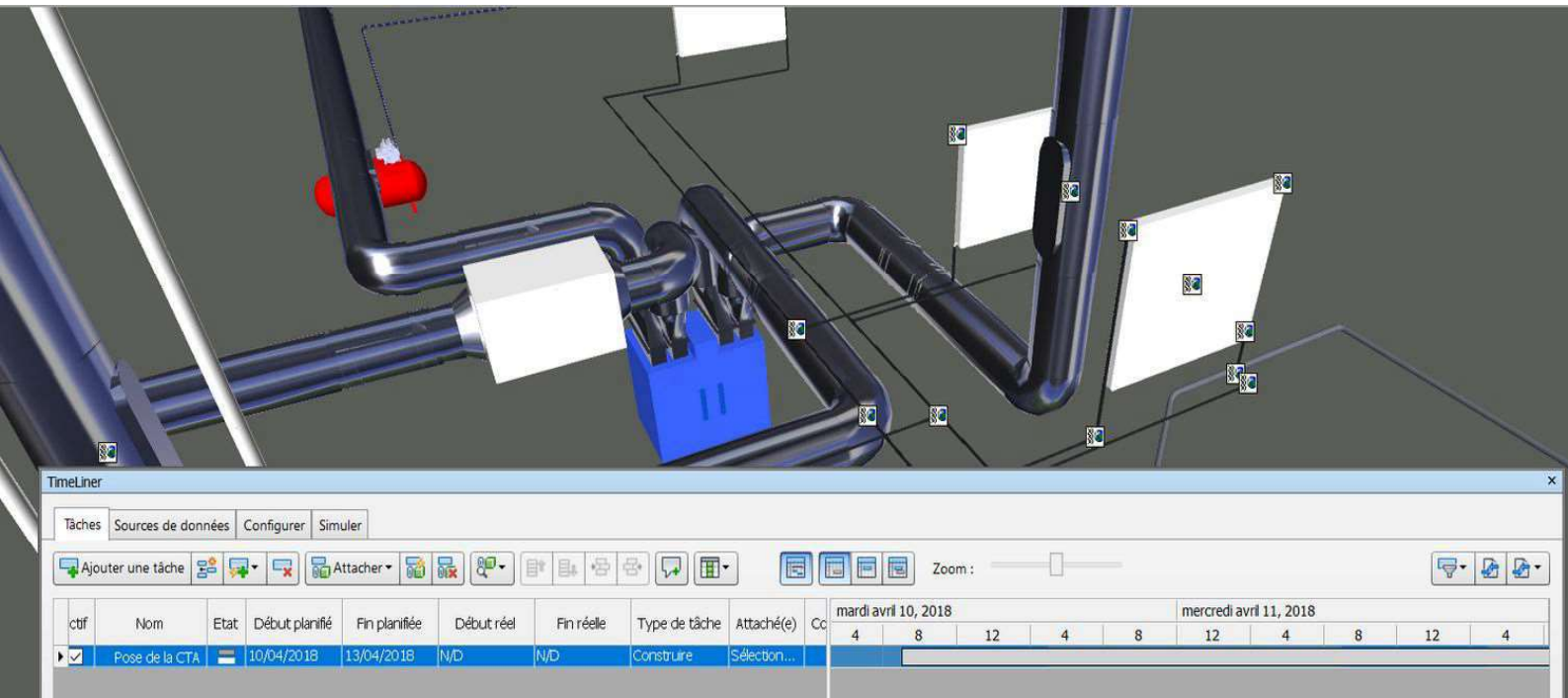
BIMplement

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the native MEP model introduced in Navisworks Manage

→ for viewing in Navisworks Freedom



Understanding the MEP model exported in IFC

→ for viewing in Solibri Model Viewer

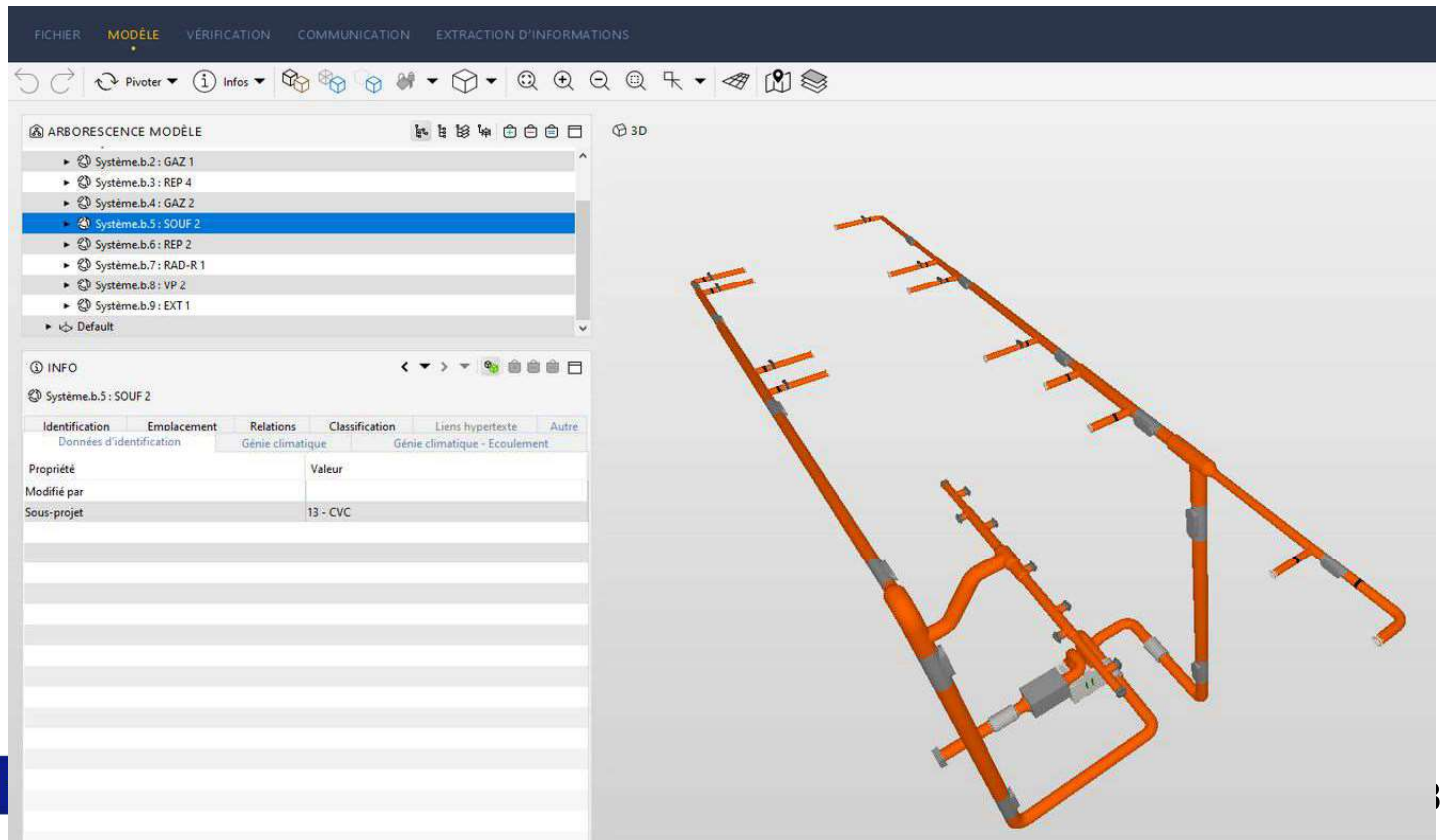
- What are the representations of
 - the objects?
 - systems (groups)?
- What information?
- What information is missing? Why is it missing?
- What skills are needed to use this software?

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model exported in IFC

→ for viewing in Solibri Model Viewer

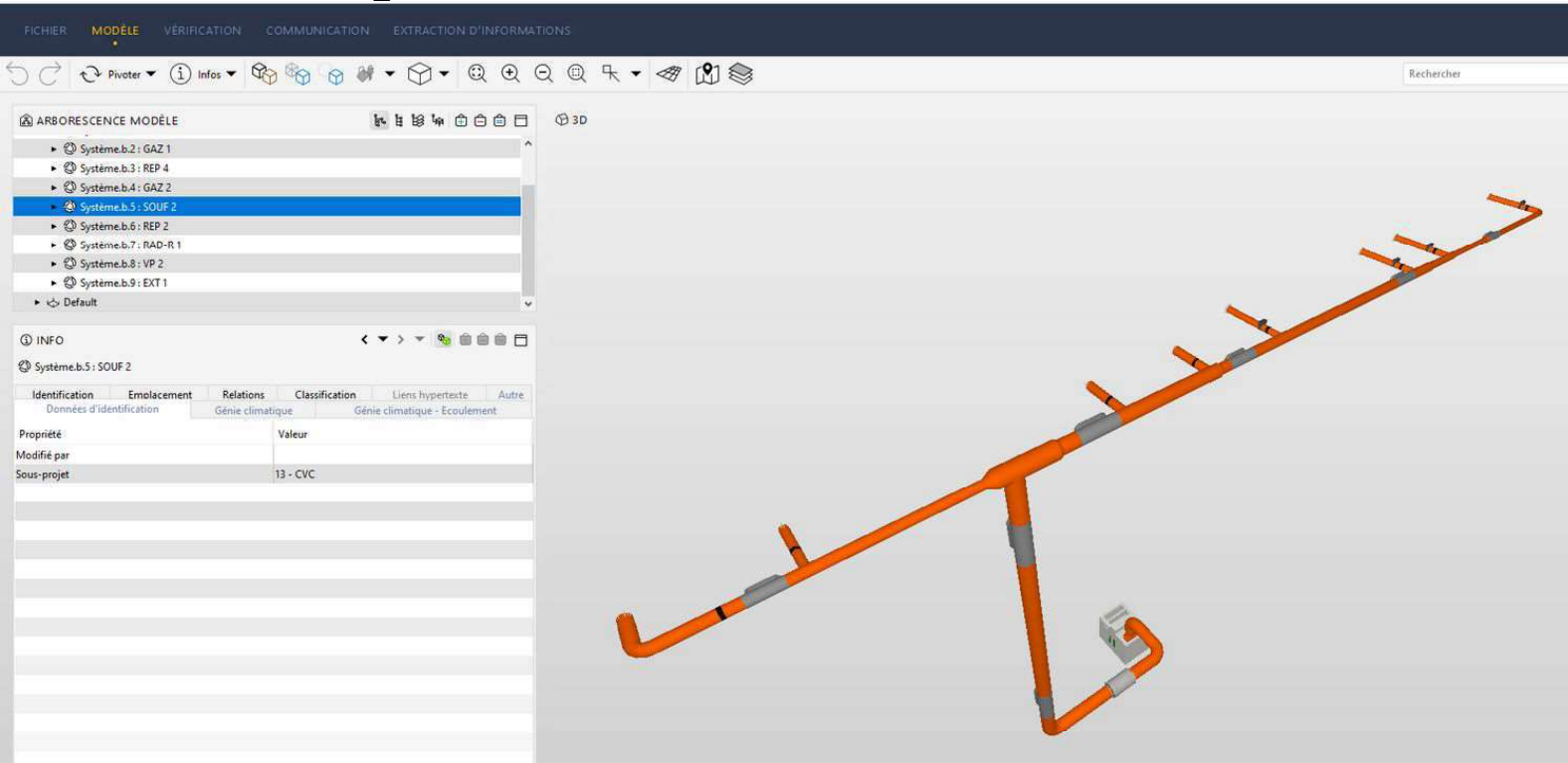


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model exported in IFC

→ for viewing in Solibri Model Viewer

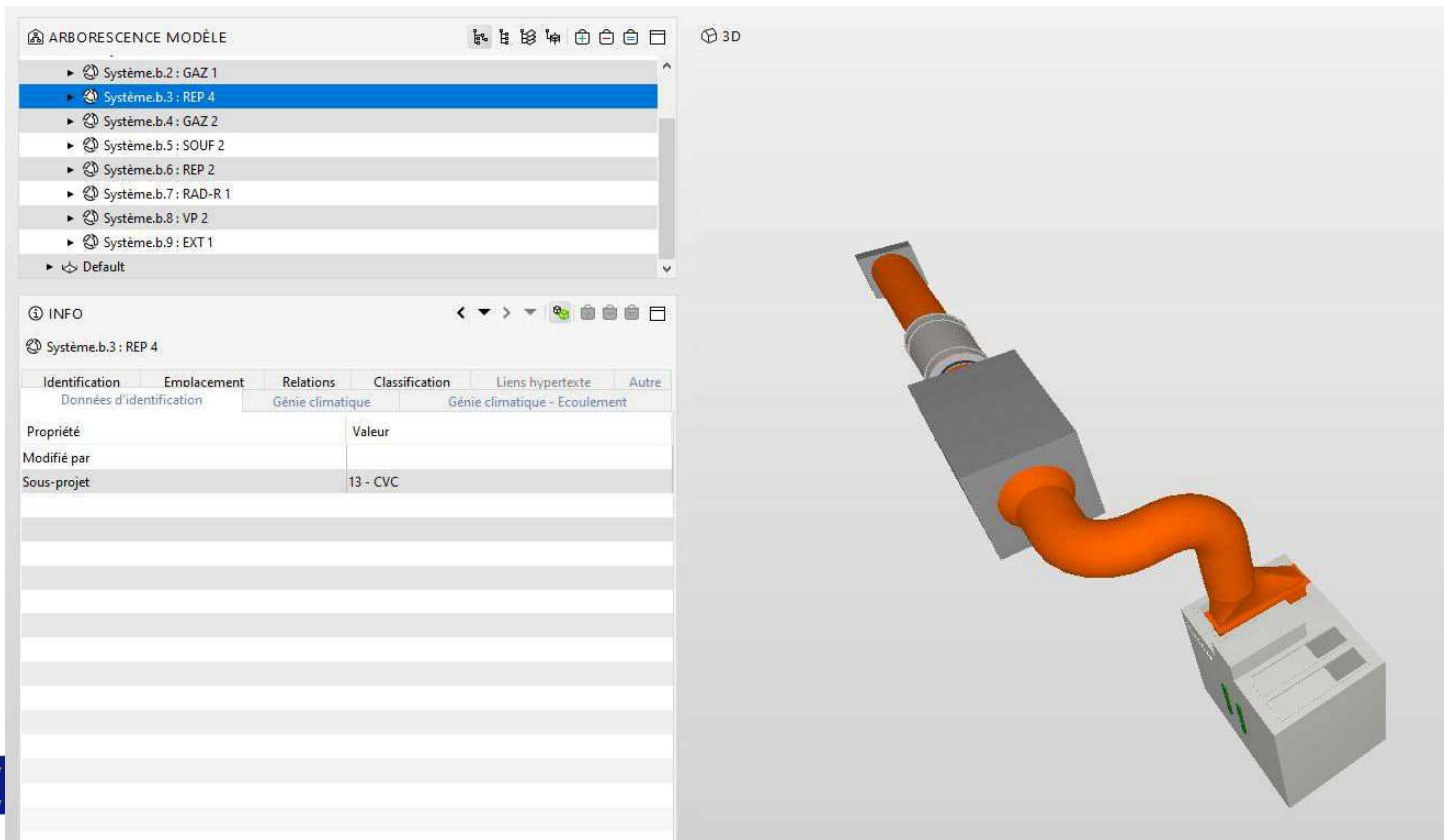


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model exported in IFC

→ for viewing in Solibri Model Viewer

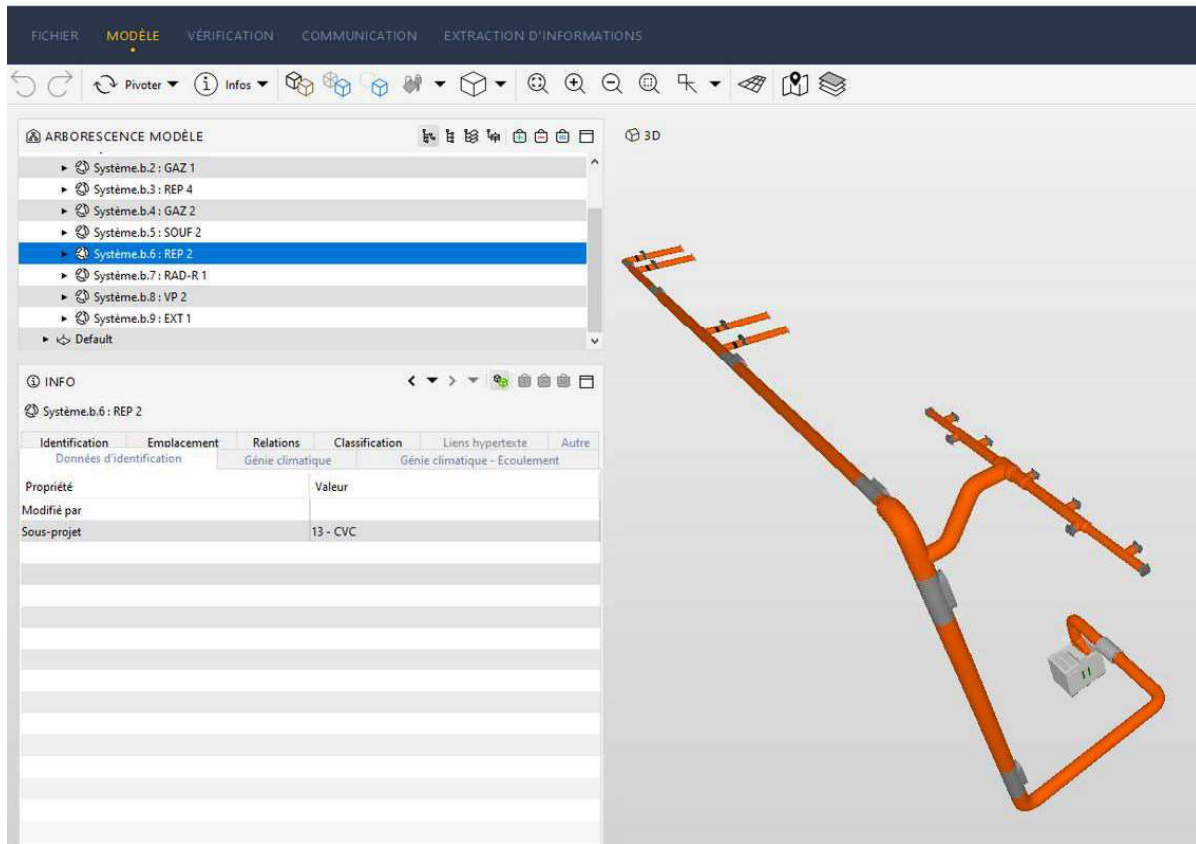


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model exported in IFC

→ for viewing in Solibri Model Viewer



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apply BIM models to ventilation & airtightness

Understanding the MEP model exported in IFC

→ for viewing in Solibri Model Viewer

(A) ASTUS_PRO_LR_PO_TXX_MN_SPACE_E

(B) ASTUS_PRO_TECBAT_PO_TXX_MN_CB_A

(C) ASTUS_PRO_EES_PO_TXX_MN_CVC_A

(D) ASTUS_PRO_TECBAT_PO_TXX_MN_GO_0

(E) ASTUS_PRO_EES_PO_TXX_MN_ELEC_B

(F) ASTUS_PRO_EES_PO_TXX_MN_PB_A

(G) ASTUS_PRO_SIAF_PO_TXX_MN_AME_0

(H) ASTUS_PRO_LR_PO_TXX_MN_F

Classification

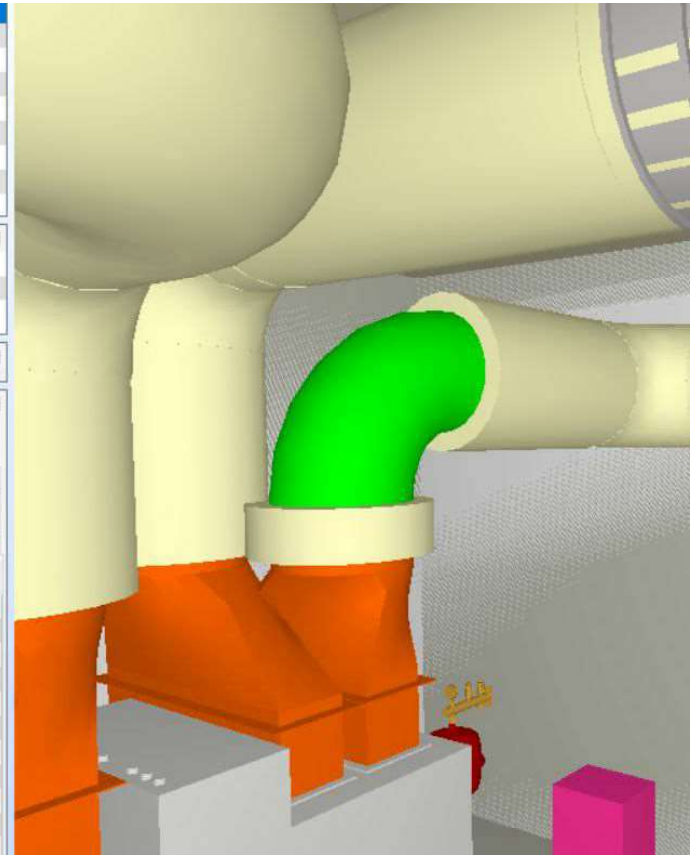
- Building Elements - Unifomat
- Groupeement d'Espaces
- Unifomat Classification

Panier de Sélection Aucun Jeu de Sélection

Info

(C) Raccords Conduit. -1.4

Pset_DistributionFlowElementCommon				Revêtement	Texte
Génie climatique - Ecoulement			Isolation	Phase de construction	
Cotes	Cotes(Type)	Données d'identification	Données d'identification(Type)	Graphismes	Génie climatique
Identification	Emplacement	Quantités	Relations	Classification	Hyperliens
Propriété	Valeur				
Modèle	(C) ASTUS_PRO_EES_PO_TXX_MN_CVC_A				
Discipline	Ventilation				
Nom	Coude Circulaire Embouti:Courbure = 1D:3763864				
Type	Courbure = 1D				
Description	NOTDEFINED				
Functional Type	M-HVAC-DUCT-OTLN				
Calque	SOLIF 2				
Système	Représentation limites				
Géométrie	Autodesk Revit 2016 (FRA)				
Application	289JizNGP0ex0Dabec5VvV				
GUID					

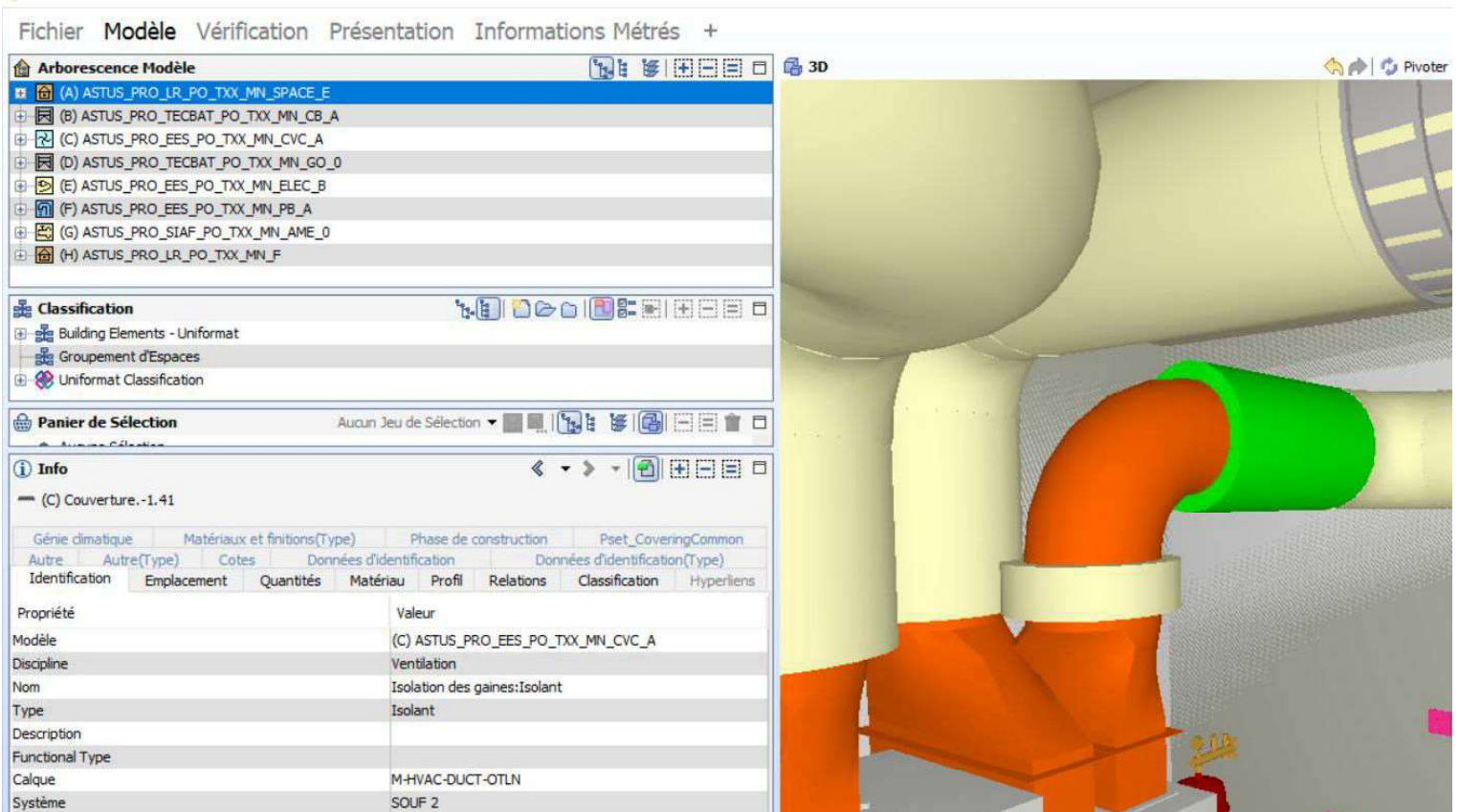


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model exported in IFC

→ for viewing in Solibri Model Viewer

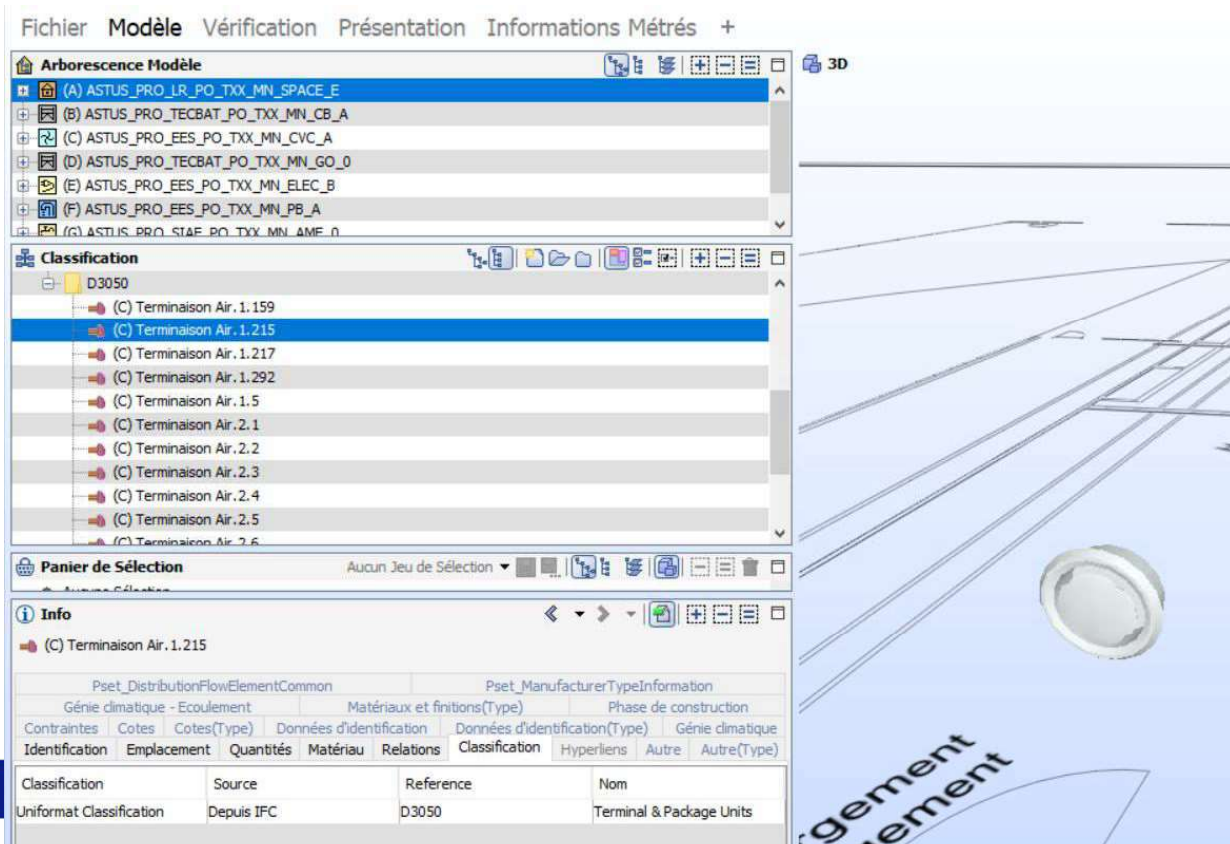


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model exported in IFC

→ for viewing in Solibri Model Viewer



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model exported in IFC

→ for viewing in Solibri Model Viewer

The screenshot displays the Solibri Model Viewer interface, showing the IFC model structure and properties for a distribution element.

Top Panel (Model Structure):

- Registre RMA 125
 - Élément Flux de Distribution.1.179
 - Élément Flux de Distribution.1.182
 - Élément Flux de Distribution.1.186** (Selected)
 - Élément Flux de Distribution.1.190
 - Élément Flux de Distribution.1.221
 - Élément Flux de Distribution.1.225
 - Élément Flux de Distribution.1.227
 - Élément Flux de Distribution.1.233

Left Panel (INFO):

Terminaison Air.2.2

Phase de construction		Pset_DistributionFlowElementCommon		Pset_ManufacturerTypeInformation	
Données(Type)	Génie climatique	Génie climatique	Génie climatique - Ecoulement	Matériaux et finitions(Type)	Données d'identification
Contraintes(Type)	Cotes	Cotes(Type)	Données d'identification	Données d'identification	Données d'identification
Identification	Emplacement	Quantités	Matériau	Relations	Classification
Classification	Source	Référence	Nom		
Uniformat Classification	Depuis IFC	D3050	Terminal & Package Units		

Right Panel (Properties):

Terminaison Air.2.2

Phase de construction		Pset_DistributionFlowElementCommon		Pset_ManufacturerTypeInformation	
Données(Type)	Génie climatique	Génie climatique	Génie climatique - Ecoulement	Matériaux et finitions(Type)	Données d'identification
Contraintes(Type)	Cotes	Cotes(Type)	Données d'identification	Données d'identification	Données d'identification
Identification	Emplacement	Quantités	Matériau	Relations	Classification
Propriété	Valeur				
Modèle	ASTUS_PRO_EES_PO_TXX_MN_CVC_A				
Discipline	Architecture				
Nom	Aldes_BIM2_300_Reprise_FR:DN 125:3876363				

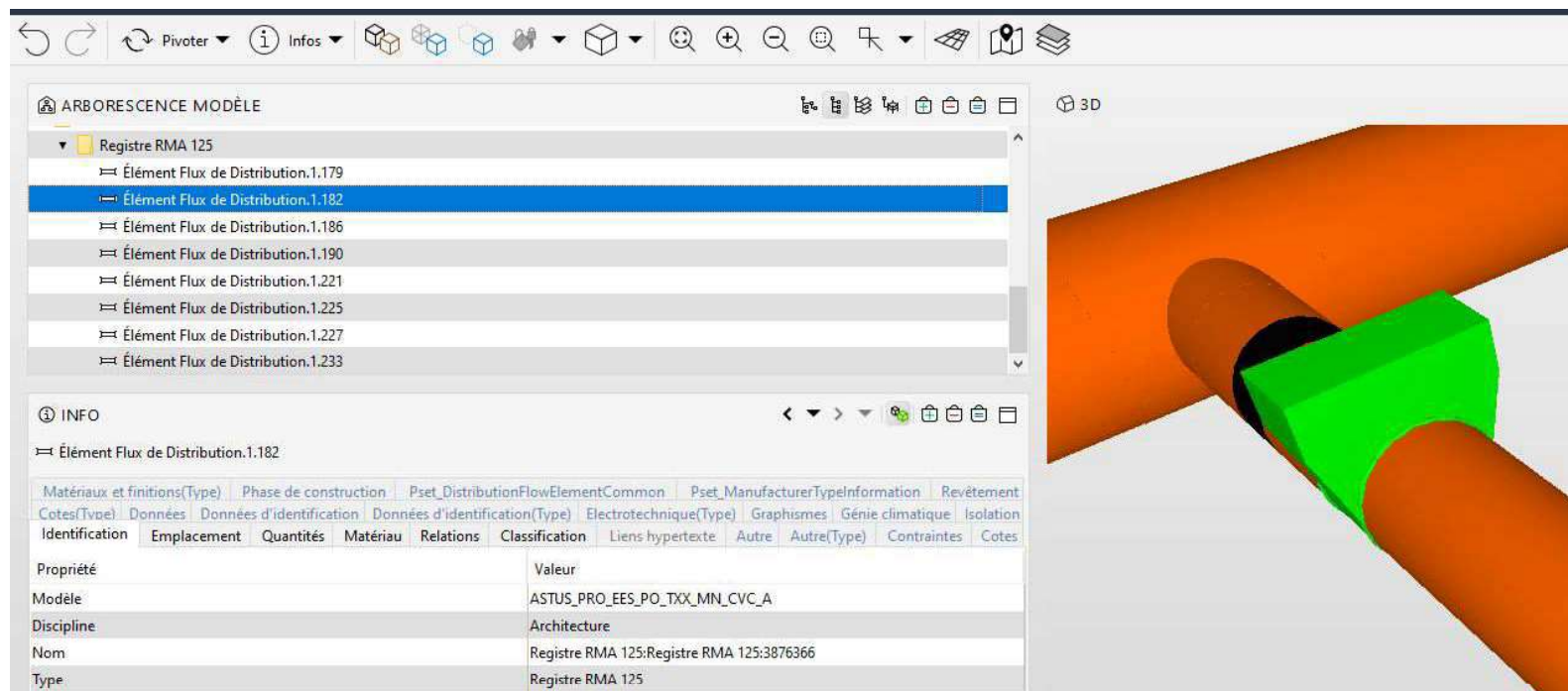
The 3D model shows a distribution element (orange pipe) with a green circular terminal at the end.

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model exported in IFC

→ for viewing in Solibri Model Viewer



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model exported in IFC

→ for viewing in Solibri Model Viewer

▼ Registre RMA 125

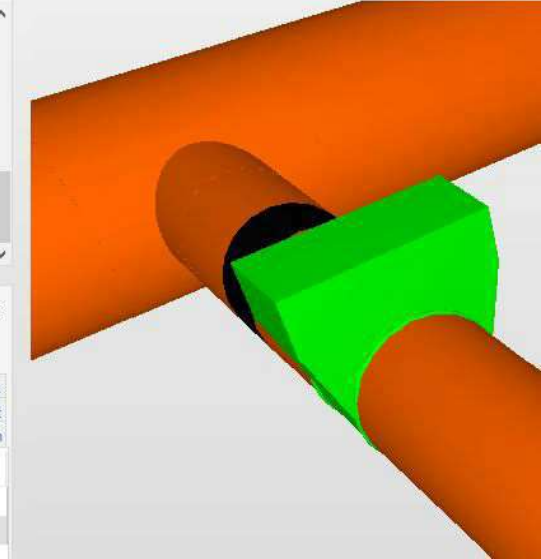
- ⇒ Élément Flux de Distribution.1.179
- ⇒ **Élément Flux de Distribution.1.182**
- ⇒ Élément Flux de Distribution.1.186
- ⇒ Élément Flux de Distribution.1.190
- ⇒ Élément Flux de Distribution.1.221
- ⇒ Élément Flux de Distribution.1.225
- ⇒ Élément Flux de Distribution.1.227
- ⇒ Élément Flux de Distribution.1.233

① INFO

⇒ Élément Flux de Distribution.1.182

Identification	Emplacement	Quantités	Matériau	Relations	Classification	Liens hypertexte	Autre	Autre(Type)	Contraintes	Cotes		
Matériaux et finitions(Type)	Phase de construction	Pset_DistributionFlowElementCommon	Pset_ManufacturerTypeInformation	Revêtement	Cotes(Type)	Données	Données d'identification	Données d'identification(Type)	Electrotechnique(Type)	Graphismes	Génie climatique	Isolation

Propriété	Valeur
Intensité	2
Tension	230



Understanding the MEP model exported in IFC

→ for viewing in Tekla Bim Sight

- What are the representations of
 - the objects?
 - systems (groups)?
- What information?
- What information is missing? Why is it missing?
- What skills are needed to use this software?

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model exported in IFC

→ for viewing in Tekla Bim Sight

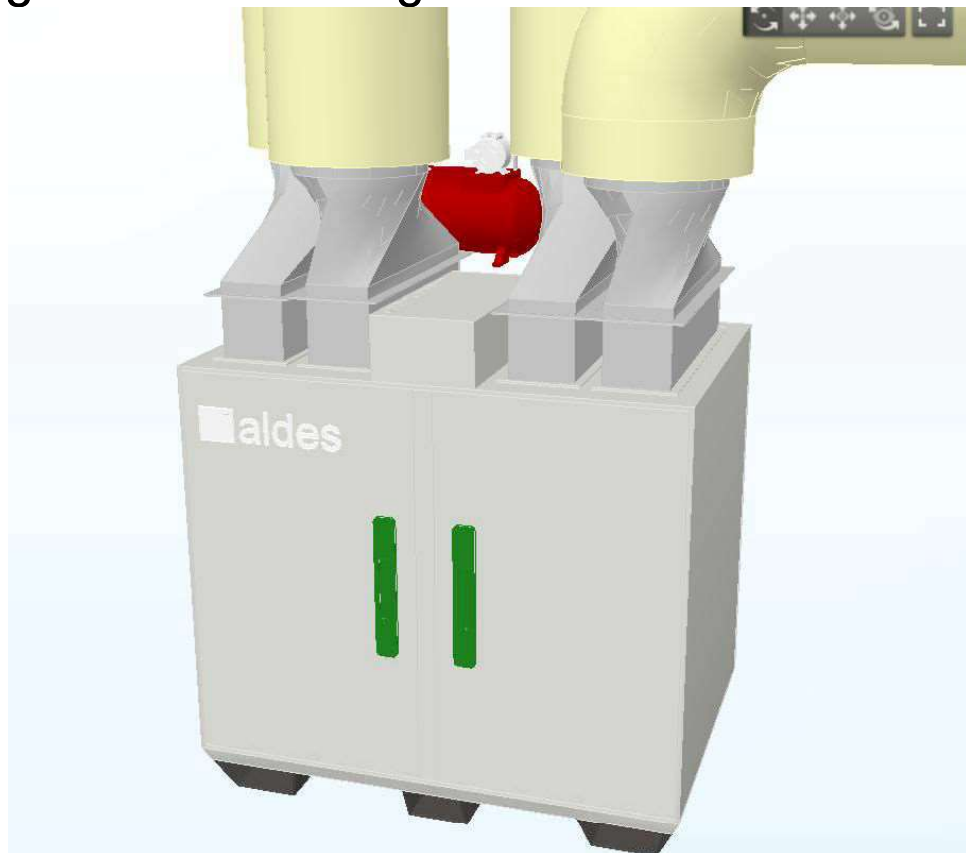


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model exported in IFC

→ for viewing in Tekla Bim Sight



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Understanding the MEP model exported in IFC

→ for viewing in Tekla Bim Sight

FlowMovingDevice

- ▶ Notes (0)
- ▶ Documents (0)
- ▶ Conflicts (0)

Color : 

ReferenceObject

GUID:	3pYnZ6bAL5xhp5reXUDYxC
File Format:	Ifc
Common Type:	FlowMovingDevice
Geometric Classification:	Solid
Volume:	0.1 m3

Ifc2X3Product

Product Name:	ALDES - Everest XV:XV 1200:3
Product Description:	
Product Object Type:	XV 1200
Owning User:	
Creation Date:	01/01/1970 00:00:00
Change Action:	NoChange
State:	Undefined
Application:	Autodesk Revit 2016 (FRA) (R

IfcMaterialLayerSetUsage

Material Layer Set:	
Material Direction:	Unknown
Material Direction Sense:	Unknown
Material Offset From Referen	0 mm
Material Layer 1.Material:	Logo ALDES
Material Layer 1.Ventilated:	Unknown
Material Layer 2.Material:	Acier AISI 1006 85 LC
Material Layer 2.Ventilated:	Unknown
Material Layer 3.Material:	Plastique vert
Material Layer 3.Ventilated:	Unknown
Material Layer 4.Material:	Acier AISI 1015
Material Layer 4.Ventilated:	Unknown

Phase de construction

Phase de création:	Nouvelle construction
--------------------	-----------------------



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model exported in IFC

→ for viewing in Tekla Bim Sight

Phase de construction

Phase de création: Nouvelle construction

Génie climatique

Classification du système: Extraction d'air,Reprise,Souffl

Nom du système: EXT 1,REP 4,REP 2,SOUF 2

Données d'identification

Modifié par:

Sous-projet: 13 - CVC

Commentaires: CTA double flux type EVEREST

Description équipement: CTA double flux type EVEREST

Identifiant: 357

Paragraphe CCTP: 6.1.2. Centrale de traitement

Cotes

Surface: 7.19 m2

Volume: 0.1 m3

Génie climatique

Classification du système: Extraction d'air,Reprise,Souffl

Nom du système: EXT 1,REP 4,REP 2,SOUF 2

Données d'identification

Modifié par:

Sous-projet: 13 - CVC

Commentaires: CTA double flux type EVEREST

Description équipement: CTA double flux type EVEREST

Identifiant: 357

Paragraphe CCTP: 6.1.2. Centrale de traitement

Cotes

Surface: 7.19 m2

Volume: 0.1 m3

Contraintes

Décalage: 0 mm

Hôte: Niveau : Plan Niveau NA-TCE

Niveau: Niveau: Plan Niveau NA-TCE

Autre

Catégorie: Equipement de génie climati

Famille: ALDES - Everest XV: XV 1200

Famille et type: ALDES - Everest XV: XV 1200

ID du type: ALDES - Everest XV: XV 1200

Type: ALDES - Everest XV: XV 1200



BIMplement

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model exported in IFC

→ for viewing in Tekla Bim Sight

Pset_DistributionFlowElementCommon Reference: XV 1200	Données d'identification(Type) Modifié par: Code d'assemblage: Description de l'assemblage: Nom de code: Description: Centrale double flux haute ef Fabricant: ALDES Image du type: Image raster: Everest_XVpho Modèle: Everest XV Nom du type: XV 1200 Numéro OmniClass: 23.75.00.00 Sous-projet: Famille : Equipement de gén Titre OmniClass: Climate Control (HVAC) URL: http://www.aldes.com/fr	Graphismes(Type) image: Image raster: Everest_XVpho
Pset_ManufacturerTypeInfo Manufacturer: ALDES Autre(Type) Catégorie: Equipement de génie clin Nom de la famille: ALDES - Everest XV	Données(Type) Débit nominal (m3/h): 1200 Poids (kg): 230 Puissance absorbée (W): 780	Matériaux et finitions(Type) Centrale: Acier AISI 1006 85 LC Pieds: Acier AISI 1015 poignée: Plastique vert
Cotes(Type) Hauteur: 1260 mm largeur: 840 mm largeur plaque exterieur: 190 mm largeur plaque interieur: 150 mm longueur: 1200 mm longueur plaque exterieure: 685 mm longueur plaque interieur: 645 mm	Electricité(Type) Alimentation: 1~230VAC + T 50Hz P max (W): 1100	PresentationLayers Layer: M-EQPM-____OTLN



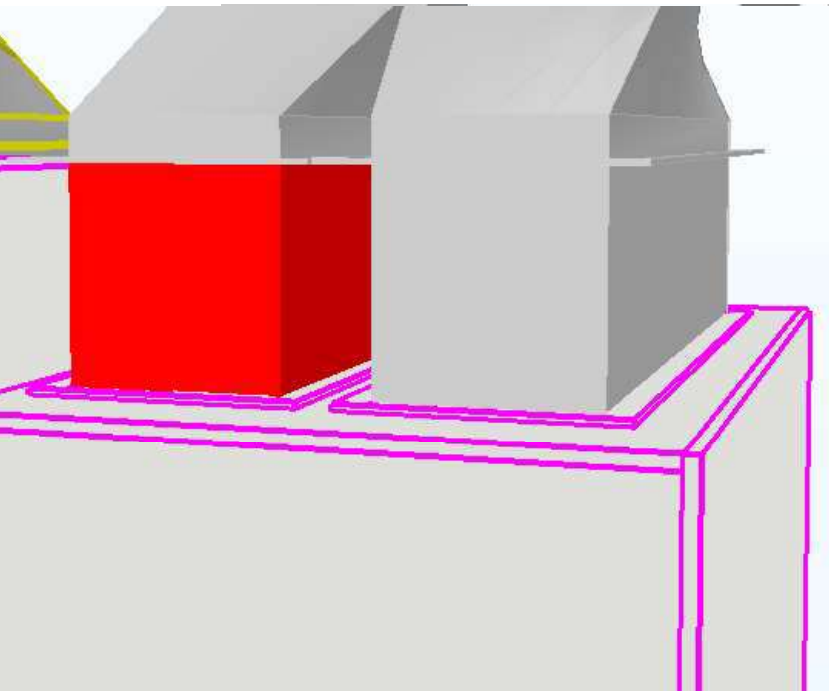
BIMplement

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model exported in IFC

→ for viewing in Tekla Bim Sight



Perte de charge:	0,0454554159787599
Pression de vitesse:	2,90072878900173
Vitesse:	2,19638242894057

Génie climatique

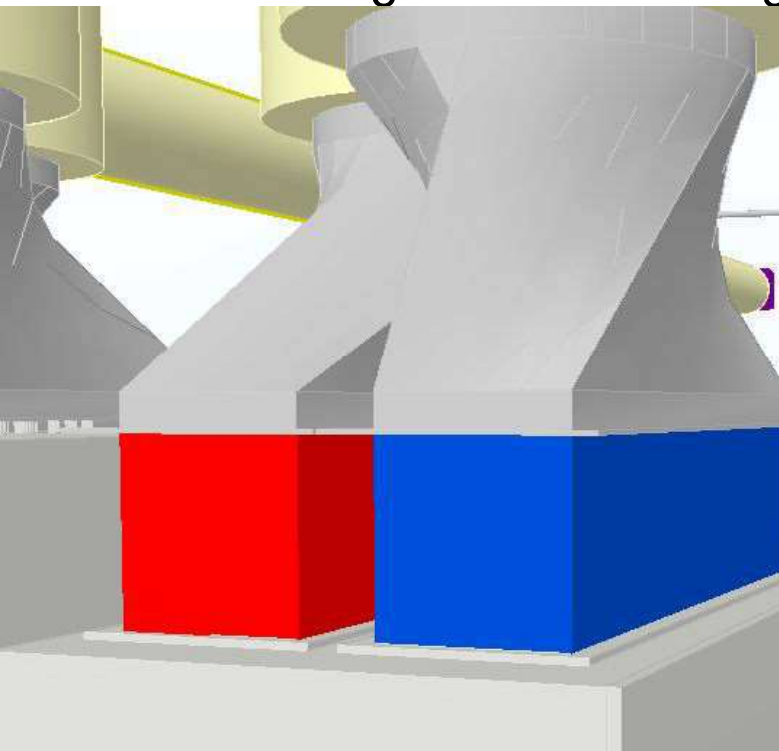
Type de système:	Système de gaines: Reprise
Verrouillage de la taille:	False
Abréviation du système:	REP
Classification du système:	Reprise
Coefficient de perte de charge:	0,0156703433120348
Coupe:	11
Diamètre équivalent:	320 mm
Diamètre hydraulique:	243 mm
Élévation du bas:	1110 mm
Élévation du haut:	1265 mm
Nom du système:	REP 2
Surface:	0.25 m2

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model exported in IFC

→ for viewing in Tekla Bim Sight



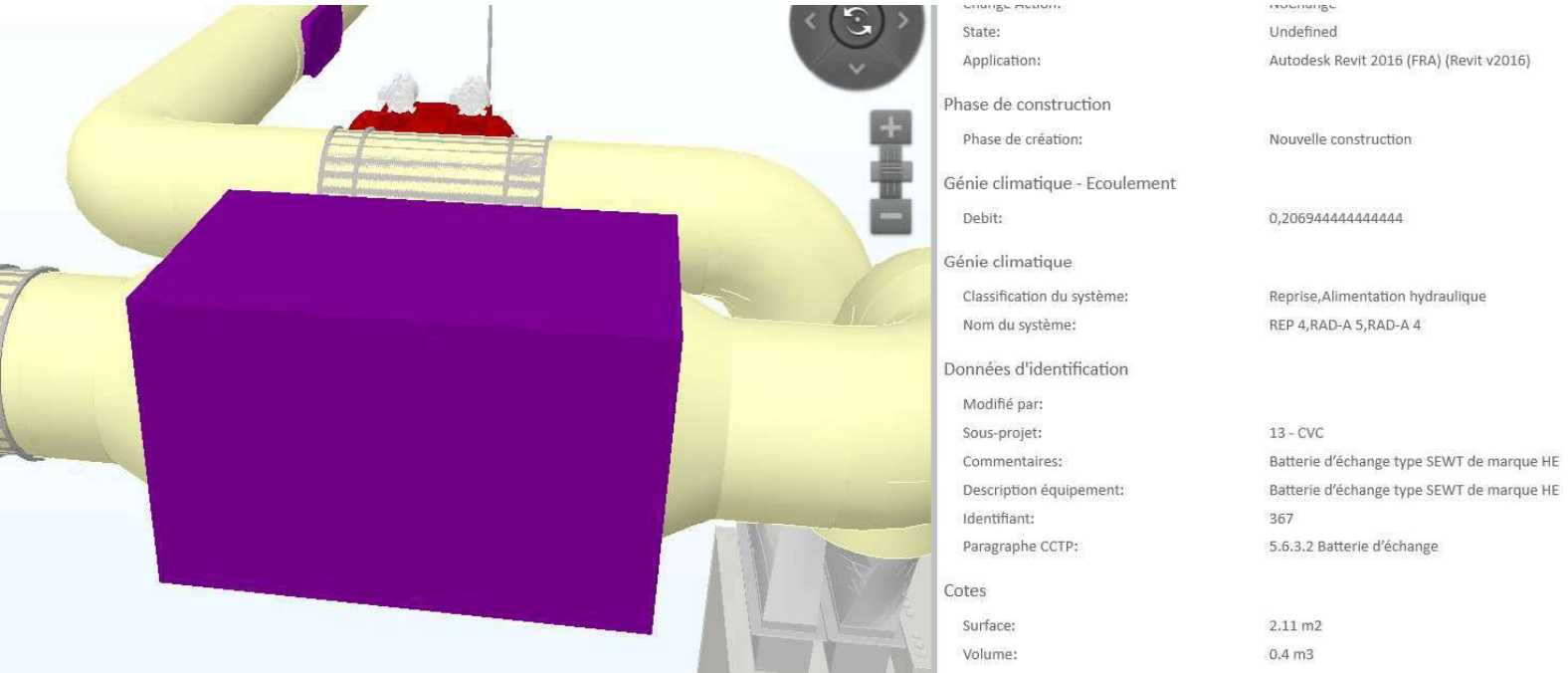
Flux supplémentaire:	0
Frottement:	0,300870743457145
Nombre de Reynolds:	36086,2132420311
Perte de charge:	0,0466822417622108
Pression de vitesse:	2,97706049620943
Vitesse:	2,22509331036463
Génie climatique	
Verrouillage de la taille:	False
Type de système:	Système de gaines: Soufflage
Coupe:	7
Abréviation du système:	SOUF
Classification du système:	Soufflage
Coefficient de perte de charge:	0,0156806493592083
Diamètre équivalent:	320 mm
Diamètre hydraulique:	243 mm
Élévation du bas:	1110 mm
Élévation du haut:	1265 mm
Nom du système:	SOUF 2
Surface:	0.25 m2

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Understanding the MEP model exported in IFC

→ for viewing in Tekla Bim Sight



Which use of industrial objects

What use of industrial objects :

- in E-Catalog
- on manufacturers' sites
- What are the representations of the objects?
- What information?
- What information is missing? Why is it missing?
- What skills do I need to acquire to use these Objects?

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Which use of industrial objects



TRAINING FOR COMPANIES

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Which use of industrial objects

[Parcourir les objets BIM](#)[Apps ▼](#)[Presse ▼](#)[Info ▼](#)[Contact](#)

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[BIMobject](#) / [Marques](#) / ALDES

ALDES

La vocation d'Aldes, se battre pour offrir une vie plus saine aux occupants des bâtiments.

Grâce à son approche solution et sa maîtrise de l'Air, le Groupe Aldes contribue à concevoir des lieux de vie apportant santé et bien-être par

la fabrication de solutions de ventilation, purification, confort thermique, protection incendie et aspiration centralisée.

Derniers produits

[Voir tous les produits](#)



EasyVEC® Compact



Gridlined



InspirAIR Home® SC



MR Modulo



MR Mono



ProtectONE R

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Which use of industrial objects

Centrale double flux haute efficacité

Everest XV

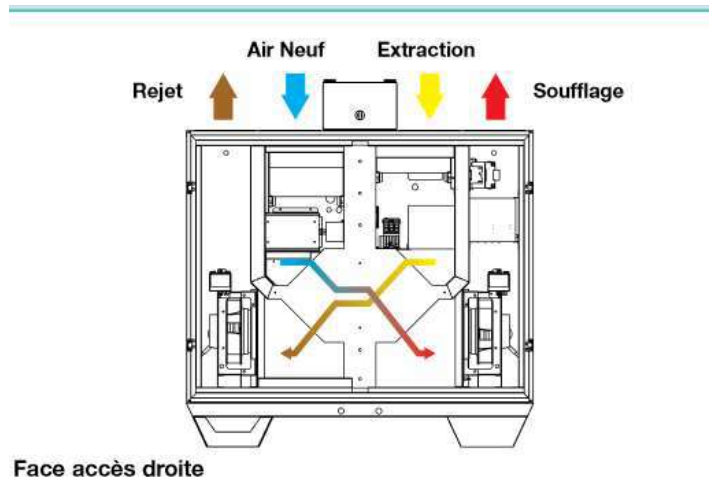


Domaine d'application	
Mise en œuvre	
Avantages	
Description	
Gamme	
Caractéristiques techniques	
Caractéristiques aérauliques et électriques	
Caractéristiques acoustiques	
Régulation Aldes Smart Control®	
Entretien	
Options & Accessoires	

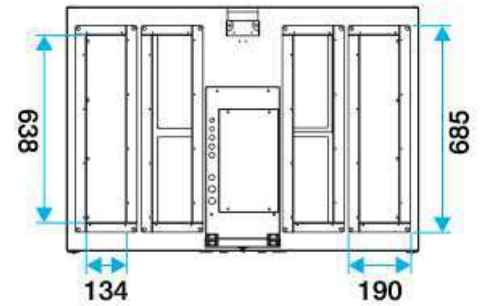
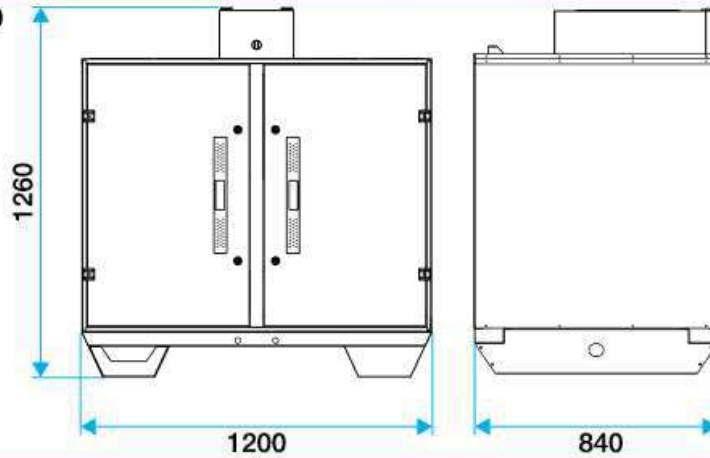
TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Which use of industrial objects



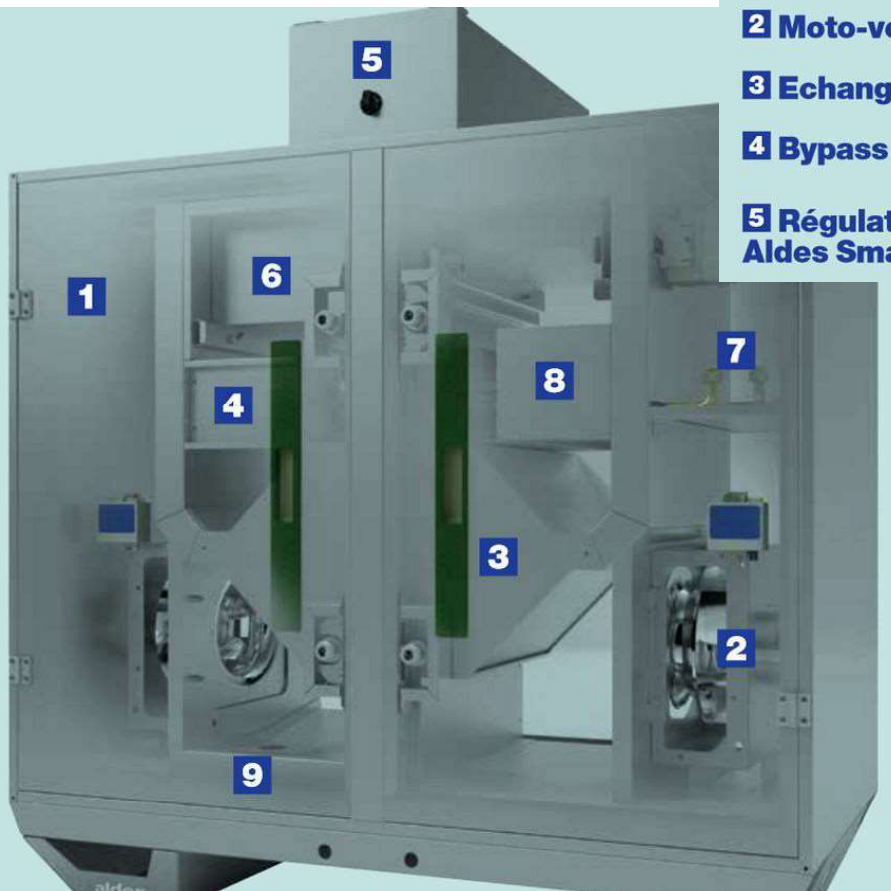
Everest XV 1200



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Which use of industrial objects



- | | |
|--|---|
| 1 Caisse | 6 Filtres |
| 2 Moto-ventilateur | 7 Connexion Batteries |
| 3 Echangeur | 8 Batterie électrique de dégivrage |
| 4 Bypass | 9 Évacuation des condensats |
| 5 Régulation Aldes Smart Control® | |

TRAINING FOR COMPANIES

*apply BIM models to ventilation &
airtightness*

Part 4 : Impacts of a MEP model on other trade models

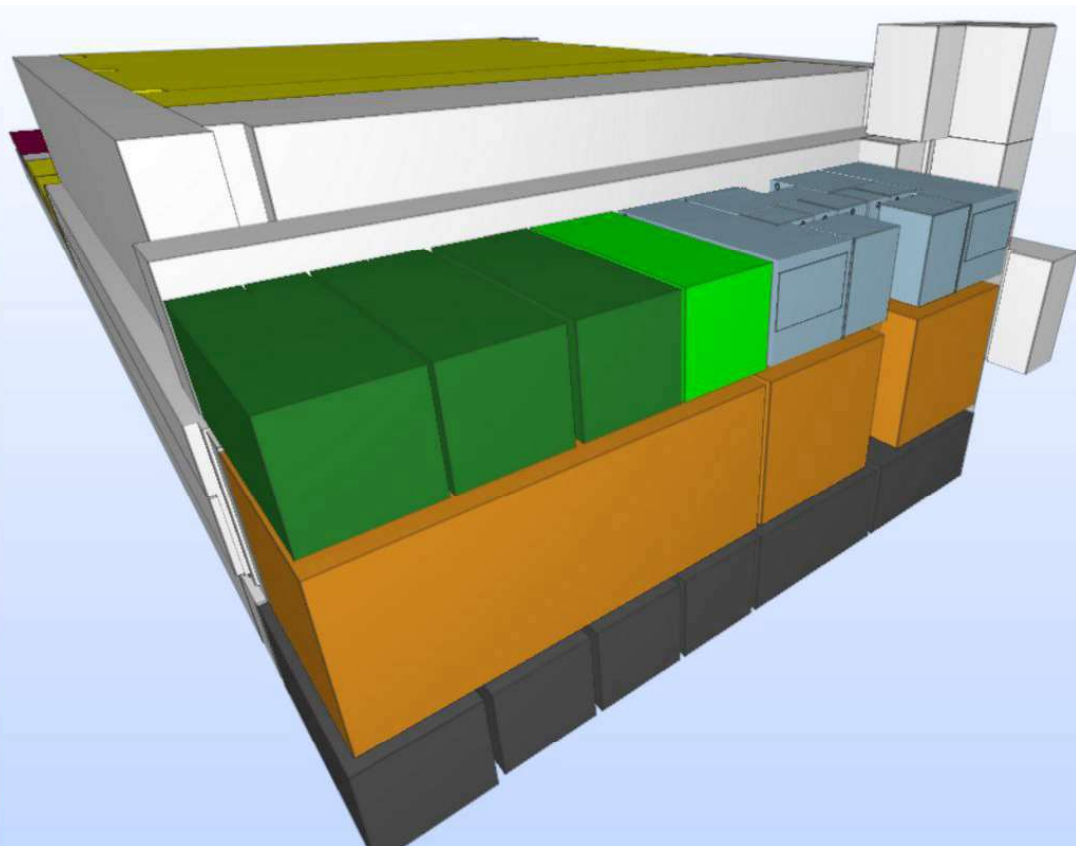
Part 4

Impacts of a MEP model on other trade models

Understand the other business models and their links to the MEP model exported in IFC

→ for viewing in Solibri Model Viewer

- What are the representations of the objects?
- What information?
- What information is missing? Why is that?



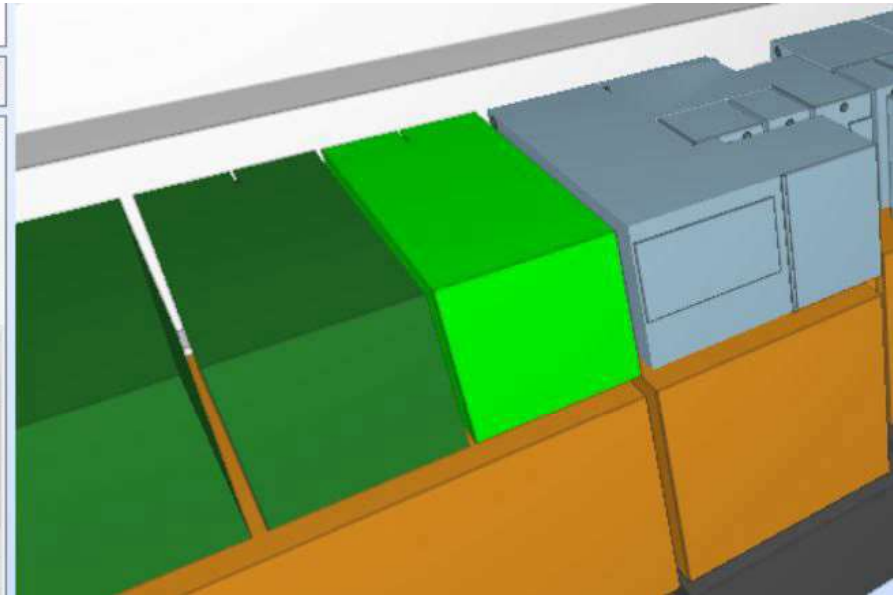
TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Architecture model

BIMObjects " Space "

Panier de Sélection	
Info	
Espace. 1.15 : Bureau[Bureau]	
AC_Pset_RenovationAndPhasing BaseQuantities	
Aires Limites Espace	Classification
Identification	Emplacement
Quantités	Relations
Limites Espace	Zone
Equipements	Pset_SpaceCommon
Propriété	Valeur
CFA	Lecteur de badge
CFO	2x3 PC 10/16A +T sur goulotte
Électricité VDI	3 PC 10/16A +T secouru
Mobilier	Tableau blanc_Armoire
Réseau VDI	3 RJ45

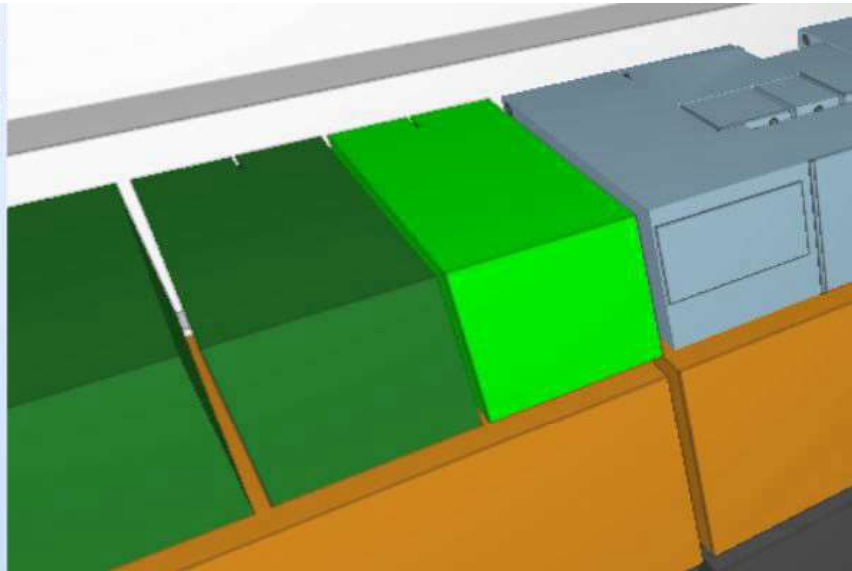
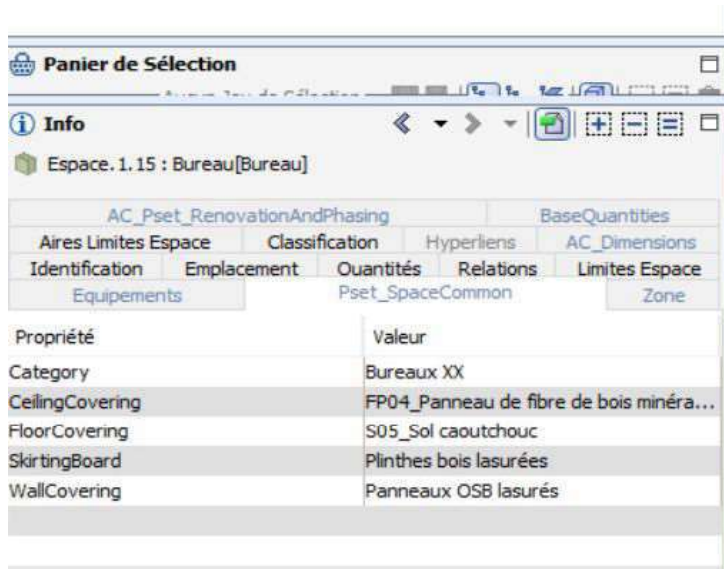


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Architecture model

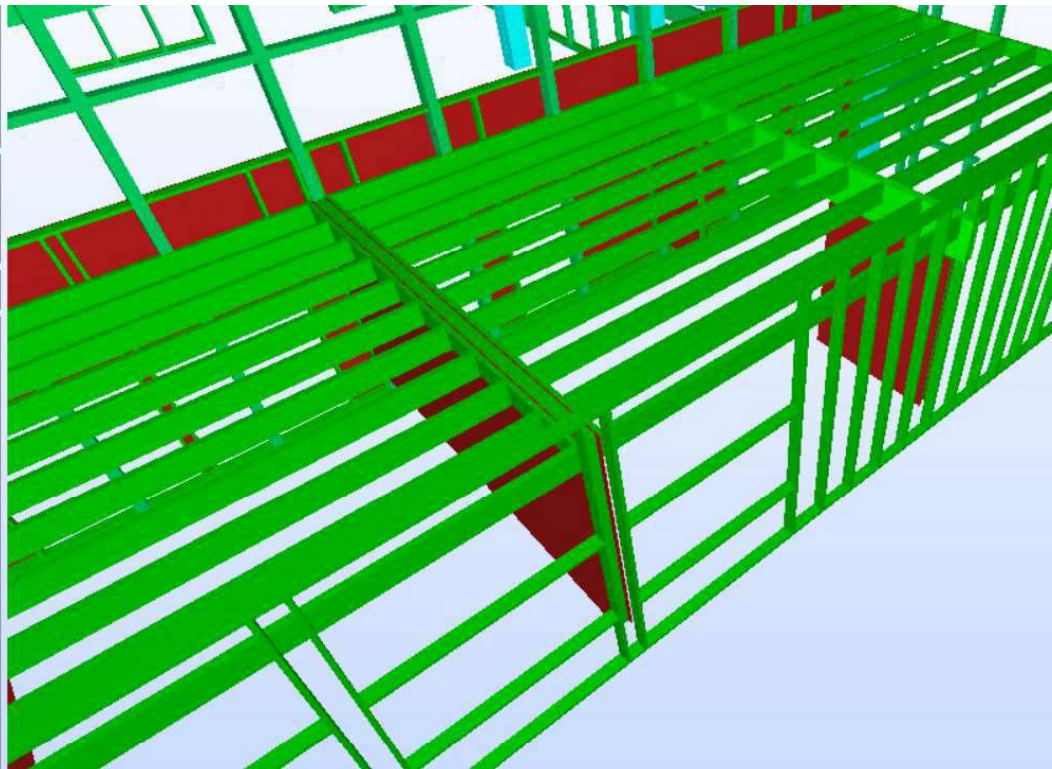
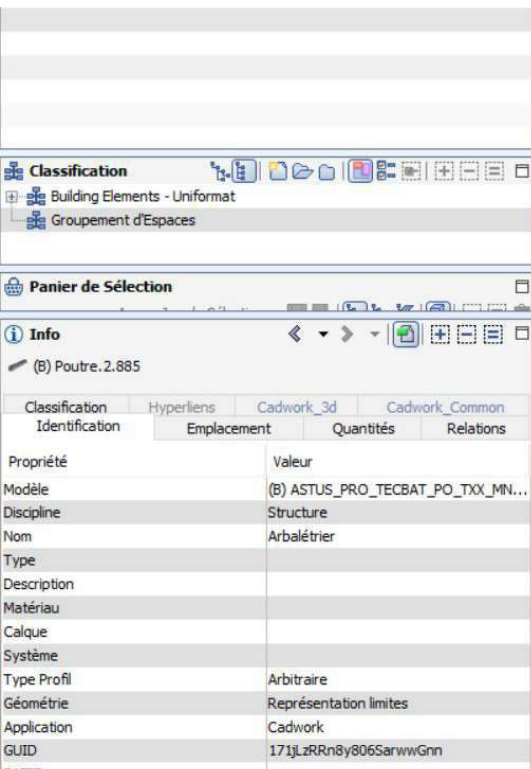
BIMObjects " Space "



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

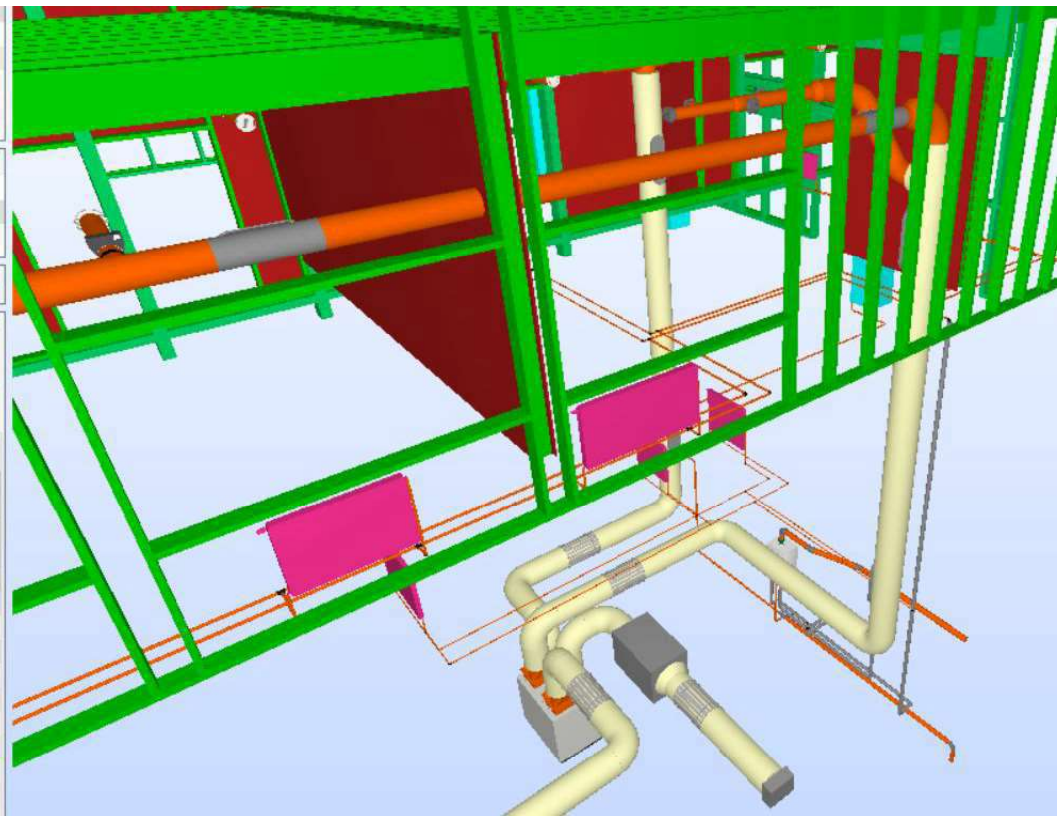
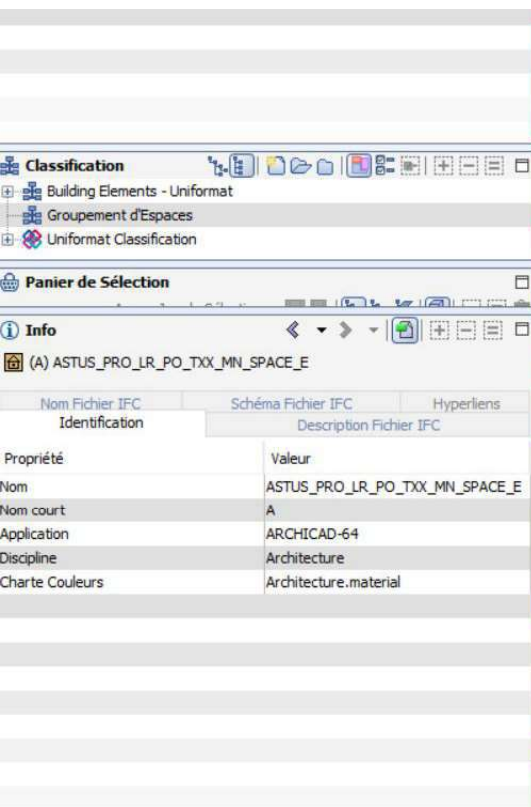
Structure model



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

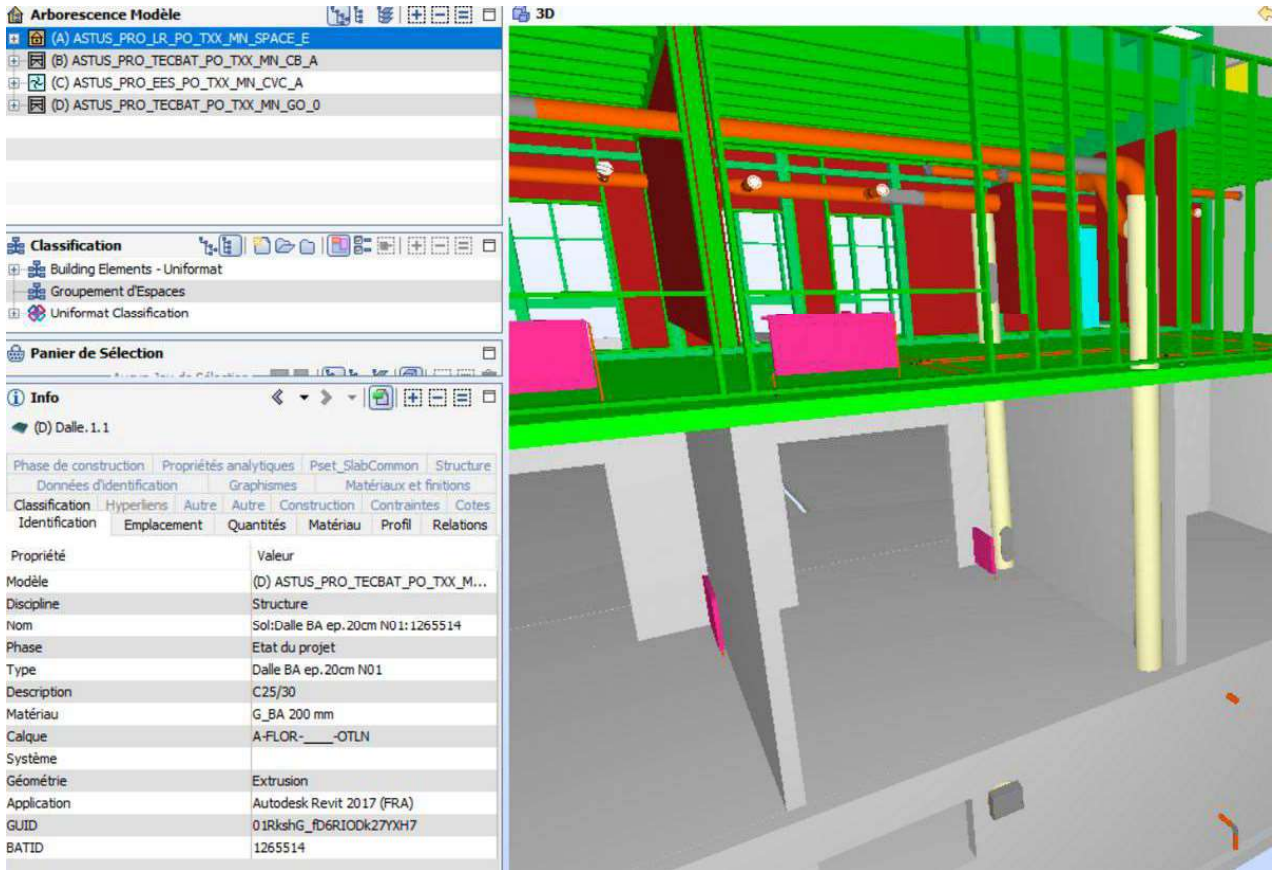
Structure model



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

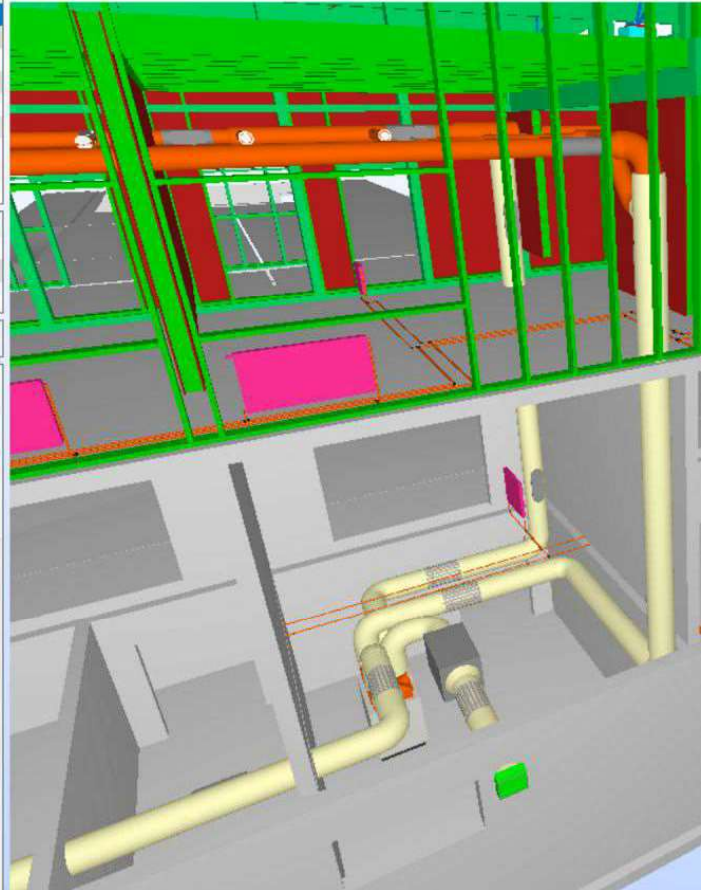
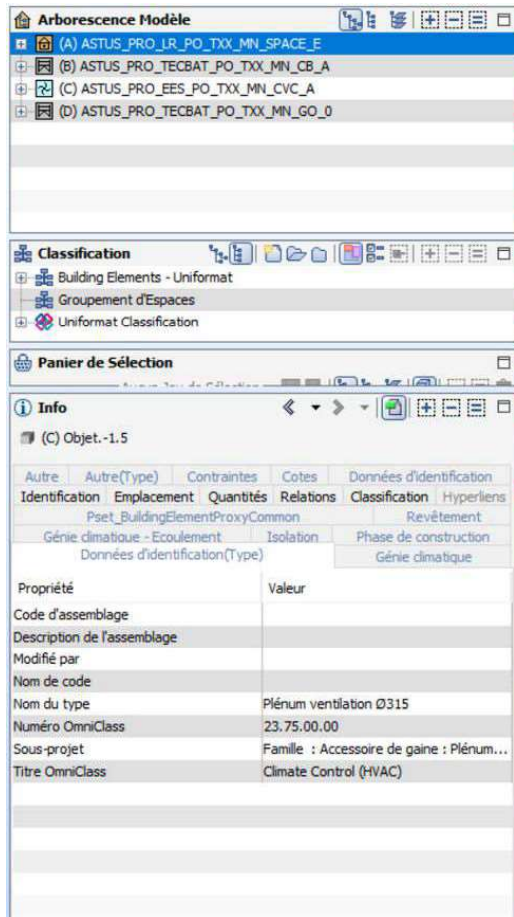
Structure model



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Structure model and MEP objects



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Structure model and MEP objects

Petites grilles extérieures

Série AWA 251 - aluminium



Grille AWA 251

LES + PRODUITS

- Grille légère adaptée aux débits de ventilation.
- Disponible sur stock dans la plupart des dimensions standard.

GAMME COMPLÉMENTAIRE

- Finition peinture selon carte RAL (nous consulter).
- Toutes dimensions disponibles jusqu'à 1200 x 1200 mm (nous consulter).

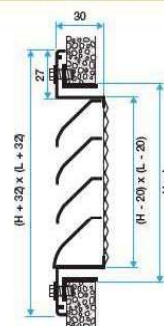
DESCRIPTION

- Cadre en aluminium extrudé, ailettes horizontales type pare-pluie en aluminium extrudé.
- Entraxe des ailettes de 25 mm.
- Partie intérieure comportant un grillage de protection à mailles losanges de 10 x 30, Ø 0.8 mm.
- Finition aluminium anodisé, teinte naturelle satinée.
- Fixation apparente par vis dans l'encadrement.

DOMAINE D'APPLICATION

- Prise d'air neuf ou rejet d'air vicié.
- Positionnement mural.

ENCOMBREMENT



Grille AWA 251 avec contre-cadre

Voir tableau de sélection page 625.

Electricity model and MEP objects

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Electricity model and MEP objects

(C) ASTUS_PRO_EES_PO_TXX_MN_CVC_A

(D) ASTUS_PRO_TECBAT_PO_TXX_MN_GO_0

(E) ASTUS_PRO_EES_PO_TXX_MN_ELEC_B

(F) ASTUS_PRO_EES_PO_TXX_MN_PB_A

Classification

Building Elements - Unifomat

Groupeement d'Espaces

Unifomat Classification

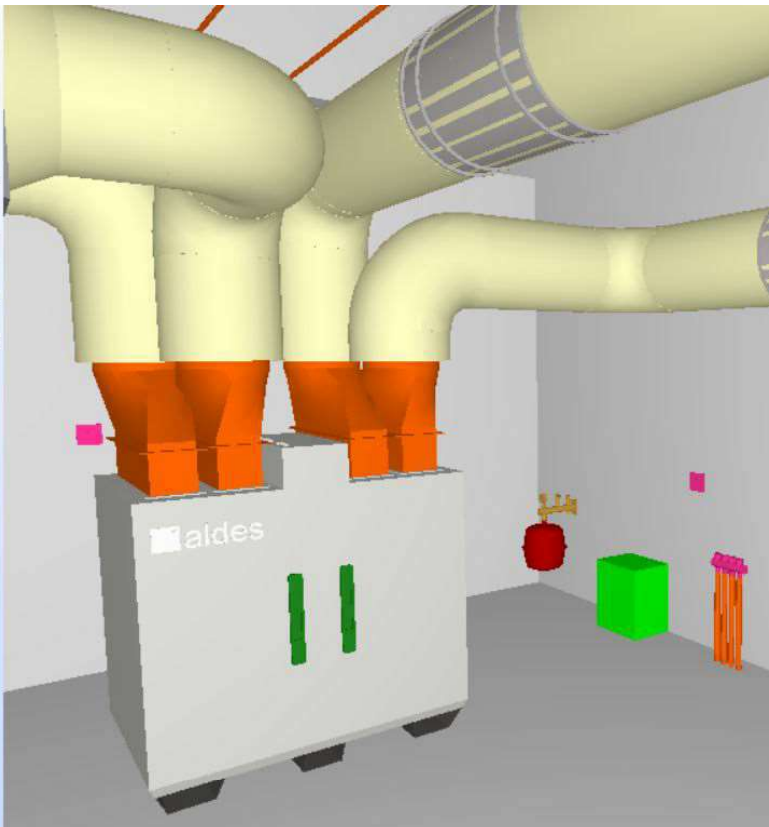
Panier de Sélection

Aucun Jeu de Sélection

Info

(F) Convertisseur d'Energie. -1.2

Génie climatique		Phase de construction		Pset_DistributionFlowElementCommon			
Contraintes	Cotes	Cotes(Type)	Données d'identification	Données d'identification(Type)			
Identification	Emplacement	Quantités	Profil	Relations	Classification	Hyperliens	Autre
Propriété				Valeur			
Modèle				(F) ASTUS_PRO_EES_PO_TXX_MN_PB_A			
Discipline				Plomberie			
Nom				Module hydraulique puits canadien:Module hydraulique SE...			
Type							
Description							
Functional Type							
Calque				M-EQPM-____-OTLN			
Système							
Géométrie				Extrusion			
Application				Autodesk Revit 2016 (FRA)			
GUID				0xs3w\$eLbCnvPW/tpdw 3WXF			
BATID				3637307			



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Interior joinery model and boiler room

Arborescence Modèle

(A) ASTUS_PRO_LR_PO_TXX_MN_SPACE_E

(B) ASTUS_PRO_TECBAT_PO_TXX_MN_CB_A

(C) ASTUS_PRO_EES_PO_TXX_MN_CVC_A

(D) ASTUS_PRO_TECBAT_PO_TXX_MN_GO_0

(E) ASTUS_PRO_EES_PO_TXX_MN_ELEC_B

(F) ASTUS_PRO_EES_PO_TXX_MN_PB_A

(G) ASTUS_PRO_SIAF_PO_TXX_MN_AME_0

(H) ASTUS_PRO_LR_PO_TXX_MN_F

Classification

Building Elements - Unifomat

Groupe ment d'Espaces

Unifomat Classification

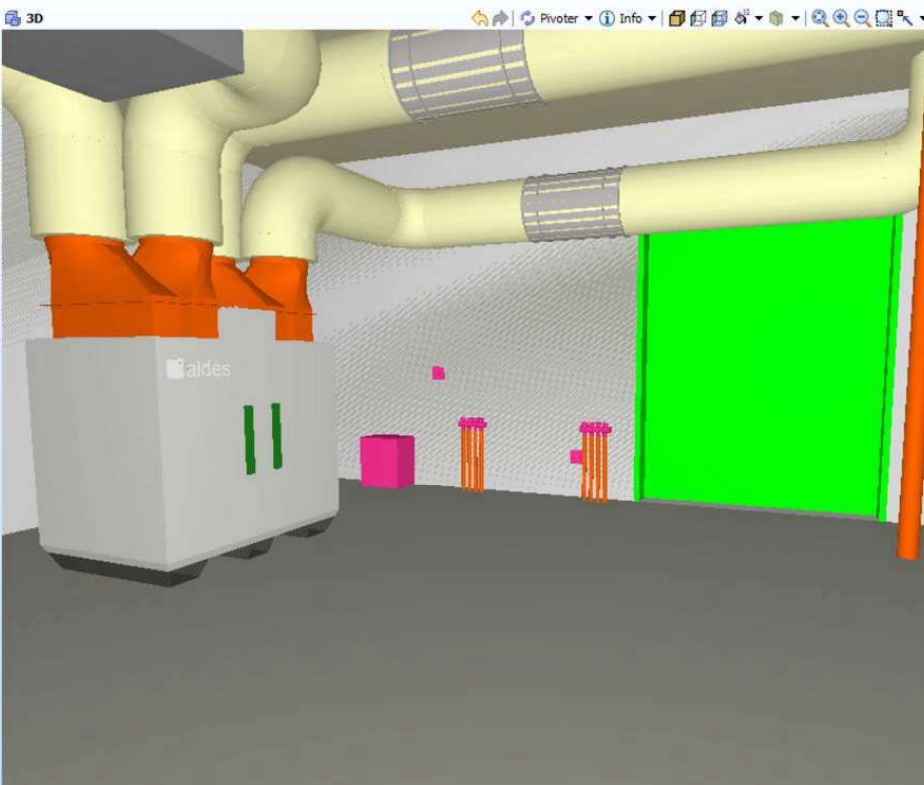
Panier de Sélection

Aucun Jeu de Sélection

Info

(H) Porte.-1.8

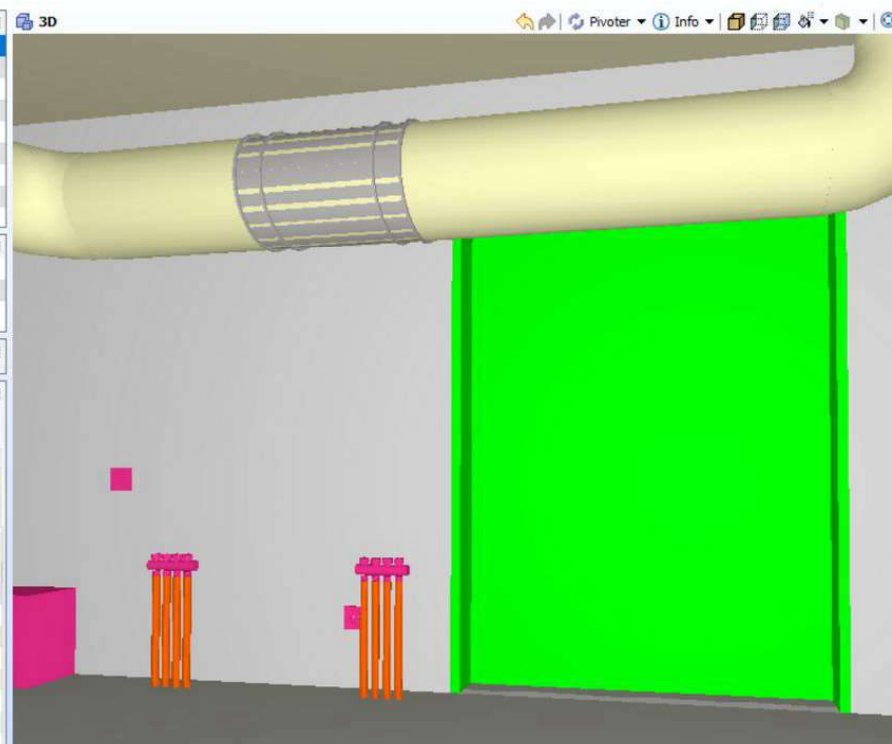
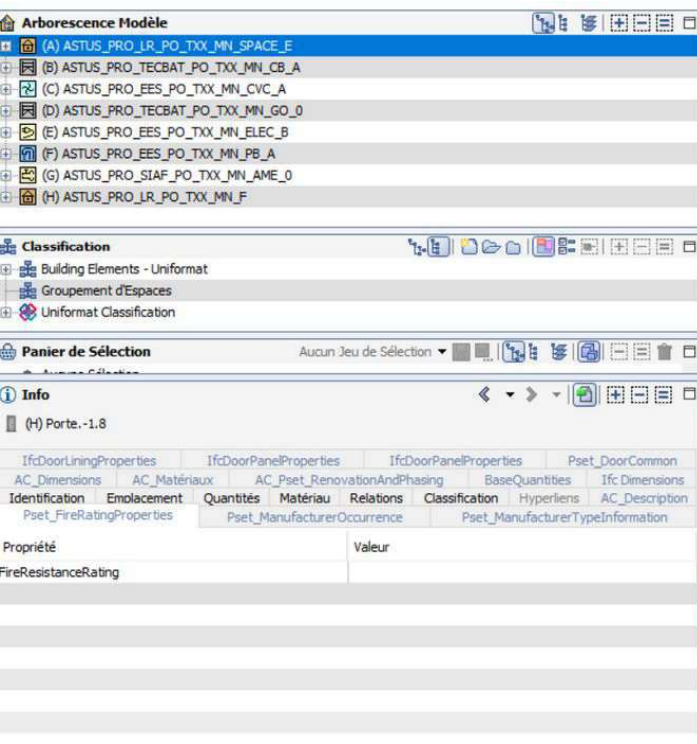
Pset_FireRatingProperties		Pset_ManufacturerOccurrence		Pset_ManufacturerTypeInformation	
IfcDoorLiningProperties		IfcDoorPanelProperties		Pset_DoorCommon	
AC_Dimensions	AC_Matériaux	AC_Pset_RenovationAndPhasing	BaseQuantities	Hyperliens	Ifc_Dimensions
Identification	Emplacement	Quantités	Matériau	Relations	Classification
Propriété	Valeur				
Modèle	(H) ASTUS_PRO_LR_PO_TXX_MN_F				
Discipline	Architecture				
Nom	NA-P02				
Type	Porte double asymétrique 20				
Description					
Opération	Double Porte Battant Unique				
Calque	PO-TF Plan. 3D				
Système					
Enveloppe Bâtiment	Faux				
Géométrie	Représentation limites				
Application	ARCHICAD-64				
GUID	1BXeNnCRUjIBR0YYRORH				
BATID	4B8685F1-31BE-2D48-BD5B-0228AF6D86D1				



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Interior joinery model and boiler room



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

MEP model and false ceiling Fastening issues ?

Fichier Modèle Vérification Présentation Informations Mètres +

Arborescence Modèle

- (A) ASTUS_PRO_LR_PO_TXX_MN_SPACE_E
- (B) ASTUS_PRO_TECBAT_PO_TXX_MN_CB_A
- (C) ASTUS_PRO_EES_PO_TXX_MN_CVC_A
- (D) ASTUS_PRO_TECBAT_PO_TXX_MN_GO_0
- (E) ASTUS_PRO_EES_PO_TXX_MN_ELEC_B
- (F) ASTUS_PRO_EES_PO_TXX_MN_PB_A
- (G) ASTUS_PRO_SIAF_PO_TXX_MN_AME_0
- (H) ASTUS_PRO_LR_PO_TXX_MN_F

Classification

- Building Elements - Unifomat
- Groupe d'Espaces
- Unifomat Classification

Panier de Sélection Aucun Jeu de Sélection

Info

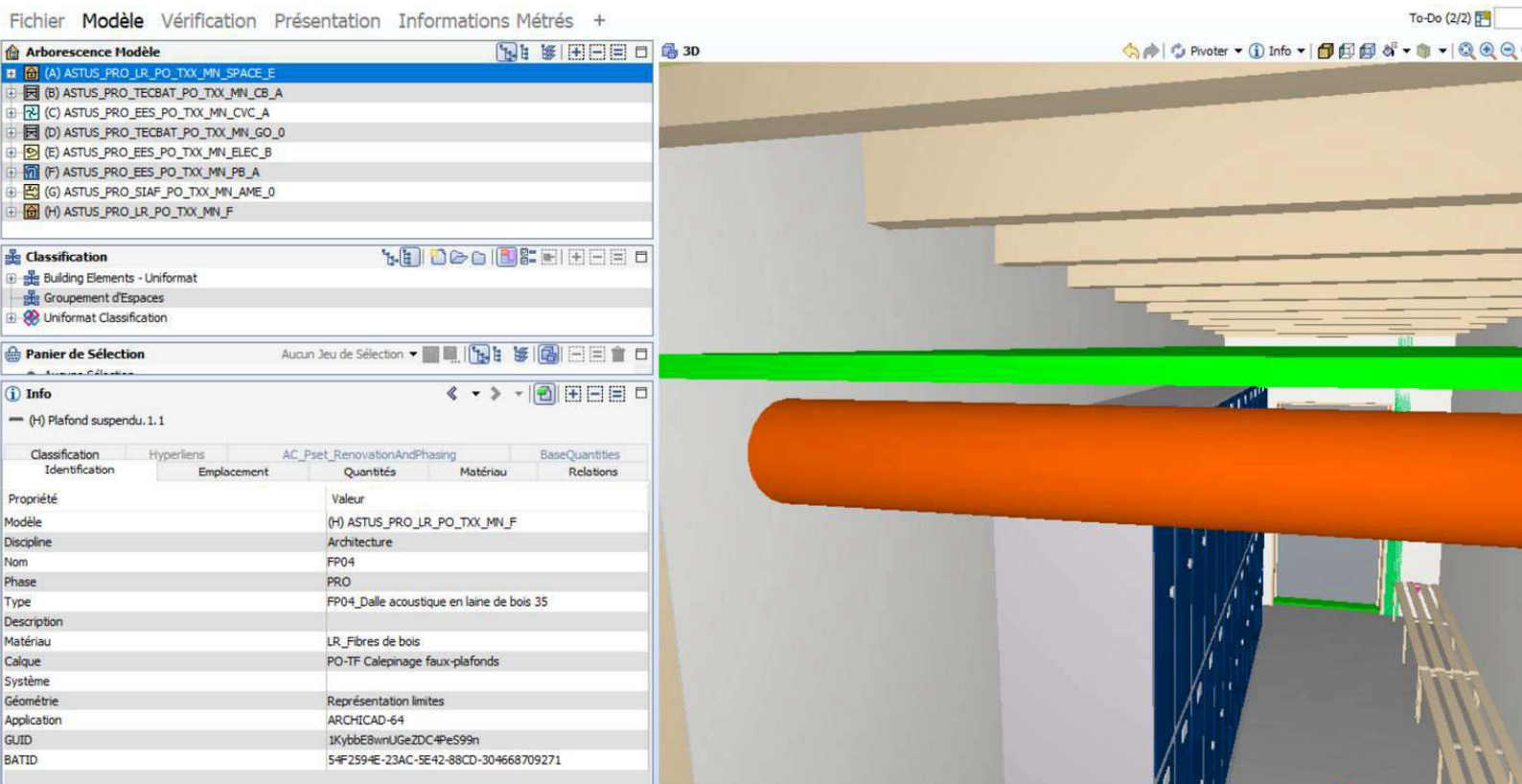
(C) Terminaison Air. 1.5

Pset_DistributionFlowElementCommon				Pset_ManufacturerTypeInformation			
Génie climatique - Ecoulement				Matériaux et finitions(Type)			
Génie climatique				Phase de construction			
Contraintes	Cotes	Cotes(Type)	Données d'identification	Données d'identification	Données d'identification(Type)	Génie climatique	
Identification	Emplacement	Quantités	Matériau	Relations	Classification	Hyperliens	Autre
Connected to							
Connections							
Contenu							
Defines by Type							
Groupe							
(C) Système.b.5 : SOUF 2							
Nearest Spaces							
(A) Espace.1.11 : Vestiaires[Vestiaires]							

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

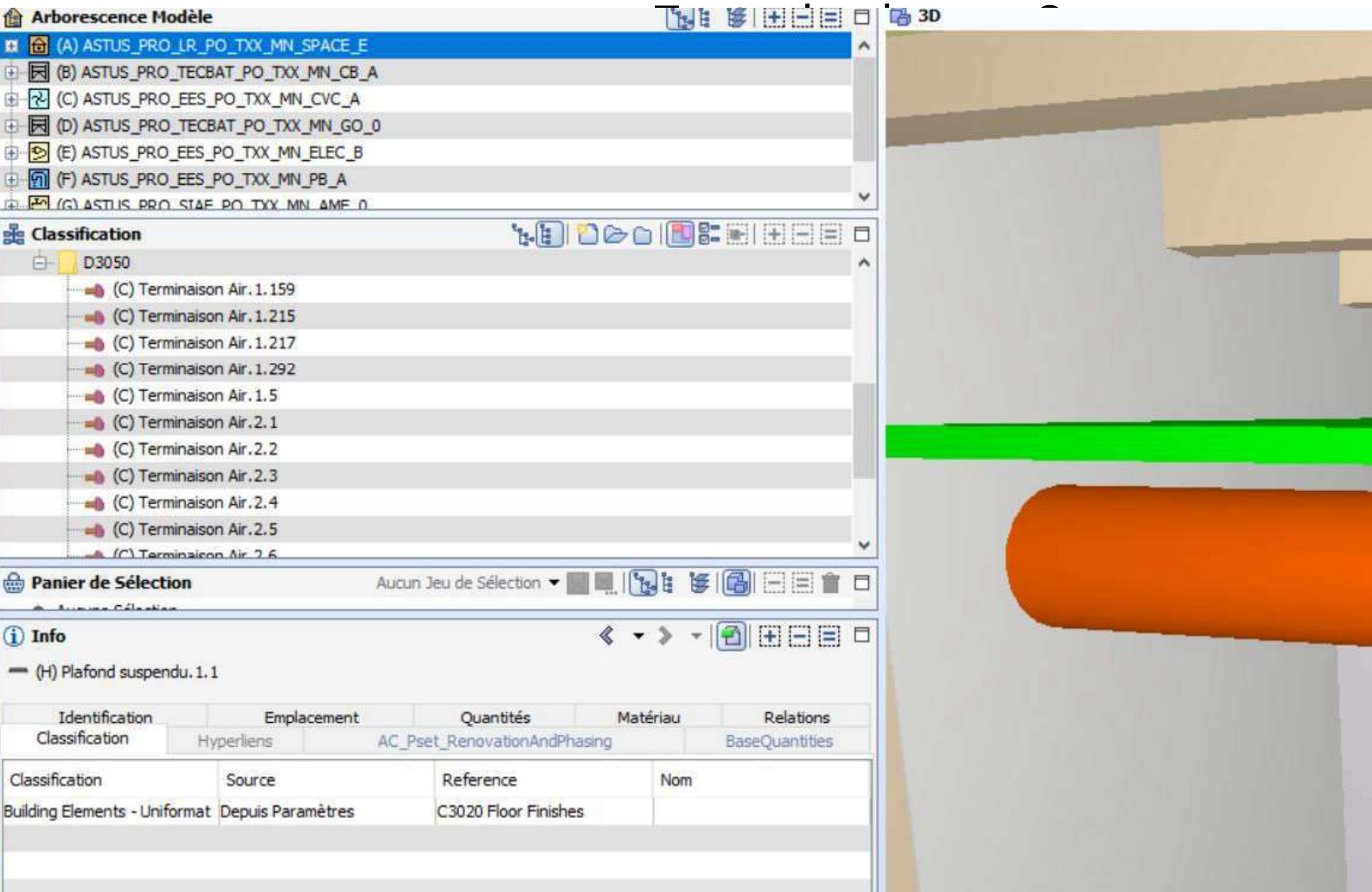
MEP model and false ceiling Fastening issues ?



BIMplement

TRAINING FOR COMPANIES

MEP model and false ceiling



TRAINING FOR COMPANIES

*apply BIM models to ventilation &
airtightness*

Part 5 : Location / Identification of airtightness sensitive points with the "ifc opening"

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

airtightness sensitive points & IfcOpening

Solibri Model Checker - BOU-DCE-maquette architecte

Fichier Modèle Vérification Présentation Informations Mètres +

Arborescence Modèle

- Mur.0.1206
- Mur.0.303
- Mur.0.475
- Mur.0.658**
- Mur.0.800
- Mur.0.935
- Bois - Massif 01 35
- BOU Locaux externes semelle filante 330 x 700
- BOU-CHASSE ROUE 40 x 40

Classification

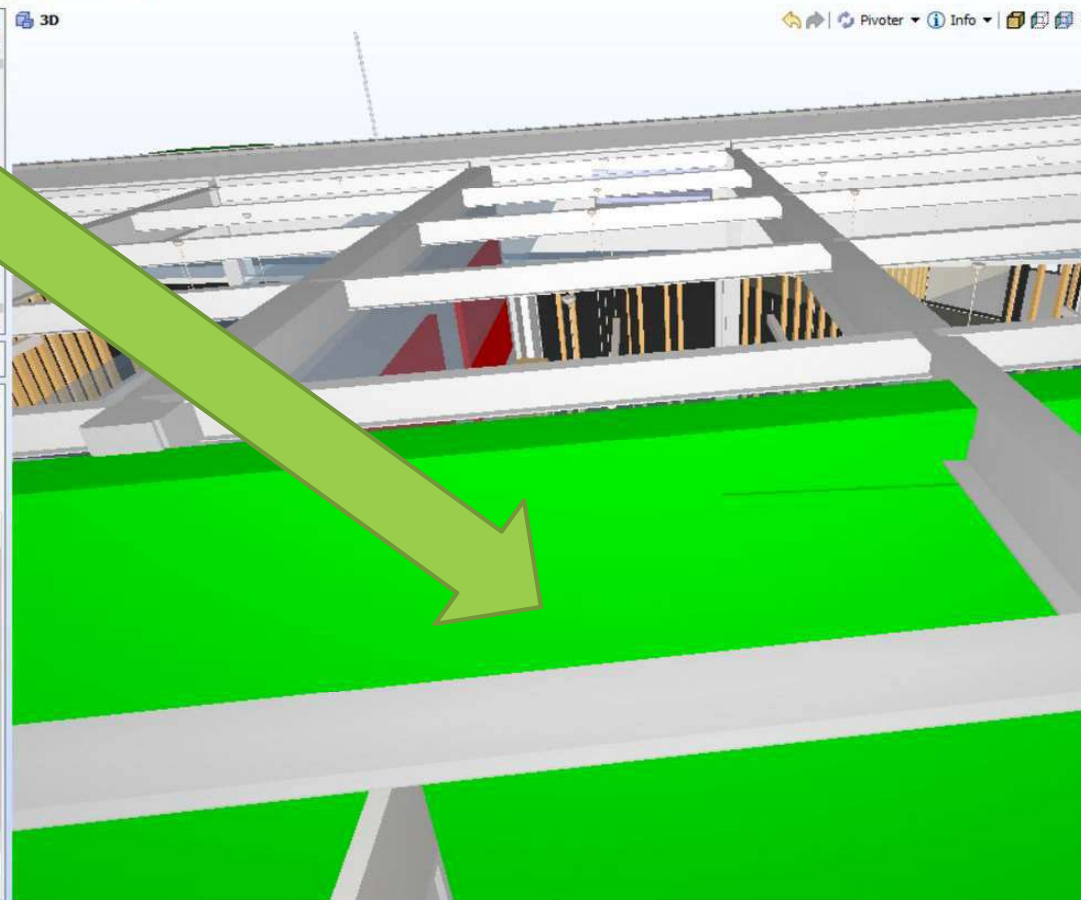
- E1090 Other Equipment
- Non-classé
- Groupement d'Espaces

Panier de Sélection

Info

Mur.0.658

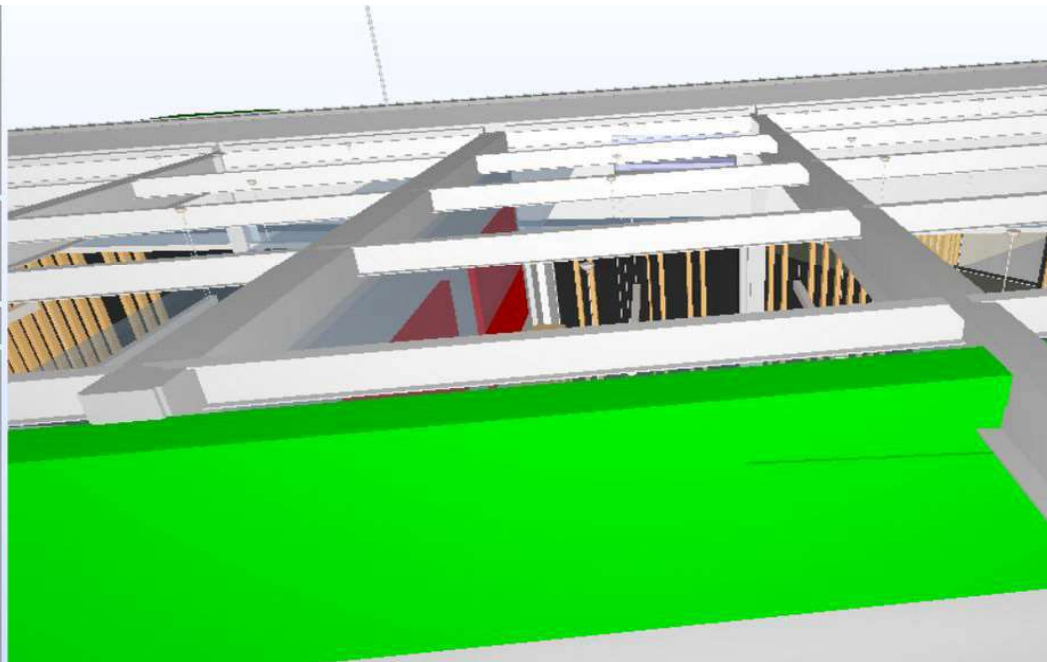
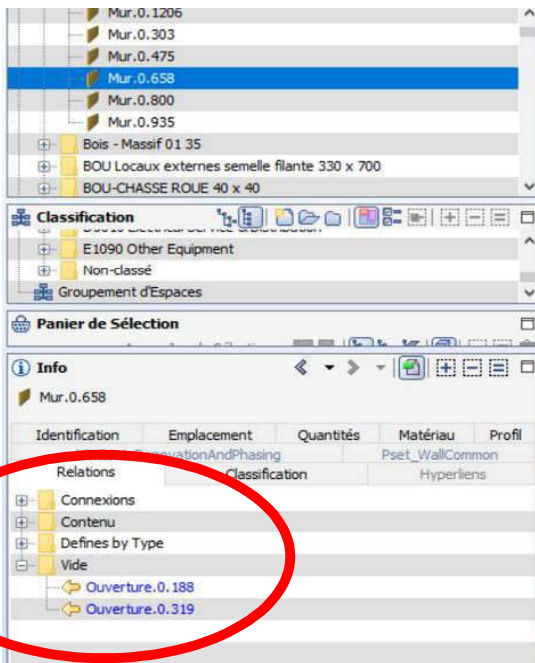
AC_Pset_RenovationAndPhasing		Pset_WallCommon	
Relations	Classification	Hyperliens	
Identification	Emplacement	Quantités	Matériau
Propriété	Valeur		
Modèle	BOU-DCE-maquette architecte		
Discipline	Architecture		
Nom	MurExt-016		
Type	3.1-Refend: maçonnerie 20 + enduit p...		
Description			
Matériau	Finition int - Enduit plâtre 15 mm, Stru...		
Calque	Murs int aggro.DK		
Système			
Enveloppe Bâtiment	Faux		
Géométrie	Solide		
Application	ArchiCAD-64		
GUID	0VwGdpzVdqIgLk_szVzoz		
BATID	1FE909F3-F609-F44A-A555-BBEDBD8...		



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

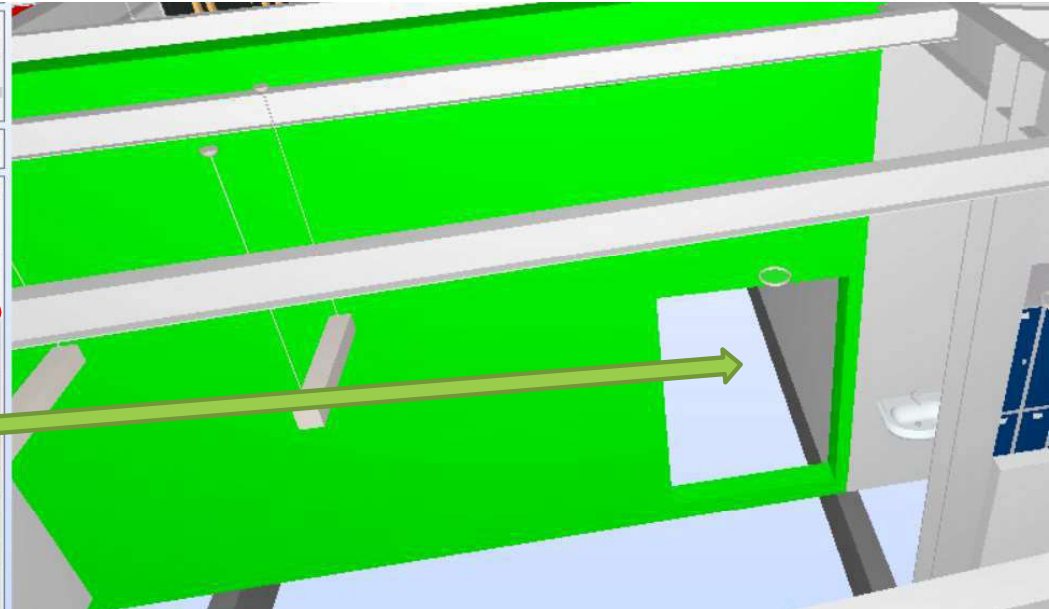
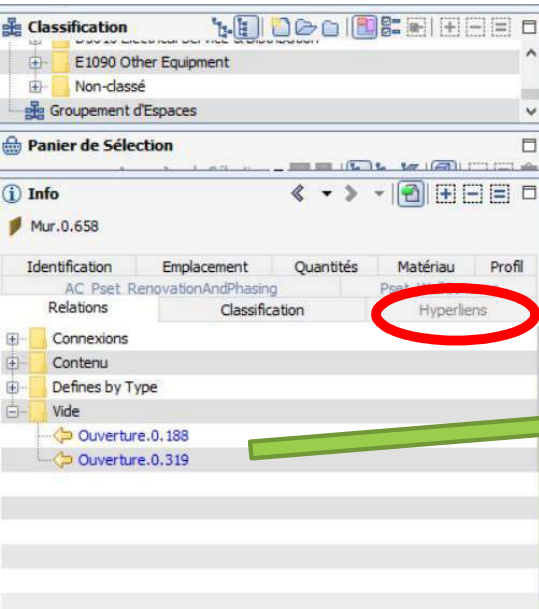
airtightness sensitive points & IfcOpening



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

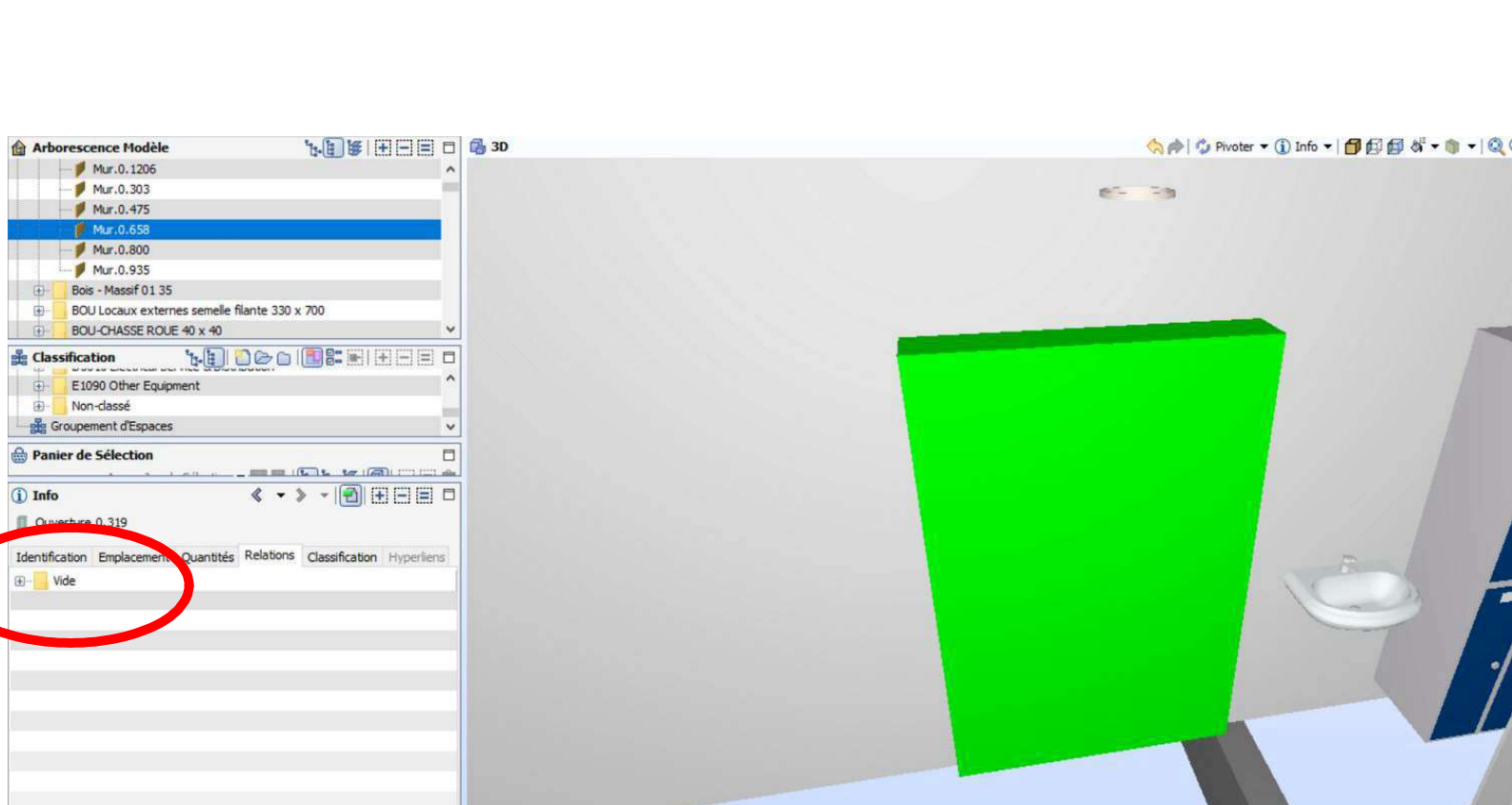
airtightness sensitive points & IfcOpening



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

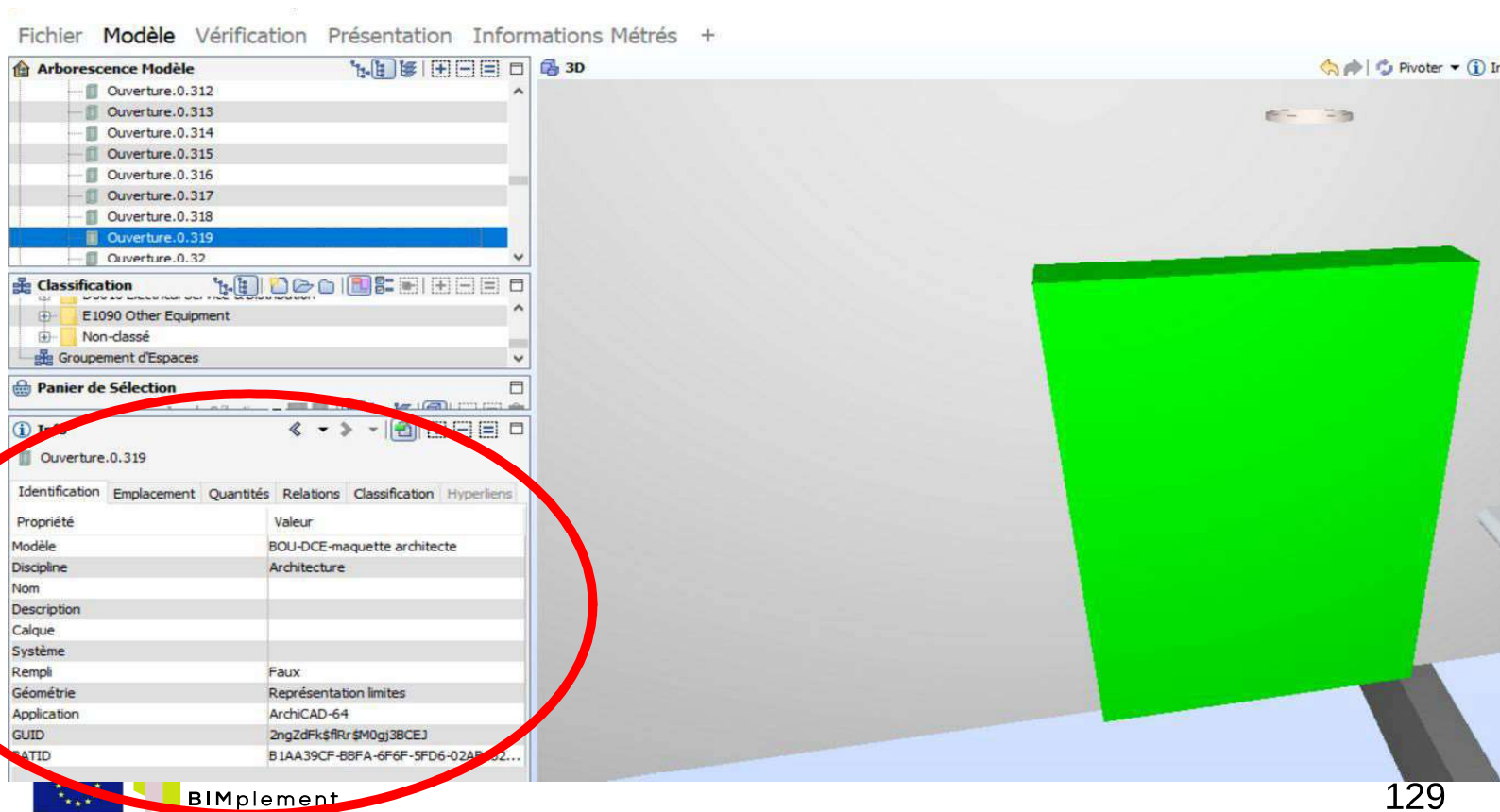
airtightness sensitive points & IfcOpening



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

airtightness sensitive points & IfcOpening



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

airtightness sensitive points & IfcOpening

Info

Ouverture.0.319

Identification	Emplacement	Quantités	Relations	Classification	Hyperliens
Propriété	Valeur				
Modèle	BOU-DCE-maquette architecte				
Discipline	Architecture				
Nom					
Description					
Calque					
Système					
Rempli	Faux				
Géométrie	Représentation limites				
Application	ArchiCAD-64				
GUID	2hgZdFk\$fIRr\$M0gj3BCEJ				
BATID	B 1AA39CF-BBFA-6F6F-5FD6-02AB432...				

Info

Ouverture.0.319

Identification	Emplacement	Quantités	Relations	Classification	Hyperliens
Propriété	Valeur				
Site	Site				
Bâtiment	Bâtiment				
Etage	Rez-de-chaussée				
Élévation Dessus	2,28 m				
Élévation Dessous	0 mm				
Distance au Prochain Etage	1,01 m				
Élévation Globale Dessus	2,09 m				
Élévation Globale Dessous	0 mm				
X Global	922,18 m				
Y Global	439,70 m				

Info

Ouverture.0.319

Identification	Emplacement	Quantités	Relations	Classification	Hyperliens
Propriété	Valeur				
Aire	2,93 m2				
Hauteur	2,09 m				
Largeur	1,40 m				
Bounding Box Height	2,09 m				
Bounding Box Length	1,40 m				
Bounding Box Width	230 mm				

Info

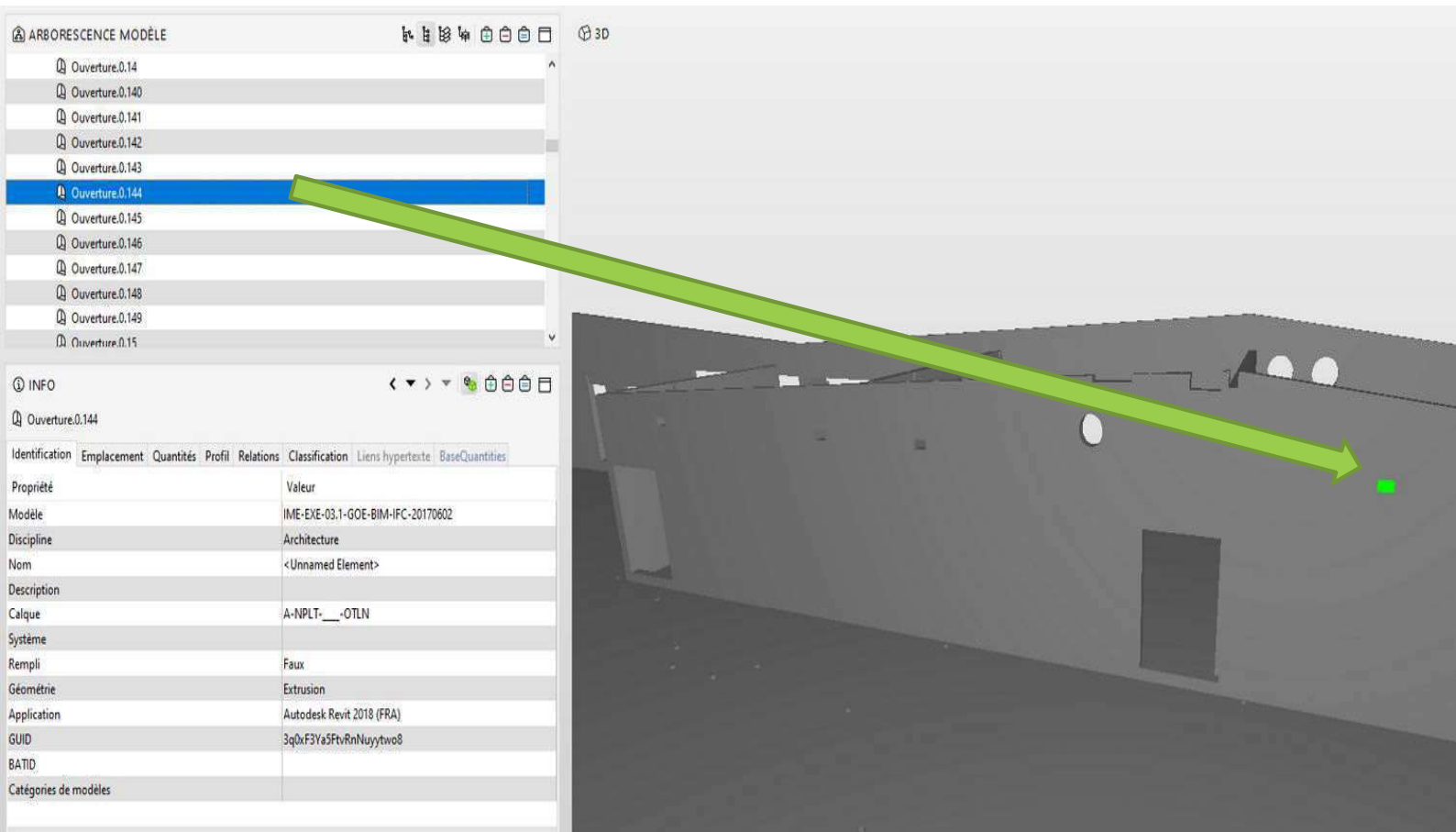
Ouverture.0.319

Identification	Emplacement	Quantités	Relations	Classification	Hyperliens
Vide					
Mur.0.658					

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

airtightness sensitive points & IfcOpening



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

airtightness sensitive points & IfcOpening

ARBORESCENCE MODÈLE

Ouverture.0.14

Ouverture.0.140

Ouverture.0.141

Ouverture.0.142

Ouverture.0.143

Ouverture.0.144

Ouverture.0.145

Ouverture.0.146

Ouverture.0.147

Ouverture.0.148

Ouverture.0.149

Ouverture.0.15

INSTRUMENTS

Ouverture.0.144

Identification	Emplacement	Quantités	Profil	Relations	Classification	Liens	Contexte	BaseQuantities
Propriété					Valeur			
Site					Default			
Bâtiment								
Étage					RDC			
Étage fédéré					RDC			
Hauteur Dessus					3,08 m			
Hauteur Dessous					2,92 m			
Distance par rapport à l'étage suivant					2,08 m			
Hauteur totale Dessus					3,08 m			
Hauteur totale Dessous					2,92 m			
X Global					34,52 m			
Y Global					67,87 m			

3D

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

airtightness sensitive points & IfcOpening

ARBORESCENCE MODÈLE

Ouverture.0.14

Ouverture.0.140

Ouverture.0.141

Ouverture.0.142

Ouverture.0.143

Ouverture.0.144

Ouverture.0.145

Ouverture.0.146

Ouverture.0.147

Ouverture.0.148

Ouverture.0.149

Ouverture.0.15

INFO

Ouverture.0.144

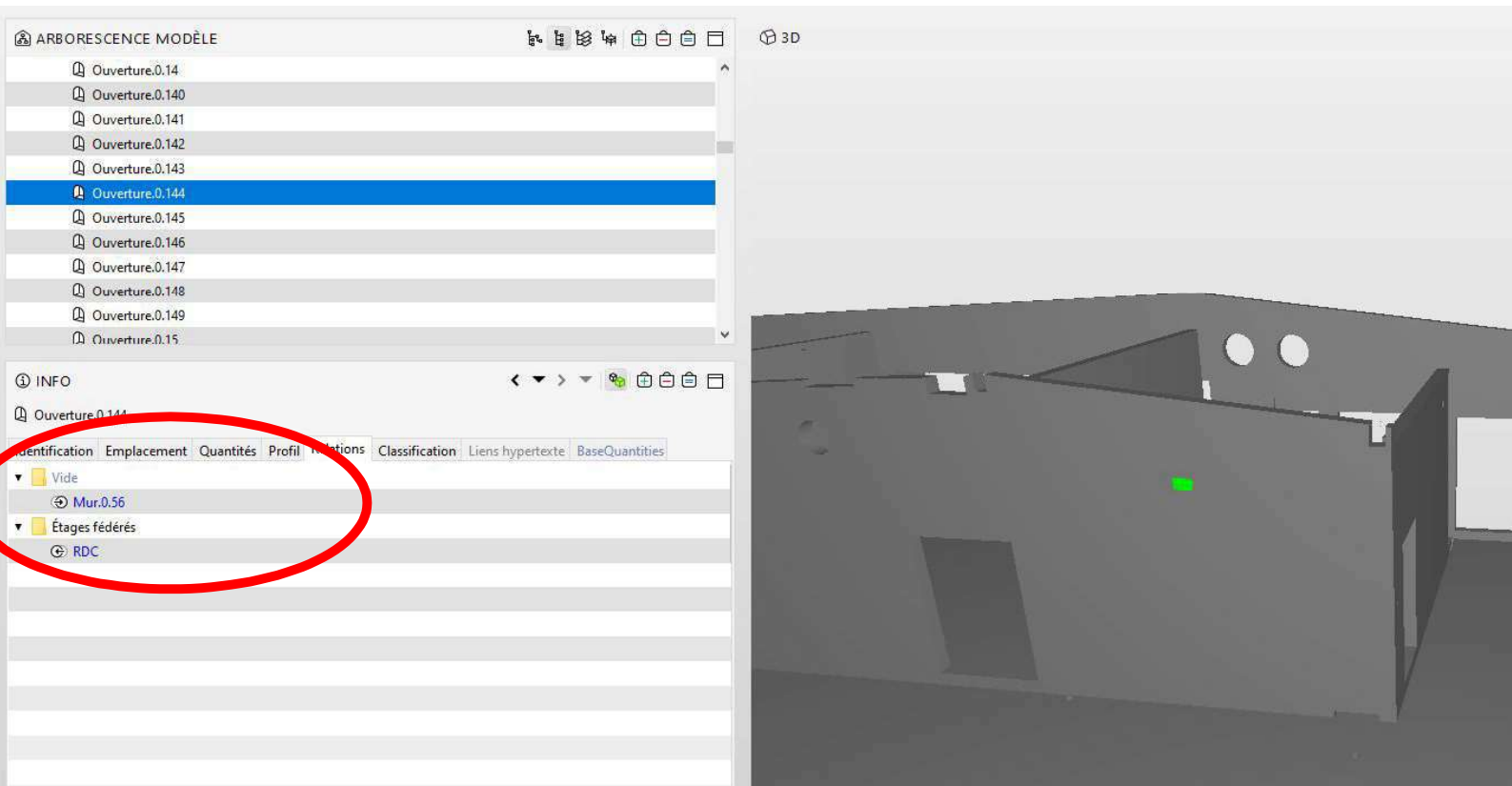
Identification	Emplacement	Quantités	Profil	Relations	Classification	Liens hypertexte	BaseQuantities
Propriété					Valeur		
Surface		0,04 m2					
Hauteur		150 mm					
Largeur		250 mm					
Hauteur du rectangle de délimitation		150 mm					
Longueur du rectangle de délimitation		250 mm					
Largeur du rectangle de délimitation		200 mm					

3D

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

airtightness sensitive points & IfcOpening



BIMplement

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

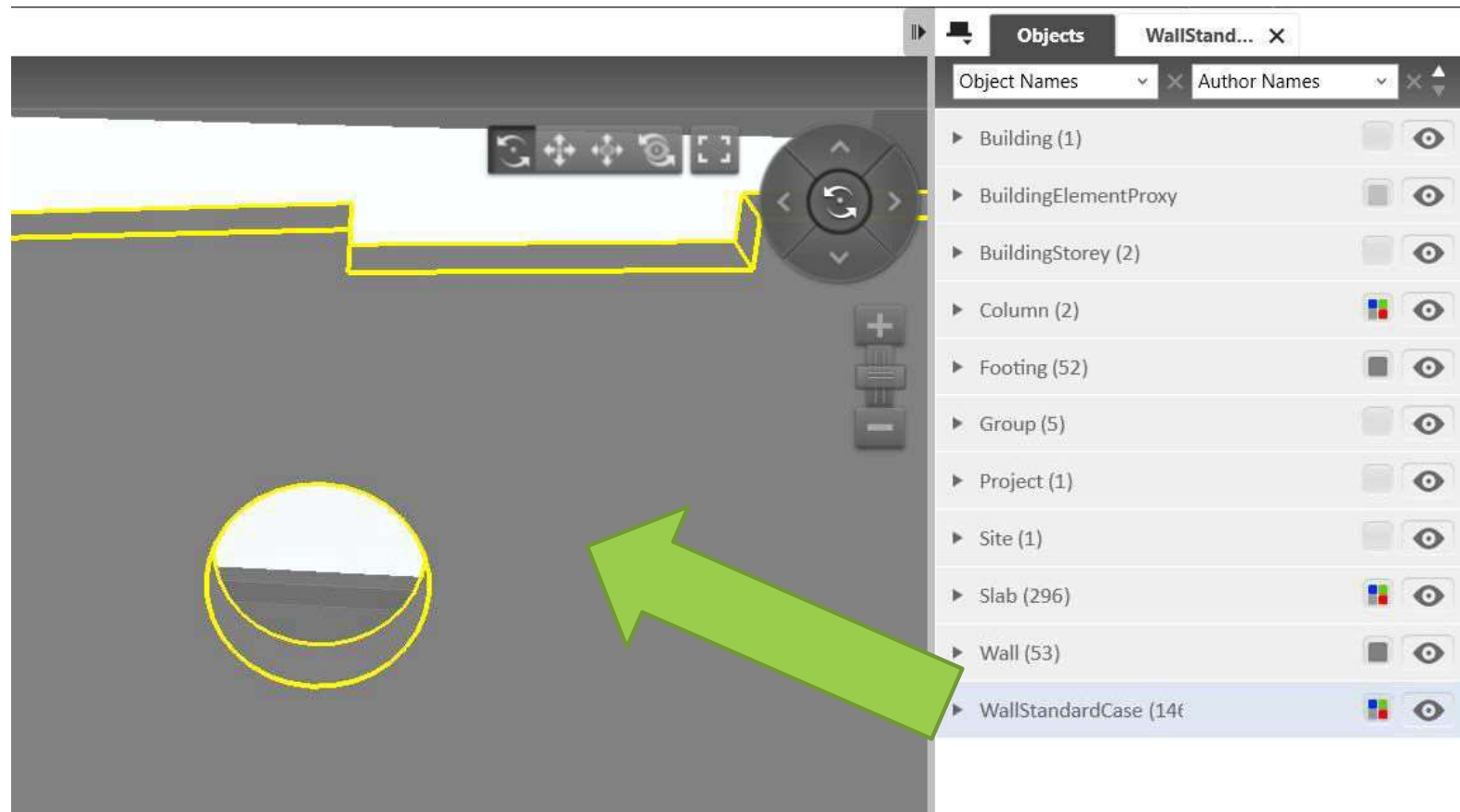
airtightness sensitive points & IfcOpening



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

airtightness sensitive points & IfcOpening



BIMplement

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

airtightness sensitive points & IfcOpening



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Set of attributes & IfcOpening

View attribute depending on the viewer

- DDS-CAD
- EveBIM
- BIM Vision
- Navisworks

WallStandardCase	
► Notes (0)	
► Documents (0)	
► Conflicts (0)	
Color :	
ReferenceObject	
GUID:	3BxA99Tab5wBaVPPWZM1S€
File Format:	Ifc
Common Type:	WallStandardCase
Geometric Classification:	Solid
Volume:	14.4 m3
IfcRectangleProfile	
Profile:	Mur de base:Parpaing béton
Dimension X:	200 mm
Dimension Y:	200 mm
Ifc2X3Product	
Product Name:	<Unnamed Element>
Product Description:	
Product Object Type:	Mur de base:Parpaing béton
Owning User:	
Creation Date:	30/05/2017 13:22:09
Change Action:	NoChange
State:	Undefined
Application:	Autodesk Revit 2018 (FRA) (R

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Set of attributes & IfcOpening

IfcMaterialLayerSetUsage

Material Layer Set:	Mur de base:Parpaing béton
Material Direction:	Axis2
Material Direction Sense:	Negative
Material Offset From Referen	100 mm
Material Layer 1.Material:	Agglos béton
Material Layer 1.Thickness:	200 mm
Material Layer 1.Ventilated:	Unknown

Structure

Activer le modèle analytique:	False
Structure:	False
Utilisation structurelle:	Non porteur

Phase de construction

Phase de création:	Phase 3
--------------------	---------

Cotes

Longueur:	20085 mm
Surface:	71.81 m2
Volume:	14.4 m3

Contraintes

Contrainte inférieure:	Niveau: RDC
Décalage supérieur:	0 mm
Extension inférieure:	0 mm
Extension supérieure:	0 mm
Lié au volume:	False
Ligne de justification:	Axe du mur
Limite de pièce:	True
Partie inférieure attachée:	False
Partie supérieure attachée:	False
Décalage inférieur:	0 mm
Hauteur non contrainte:	4800 mm

Autre

Catégorie:	Murs
Famille:	Mur de base: Parpaing béton
Famille et type:	Mur de base: Parpaing béton
ID du type:	Mur de base: Parpaing béton
Type:	Mur de base: Parpaing béton

BaseQuantities

Height:	4285 mm
Length:	20185 mm
Width:	200 mm
GrossFootprintArea:	4.04 m2
GrossSideArea:	71.81 m2
GrossVolume:	14.4 m3

Autre

Catégorie:	Murs
Nom de la famille:	Mur de base

Construction

Fonction:	Extérieur
Retournement aux extrémité:	Aucun(e)
Retournement aux insertions:	Ne pas retourner
Largeur:	200 mm

Données d'identification

Code d'assemblage:	
Description de l'assemblage:	
Nom du type:	Parpaing béton 200mm

Graphismes

Couleur vue détail faible:	0
----------------------------	---

Propriétés analytiques

Rugosité:	1
Coefficient d'absorbance:	0,1

PresentationLayers

Layer:	A-WALL-____-OTLN
--------	------------------

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

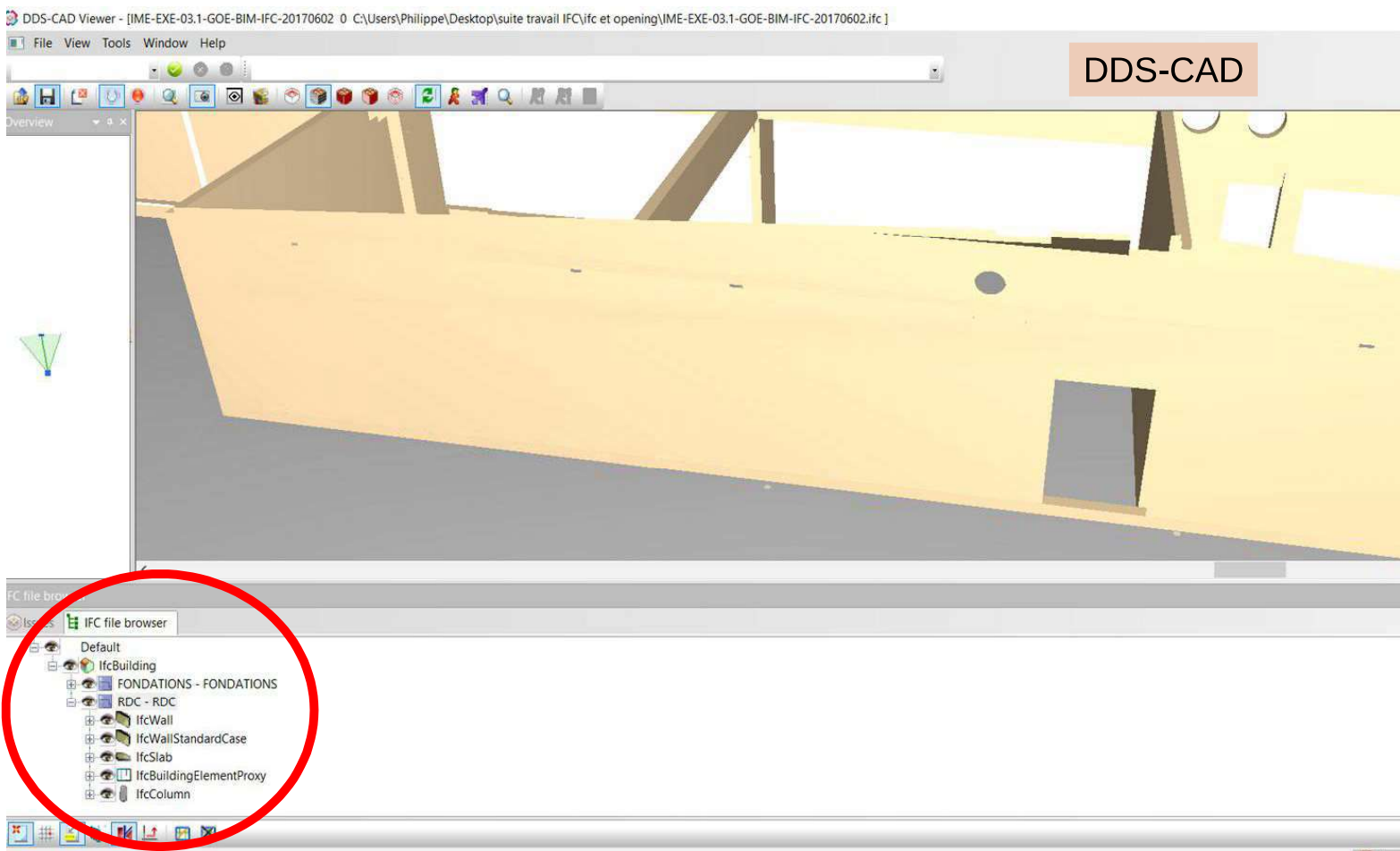
Set of attributes & IfcOpening



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Set of attributes & IfcOpening

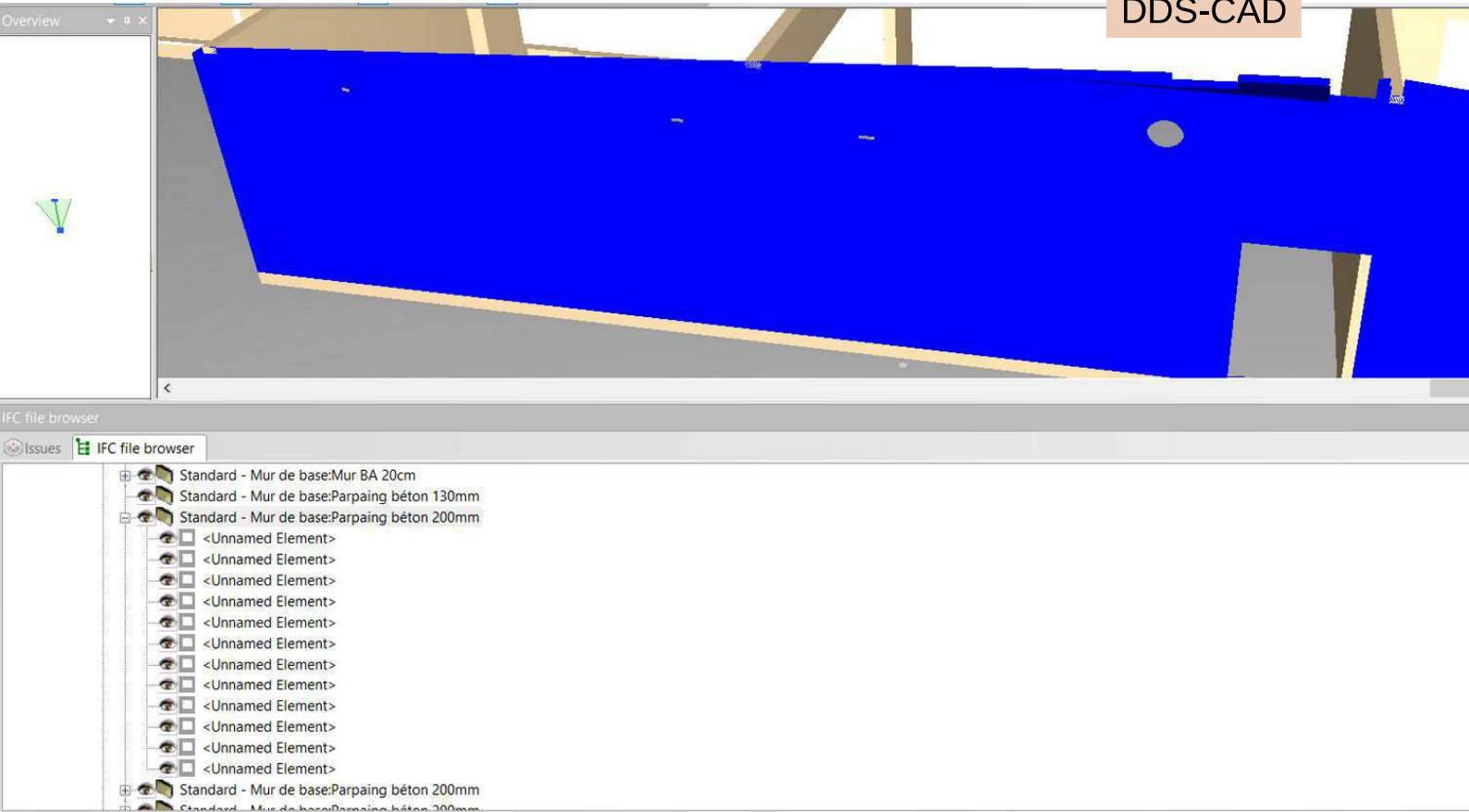


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

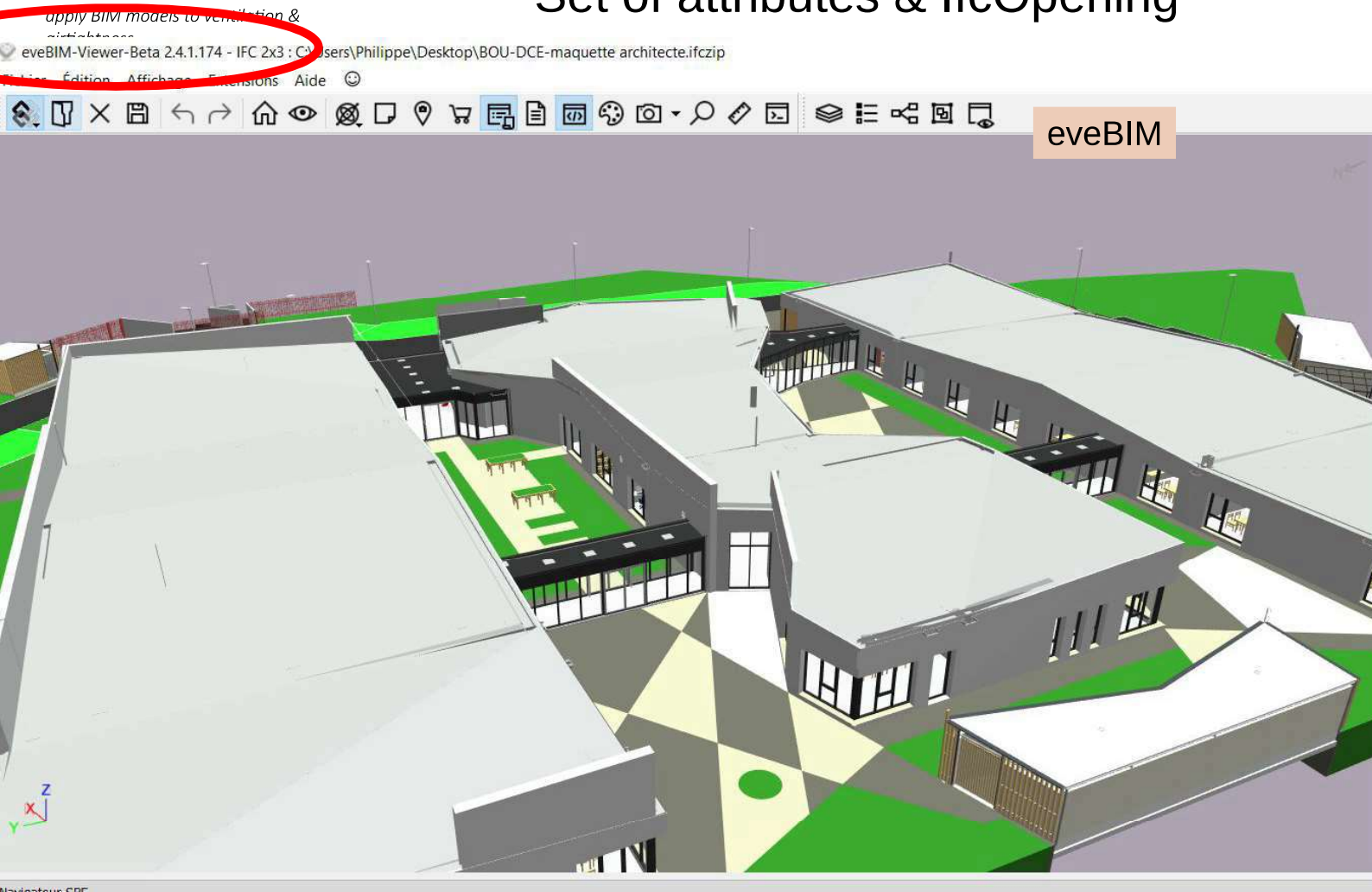
Set of attributes & IfcOpening

DDS-CAD



TRAINING FOR COMPANIES

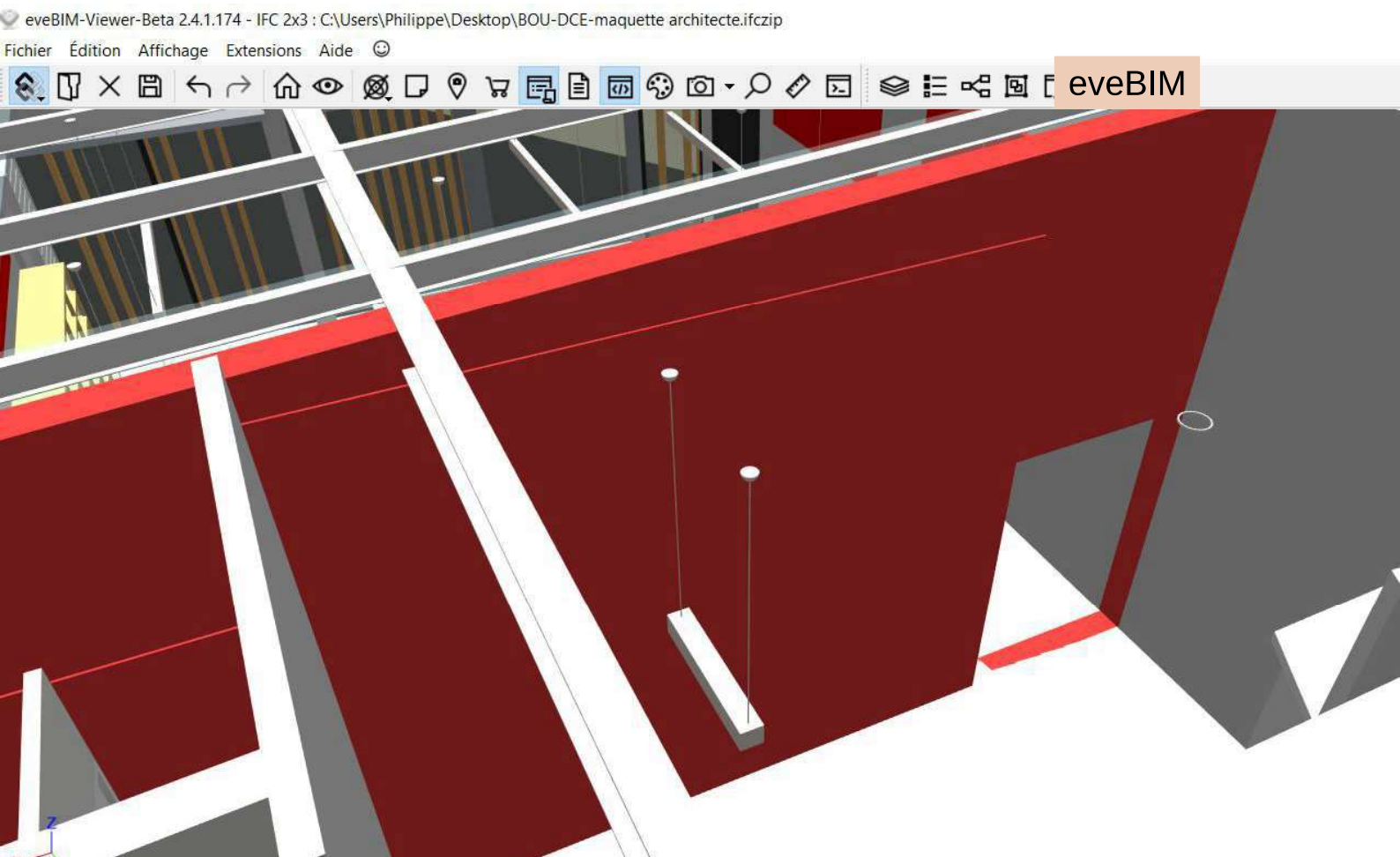
Set of attributes & IfcOpening



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Set of attributes & IfcOpening



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Set of attributes & IfcOpening

eveBIM

Propriétés IFC	
Vue fonctionnelle	
Nom	Valeur
▼ Informations Racine	
Type IFC	Mur standard
Identifiant Unique	0VwGdpzWdqIgLLk_szWzoz
Identifiant	779442
Nom	MurExt-016
Description	
▼ Historique des actions sur l'objet	
Utilisateur [Organisation]	Non défini [Non défini]
Application	ArchiCAD-64
Type d'Objet	
Étiquette de l'élément	1FE909F3-F609-F44A-A555-BBEDBD83DCBD

▼ Associations	
▼ Ensemble de couches de matériaux	3.1-Refend: maçonnerie 20 + enduit plâtre 2 faces
▼ Couche de matériau	Finition int - Enduit plâtre
Nom	
Description	
▼ Représentations	1
> Identifier :	Type :
Épaisseur	15
Est ventilé	Unknown
▼ Couche de matériau	Struct. - Parpaing béton
Nom	
Description	
▼ Représentations	1
> Identifier :	Type :
Épaisseur	200
Est ventilé	Unknown
▼ Couche de matériau	Finition int - Enduit plâtre
Nom	
Description	
▼ Représentations	1
> Identifier :	Type :
Style de surface :	Enduit-Plâtre
Épaisseur	15
Est ventilé	Unknown

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Set of attributes & IfcOpening

eveBIM

Ensembles de propriétés	
AC_Pset_RenovationAndPhasing	1
Renovation Status	Existing
Pset_WallCommon	2
Est externe	False
Porteur	False
eveBIM PSet	1
Visibilité	Unknown
eveBIM PSet	1
Visibilité	True
Défini par le Type	
Type	IfcWallType
Nom	3.1-Refend: maçonnerie 20 + enduit plâtre 2 faces 230
Description	
Applicable à	
Étiquette du type de produit	8700373A-7810-7661-8648-8DAB94300046
Relations	
Connecté à	1
...ectsPathElements (#1518042)	MurExt-023 (#1518030)
Géométrie de connexion	Faux
Type de connexion	Au milieu
Connecté depuis	3
...ectsPathElements (#787319)	MurExt-023 (#787311)
Géométrie de connexion	Faux
Type de connexion	Au début
...ectsPathElements (#789224)	MurExt-014 (#789211)
Géométrie de connexion	Faux
Type de connexion	Au début
...ectsPathElements (#957824)	MurExt-026 (#957816)
Géométrie de connexion	Faux
Type de connexion	À la fin
Contenu dans	1
...InSpatialStructure (#31714)	Rez-de-chaussée (#31644)

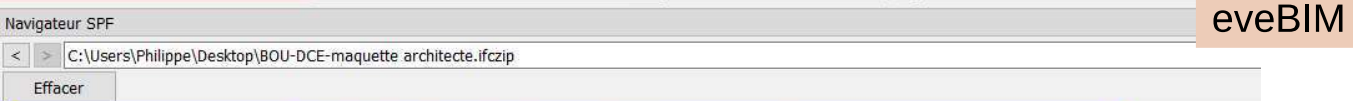
Positionnement local	
Relatif à	Rez-de-chaussée (#31644)
Relatif	3D
Position	[922990.00,439700.00,-190.00]
Axe	[0.00,0.00,1.00]
Direction de référence	[-1.00,0.00,0.00]
Représentation	
Nom	
Description	
Représentations	2
Identifiant : Body	Type : CSG
Difference	
Difference	
Facettes Brep	
Identifiant : Axis	Type : Curve2D
IfcPolyline	



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Set of attributes & IfcOpening



```
#779442=IFCWALLSTANDARDCASE('0VwGdpzWdqIgLLk_szWzoz',#15,'MurExt-016',$,$,#777967,#779438,'1FE909F3-F609-F44A-A555-B8ED8D83DCBD');
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#779499=IFCRELVOIDSELEMENT('1L7aYSsAYI6Hqv7zoy_I$9',#15,$,$,#779442,#779496);
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#957824=IFCRELCONNECTSPATHELEMENTS('2DAmlGirfi$mc4GRP4Cret',#15,$,$,#957816,#779442,(),(),,ATEND,,ATEND.);
#31714=IFCRELCONTAINEDINSPATIALSTRUCTURE('1nVmhhyg0QCysqAyxp6$c',#15,$,$,#926598,#926492,#926545,#49275,#50612,#51250,#56446,#47677,#45831,#41
```



```
Navigateur SPF
C:\Users\Philippe\Desktop\BOU-DCE-maquette architecte.ifczip
Effacer

#779442=IFCWALLSTANDARDCASE('0VwGdpzWdqIgLLk_szWzoz',#15,'MurExt-016',$,$,#777967,#779438,'1FE909F3-F609-F44A-A555-B8ED8D83DCBD');
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#15=IFCOWNERHISTORY(#10,#14,$,ADDED,$,$,$,1461658842);
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#957824=IFCRELCONNECTSPATHELEMENTS('2DAmlGirfi$mc4GRP4Cret',#15,$,$,#957816,#779442,(),(),,ATEND,,ATEND.);
#31714=IFCRELCONTAINEDINSPATIALSTRUCTURE('1nVmhhyg0QCysqAyxp6$c',#15,$,$,#926598,#926492,#926545,#49275,#50612,#51250,#56446,#476
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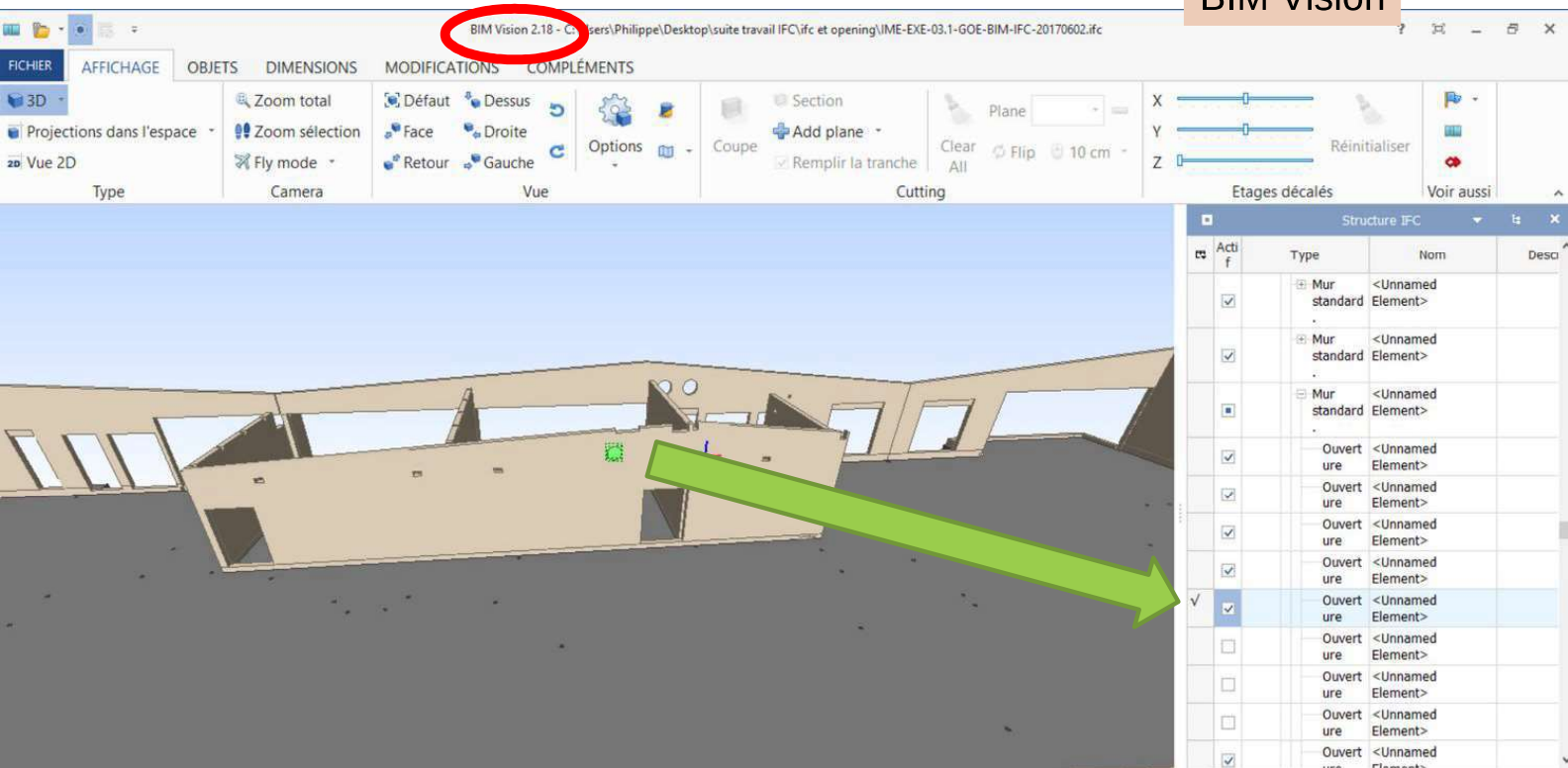
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#779547=IFCOPENINGELEMENT('2ngZdFk$fiRr$M0gj38CEJ',#15,"$,,$,#779509,#779544,'B1AA39CF-B8FA-6F6F-5FD6-02AB432CC393');
#779544=IFCPRODUCTDEFINITIONSHAPE($,$,#779542));
#779509=IFCLOCALPLACEMENT(#77967,#779508);
#77967=IFCLOCALPLACEMENT(#31643,#77966);
#31643=IFCLOCALPLACEMENT(#22094,#31642);
#22094=IFCLOCALPLACEMENT(#64,#22093);
#64=IFCLOCALPLACEMENT($,$63);
```



BIMplement

Set of attributes & IfcOpening

BIM Vision



Set of attributes & IfcOpening

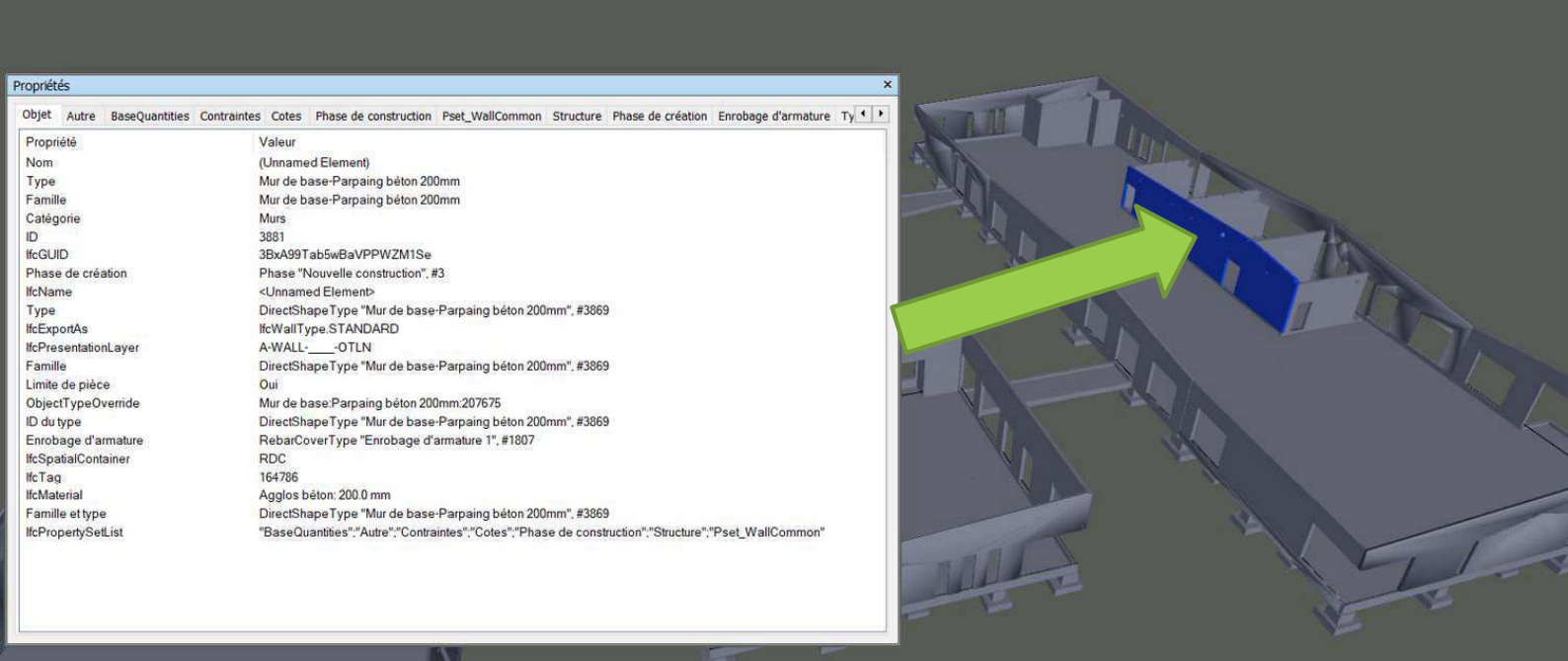


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Set of attributes & IfcOpening

NAVISWORKS



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Set of attributes & IfcOpening

Arborescence de sélection

Propriétés

- Pset_SlabCommon
- Pset_WallCommon
- R
- Structure
- Structure(Type
- TimeLiner
- Transformation
- Type de Revit
 - Catégorie
 - Modèles génériques
 - Murs
 - Poteaux porteurs
 - Coût
 - 0.00
 - Fonction
 - 0
 - Forme de coupe
 - 0
 - ID
 - IfcElementType
 - Poteau Acier D101.6*6 remplit Béton
 - Remplissage Poteau Acier D101.6*6
 - IfcExportAs
 - IfcBuildingElementProxyType.NOTDEFINED
 - IfcColumnType.COLUMN
 - IfcWallType.NOTDEFINED
 - IfcWallType.STANDARD
 - IfcMaterial
 - Acier structurel - S235
 - Agglos béton
 - béton
 - Béton - Béton coulé sur place
 - Maçonnerie - Béton coulé sur place
- IfcName
- Nom
- Nom de la famille
- Nom du type
- Type IfcGUID
- Type IfcPropertySetList
- U

0

ien

NAVISWORKS

IfcName

- Buton Sismique en béton
- Mur de base:<Unnamed Element>:4299
- Mur de base:Bardage Béton Matricé
- Mur de base:Mur BA 15cm
- Mur de base:Mur BA 20cm
- Mur de base:Mur BA Regard 15cm
- Mur de base:Parpaing béton 15cm
- Mur de base:Parpaing béton 130mm
- Mur de base:Parpaing béton 200mm
- Mur de base:Relevé béton 15cm larg.
- Mur de base:Relevé béton 18cm larg.
- Mur de base:Relevé béton 20cm larg.
- Poteau Acier D101.6*6 remplit Béton
- Remplissage Poteau Acier D101.6*6

Nom

- Buton Sismique en béton
- Buton Sismique en béton 1
- Buton Sismique en béton 2
- Mur de base-(Unnamed Element)-4299
- Mur de base-Bardage Béton Matricé
- Mur de base-Mur BA 15cm
- Mur de base-Mur BA 20cm
- Mur de base-Mur BA Regard 15cm
- Mur de base-Parpaing béton 15cm
- Mur de base-Parpaing béton 130mm
- Mur de base-Parpaing béton 200mm
- Mur de base-Relevé béton 15cm larg.
- Mur de base-Relevé béton 18cm larg.
- Mur de base-Relevé béton 20cm larg.
- Poteau Acier D101.6*6 remplit Béton
- Remplissage Poteau Acier D101.6*6

Type IfcGUID

- "Analyse structurelle";"Autre";"Cotes";"Données d'identification";"Géométrie de coupe structurelle";"Structure"
- "Autre";"Construction";"Données d'identification";"Graphismes";"Propriétés analytiques"
- "Autre";"Cotes";"Données d'identification";"Structure"
- "Autre";"Données d'identification";"Structure"

U

Conclusions on “opening” objects

"Opening" object can be used to locate the sensitive points in relation to airtightness.

Normally, it should be very interesting to simply use the structure model. But this option is made difficult because of the differences between viewers that do not implement the same location and information in relation to this object.

This is why attached documents, pictures, notes ... are useful to identify and illustrate these weak points.

TRAINING FOR COMPANIES

*apply BIM models to ventilation &
airtightness*

Part 6 Application to the Carroussel project

Application to Carrousel project

Identification of project documents that frame the obligations :

- the ventilation batch
- and airtightness issues and concerned batches

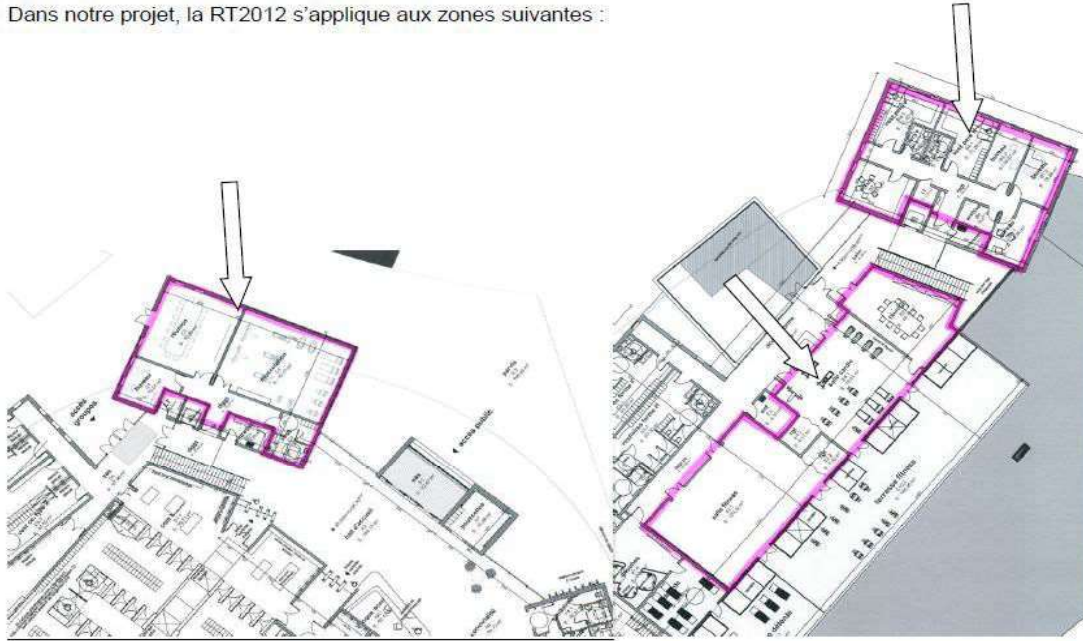
... within thermal studies

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Carrousel project thermal study

Dans notre projet, la RT2012 s'applique aux zones suivantes :



In this project,
The RT2012
(French nZEB
Régulation) is
applied to the
indicated zones

Nombre de bâtiment : 1
Nombre de niveaux : 2
Usage du bâtiment : Bureaux / Etablissement sportif

Nos calculs sont basés sur une Sutile indiquée par l'architecte.

	Sutile	SHON RT(*)
Bureau	274,13 m ²	301,54 m ²
Salle de sport	313,28 m ²	344,60 m ²



B I

Carrousel project thermal study

• Type of ventilation systems

All rooms except Fitness / cardio room on the R+1	- type / balanced ventilation with the heat exchanger, n=85%, certified EUROVENT - standard air duct sealing class 1 (no air duct sealing test to be provided)
Fitness / cardio room on the ground floor	- type: balanced ventilation with the heat exchanger, n=75%, EUROVENT certified - airtightness class 3 standard (no airtightness test of the aeraulic network to be foreseen)
Ventilation management	presence detection by CO2 probe for the following rooms : - Fitness Room / Cardio - Meeting room on the ground floor and on the first floor

• Reminder of airtightness requirements

Building airtightness mesured under 4Pa depression	- $n = 1.70 \text{ m}^3 / [\text{h.m}^2]$ under 4Pa, for the office part, - $n = 3.00 \text{ m}^3 / [\text{h.m}^2]$ under 4Pa, for the Sports Facility part, These values are taken by default in the regulatory thermal study RT 2012. The airtightness test is not mandatory, but this does not exclude the necessity of effectively treating airtightness defects in the building envelope.
--	--

Carrousel project thermal study

- Identification of the composition of all external walls
 - Coherence between thermal study and model

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Carrousel project thermal study

Typology of walls and their compositions

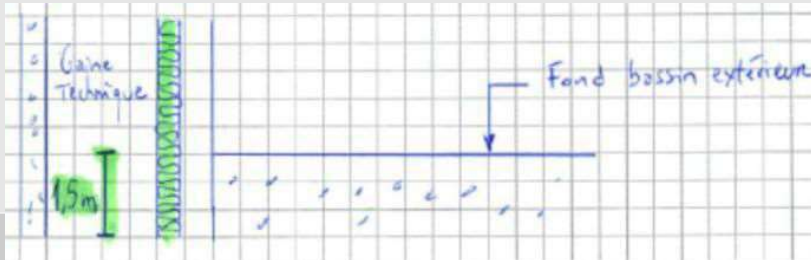
Ref. An. 7.2	Designation : Vertical walls	Composition
	Exterieur walls	
A	Exterior walls, exterior insulation under cladding	-Insulation: Glass wool placed continuously behind the frame to reduce thermal bridges / Insulating thickness: 140 mm -R insulation: $4.35 \text{ m}^2 \cdot ^\circ\text{C}/\text{W}$ → (U_{wall} obtained= $0.22 \text{ W}/\text{m}^2 \cdot \text{K}$)
B	Exterior walls, exterior insulation under plaster	-insulating : Polystyrene / Total thickness: 160mm -R insulation: $4.20 \text{ m}^2 \cdot ^\circ\text{C}/\text{W}$
C	Exterior walls, interior insulation	-insulating: Mineral wool / Total thickness: 120+10mm -R insulation: $3.50 \text{ m}^2 \cdot ^\circ\text{C}/\text{W}$
	Interior walls	
D	Interior walls -Local Surveillance	insulation: expanded polystyrene / Total thickness: 120+10mm -R insulation: $4.10 \text{ m}^2 \cdot ^\circ\text{C}/\text{W}$
E	Interior walls -Local Bin	insulator: Rock wool / Total thickness: 100mm + cladding -R insulation $3 \text{ } 2.60 \text{ m}^2 \cdot ^\circ\text{C}/\text{W}$ Arrangement: insulation on the unheated side of the room
F	Interior walls -Fitness room on Relax/Shower	insulation: expanded polystyrene -Total thickness: 80+13mm -R insulation: $2.75 \text{ m}^2 \cdot ^\circ\text{C}/\text{W}$

TRAINING FOR COMPANIES

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Carrousel project thermal study

Typology of walls and their compositions

Ref. An. 7.2	Designation : Vertical walls	Composition
	Interieur walls	
G	interior walls _ -technical rooms outdoor pool	Insulation: Wood wool/rock wool panels type FIBRAROC fire classification A2-S1-d0 / Total thickness 3 125 mm -R insulation: 3.05 m².°C/W Layout: Over the entire height of the outdoor pool + 1.5m 
	Buried walls	
H	Underground walls, insulation from the outside	insulation: extruded polystyrene / Total thickness: 100mm -R insulation: 2.95 m².°C/W Layout: Over the entire height of the buried wall
I	Underground walls, insulation from the outside	insulation: extruded polystyrene / Total thickness: 100mm -R insulation: 2.95 m².°C/W Layout: On a height of 1m from the level of the floor slab

TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Carrousel project thermal study

Typology of slabs and their compositions

	Planchers	
K	Plancher sur terre-plein -hors plancher chauffant	-Isolant : polystyrène expansé -Epaisseur totale : 101mm -R isolant : 3,30 m².°C/W <u>Disposition :</u> Isolant sur dalle
L	Plancher sur terre-plein avec forme de pente - plancher chauffant	-Isolant : polystyrène expansé -Epaisseur totale : 101mm -R isolant : 3,30 m².°C/W <u>Disposition :</u> Isolant sur dalle
M	Plancher sur terre-plein sans forme de pente - plancher chauffant	-Isolant : polystyrène expansé -Epaisseur totale : 101mm -R isolant : 3,30 m².°C/W <u>Disposition :</u> Isolant sous dalle
N	Plancher sur vide-sanitaire -plancher chauffant	-Isolant : polystyrène expansé + parement bois résineux -Epaisseur totale : 125mm -R isolant : 3,50 m².°C/W <u>Disposition :</u> Isolant en plancher haut du vide-sanitaire
O	Plancher sur vide-sanitaire -hors plancher chauffant (local Surveillance) -sanitaire H/F des vestiaires d'Eté	-Isolant : polystyrène expansé + parement bois résineux -Epaisseur totale : 125mm -R isolant : 3,50 m².°C/W <u>Disposition :</u> Isolant en plancher haut du vide-sanitaire



BIMpleme

TRAINING FOR COMPANIES

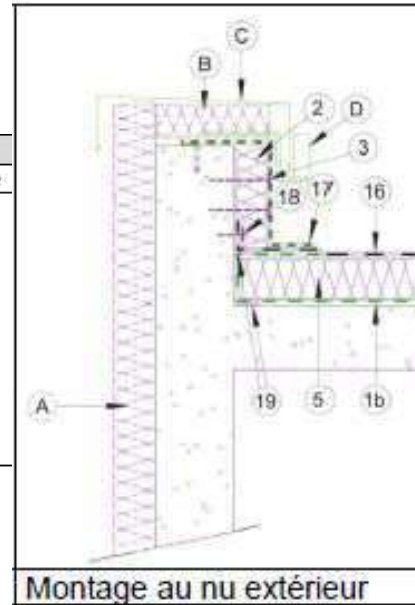
apply BIM models to ventilation & airtightness

Carrousel project thermal study

Typology of roofs and thermal bridges, & their compositions

Toiture		
R	Toiture bac acier -hors Administration	-Isolant : verre cellulaire -Epaisseur totale : 160mm -R isolant : 3,90 m ² .°C/W <u>Disposition :</u> Isolant sur bac acier
S	Toiture bac acier -partie Administration	-Isolant : laine de roche -Epaisseur totale : 160mm -R isolant : 4,05 m ² .°C/W <u>Disposition :</u> Isolant côté extérieur sur bac acier

Traitement des ponts thermiques		
	Liaison mur extérieur ITE / bac acier	Continuité d'isolation afin de supprimer le pont thermique Isolation totale de l'acrotère béton
	Liaison mur extérieur ITE / toiture terrasse	Isolant en remontée d'acrotère côté terrasse : -Isolant : polyuréthane -Epaisseur: 50mm -R : 2,00 m ² .°C/W Isolant en tête d'acrotère : -Isolant : polyuréthane -Epaisseur: 50mm -R : 2,00 m ² .°C/W



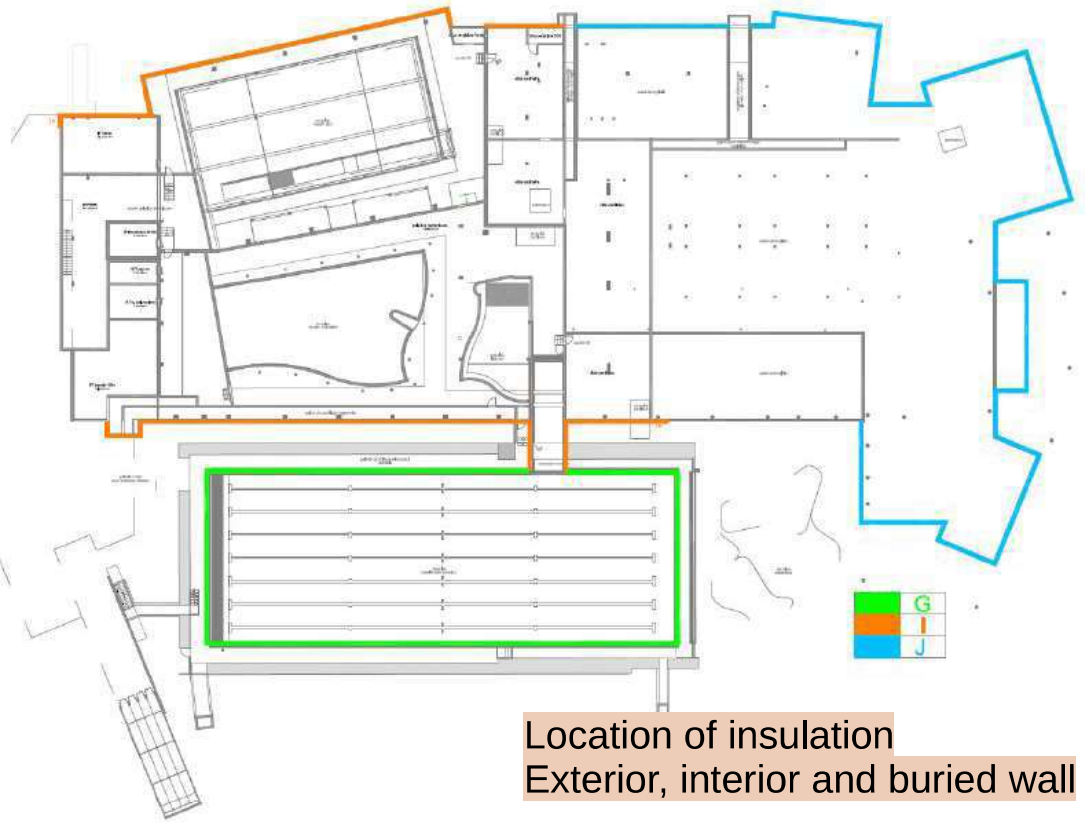
TRAINING FOR COMPANIES

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Carrousel project thermal study

Identification of wall typologies by the thermal design office

Information in the models??

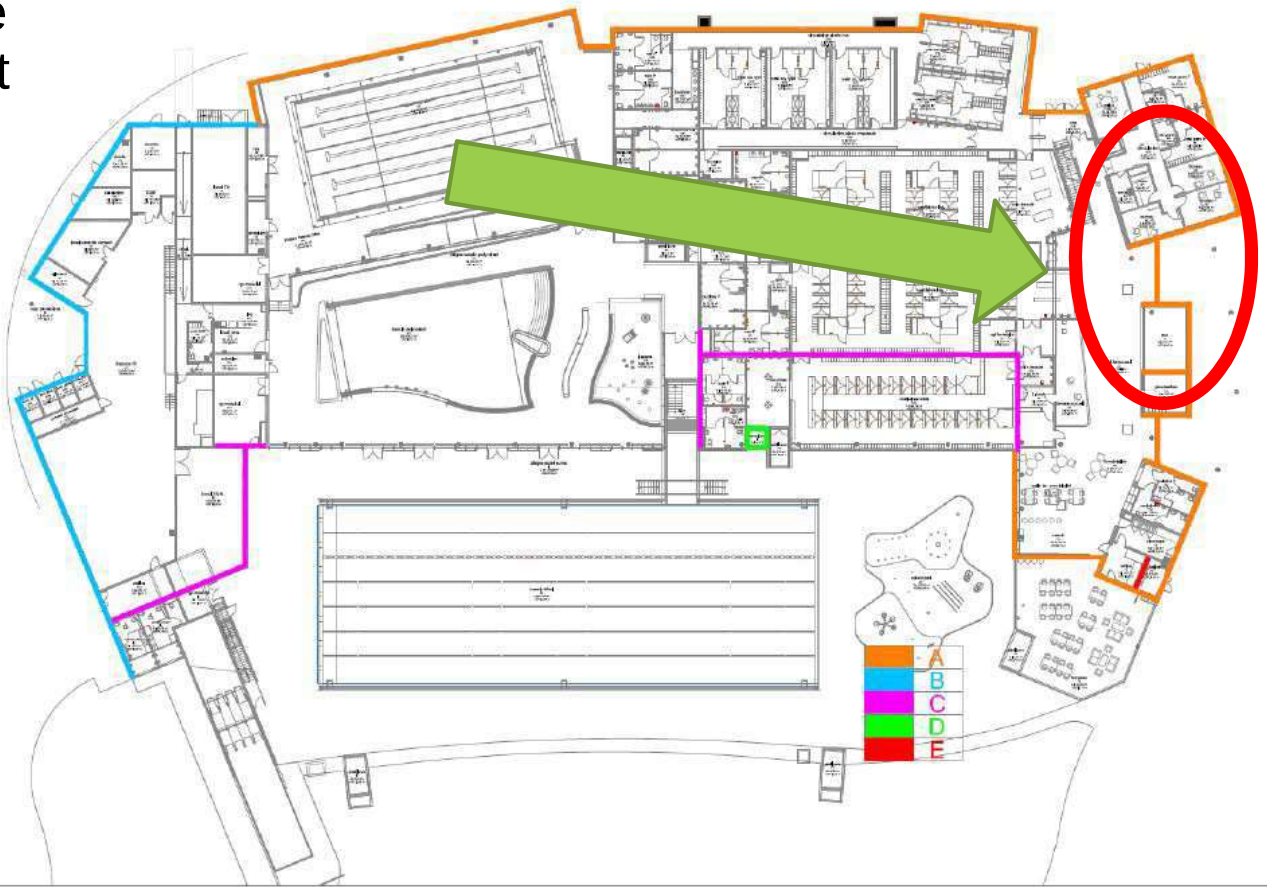


TRAINING FOR COMPANIES

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Carrousel project thermal study

Example
on a part
of the
building



TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Carrousel project thermal study

Classification Unifomat :

C				Aménagement Intérieur
C	10			Construction intérieure
C	10	10	10	Murs intérieurs fixes
C	10	10	20	Murs intérieurs vitrés
C	10	10	40	Murs intérieurs démontables
C	10	10	50	Murs intérieurs mobiles
C	10	10	60	Ecrans intérieurs
C	10	10	90	Composants supplémentaires

Error of location in the model

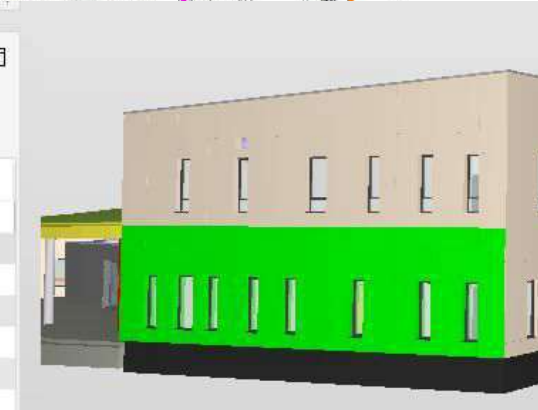


INFO

Mur.0.444

Identification Emplacement Quantités Relations Classification Liens hypertexte Pset_WallCommon

Classification	Source	Référence	Nom
Building Elements - Unifomat	À partir des règles de class	C1010 Partitions	

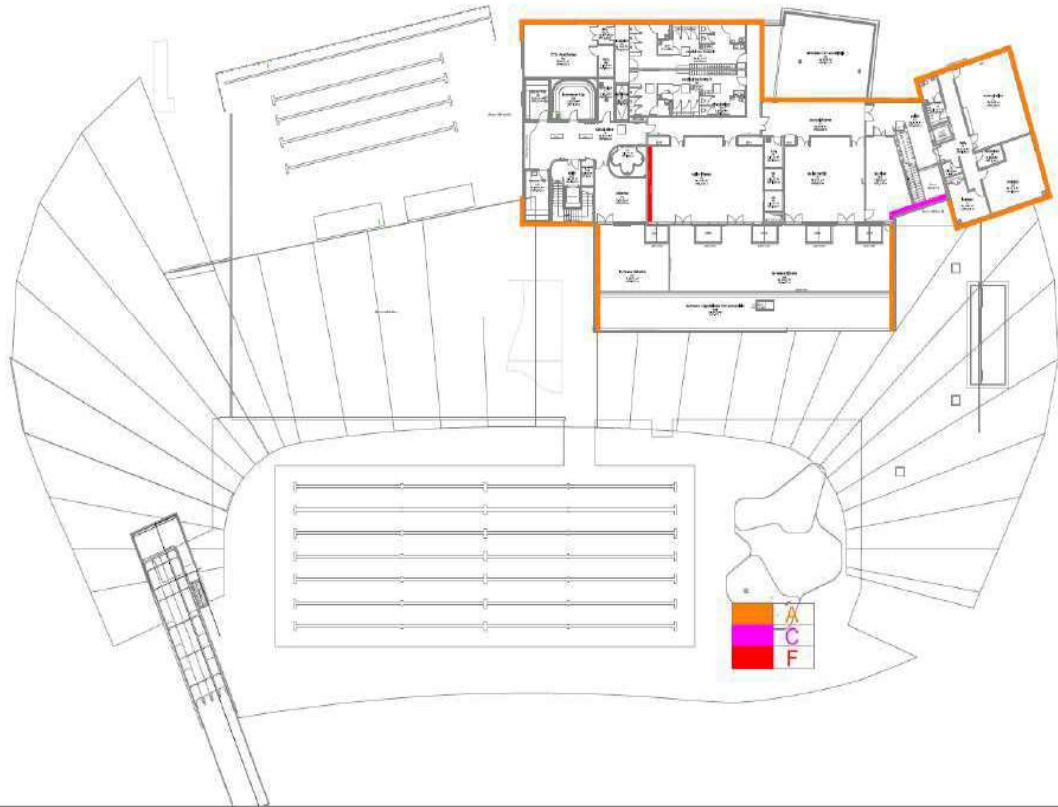


TRAINING FOR COMPANIES

apply BIM models to ventilation & airtightness

Carrousel project thermal study

Example
on a part
of the
building



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A	Murs extérieurs, isolation par l'extérieure sous bardage rapporté	-Isolant : Laine de verre <u>placée de manière continue derrière l'ossature pour réduire les ponts thermiques</u> -Epaisseur isolant : 140 mm -R isolant : $4,35 \text{ m}^2 \cdot ^\circ\text{C}/\text{W}$ (Uparoi obtenue = $0,22 \text{ W}/(\text{m}^2 \cdot \text{K})$)
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ypertexte Pset_WallCommon

Valeur	H436DETV6
Architecture	SCN/VC
	1.4-Mur ext: panneau ciment + isol ext14 + béton20 + finition 430
	1.4-Mur ext: panneau ciment + isol ext14 + béton20 + finition 430

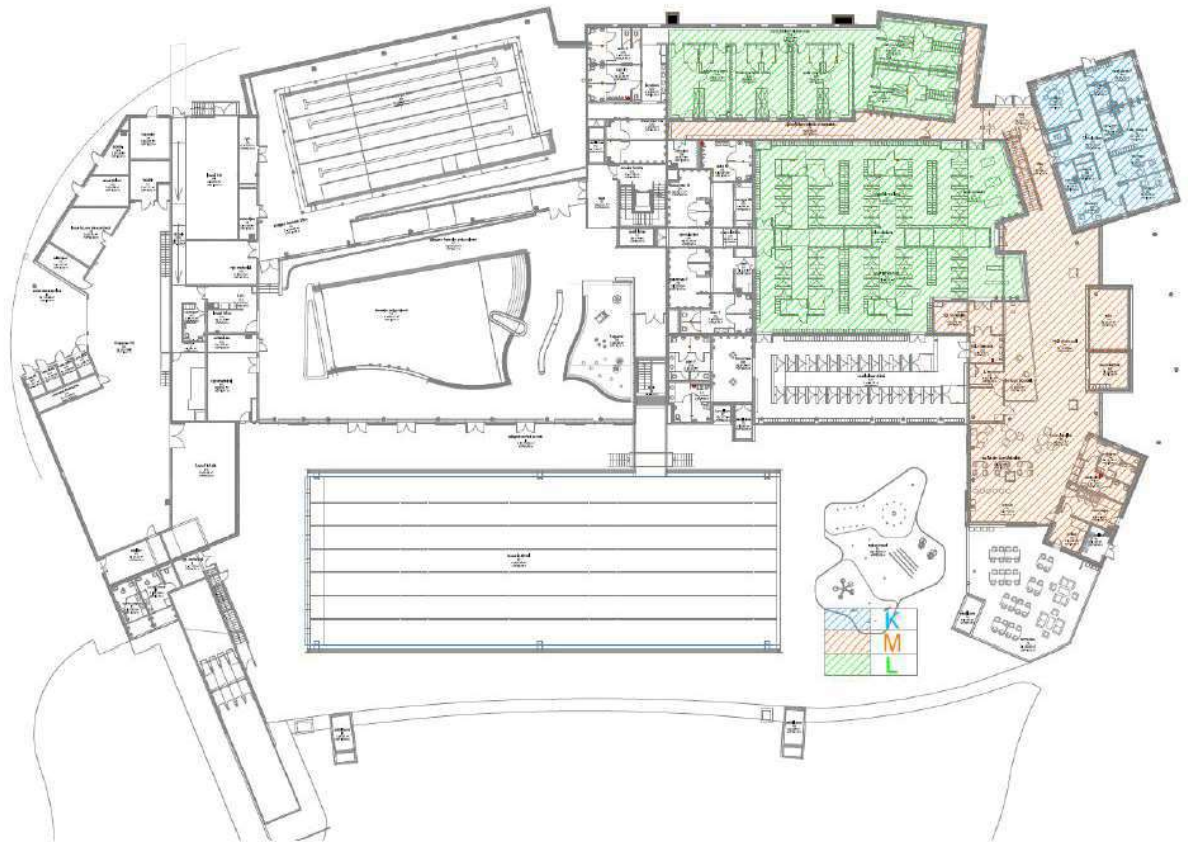
166

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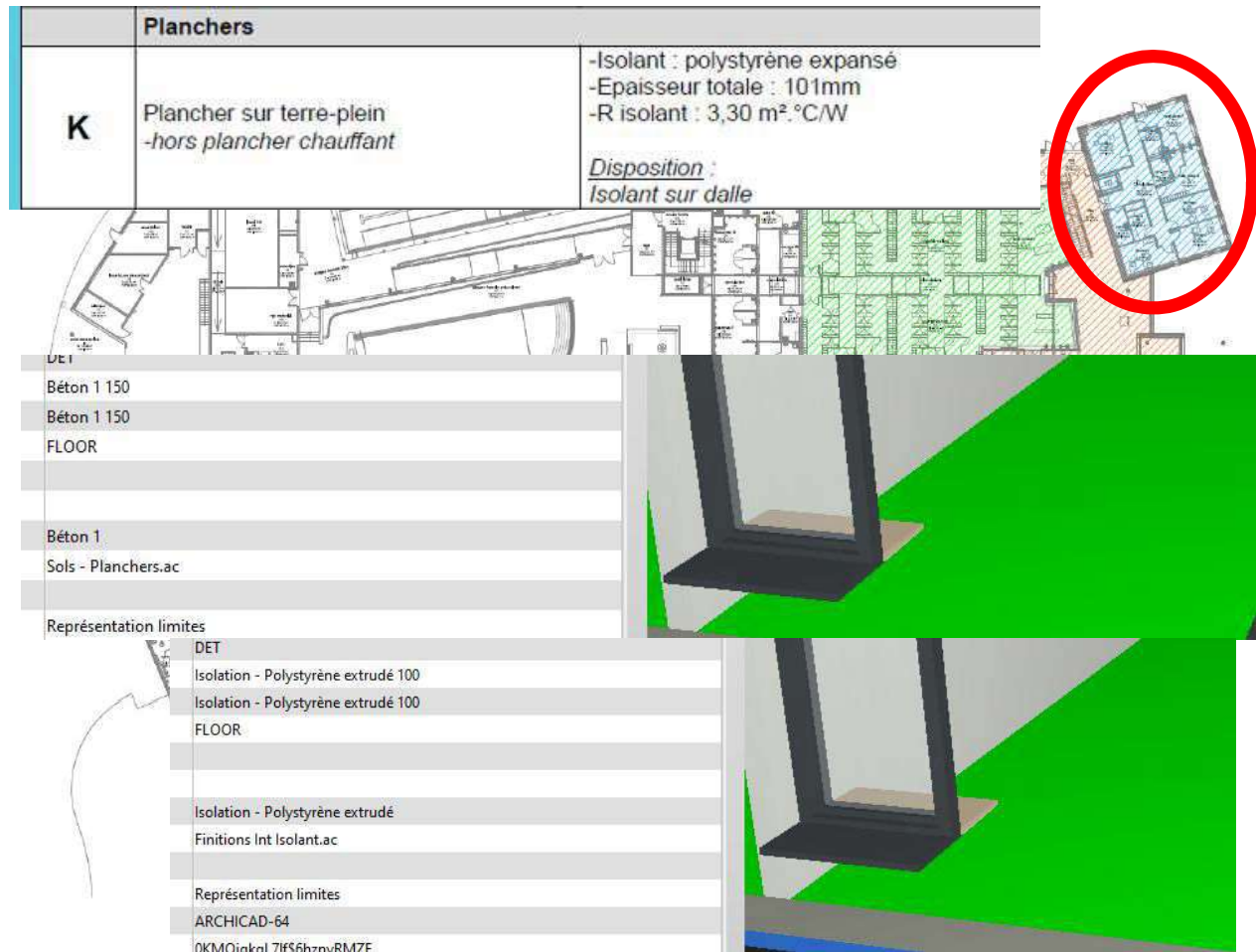


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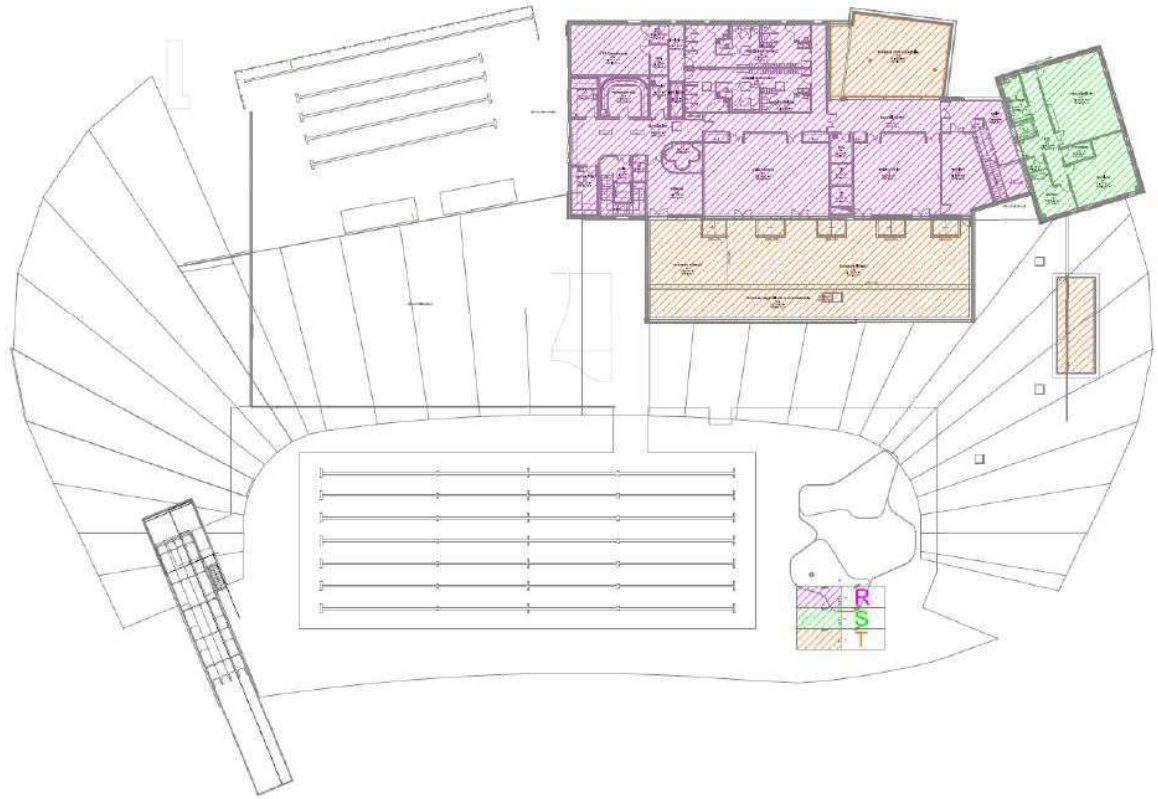


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S	Toiture bac acier -partie Administration	-Isolant : laine de roche -Epaisseur totale : 160mm -R isolant : 4,05 m ² .°C/W <u>Disposition :</u> Isolant côté extérieur sur bac acier
---	---	--



Practical work on the model of the Carrousel project

- Each company will identify in the model the **lack of data** that would be useful for the realization on the building site.
- Each company will identify in the synthesis model the **sensitive points** that will have an influence on the **airtightness** quality results.
- Each company will identify on the model the **interfaces with ventilation**.

Practical work on the model of the Carrousel project

Conclusion

- Identify the interest of this collaborative exchange through different "trade views".
- Consider the use of mock-ups on the construction site:
 - What kind of models
 - What data
 - What documents related
- Preparation of training for site operators



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