



08_interdisciplinarité & coordination

08.11.17

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COURS 07 :
INTERDISCIPLINARITÉ & COORDINATION

THÈMES ABORDÉS

1. INTRODUCTION : SIA 2051 & COORDINATION

2. VISIONNEUSES D'.IFC

3. LE .BCF

4. FLUX DE TRAVAIL EN openBIM

COORDINATION / BIM NIVEAU DE MATURITÉ 2

5. COMPILATION AVEC SERVEUR ARCHITECTE

6. PROCESSUS D'EXPORTATION & IMPORTATION

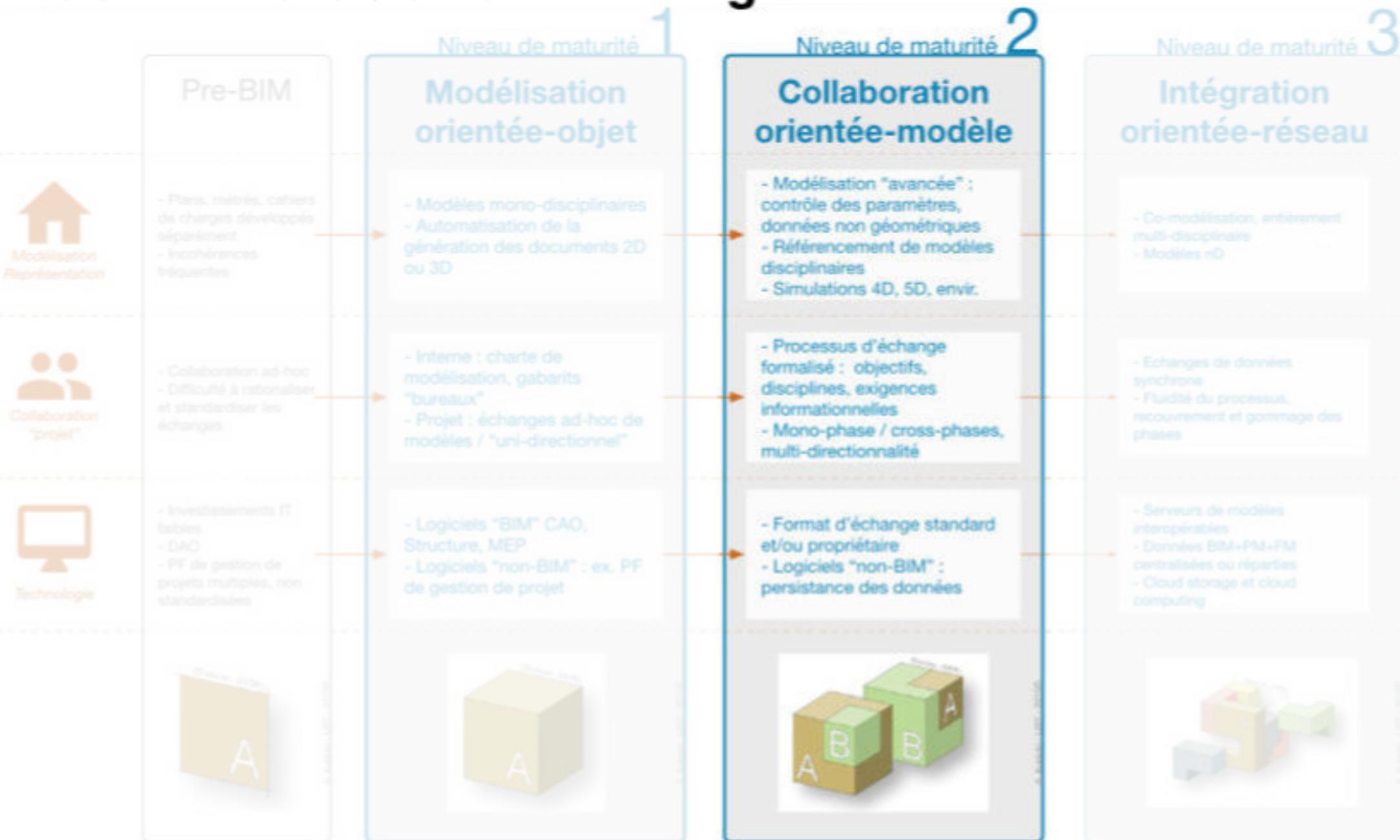
7. DÉTECTION DE COLLISION

VERS UN BIM NIVEAU DE MATURITÉ 3

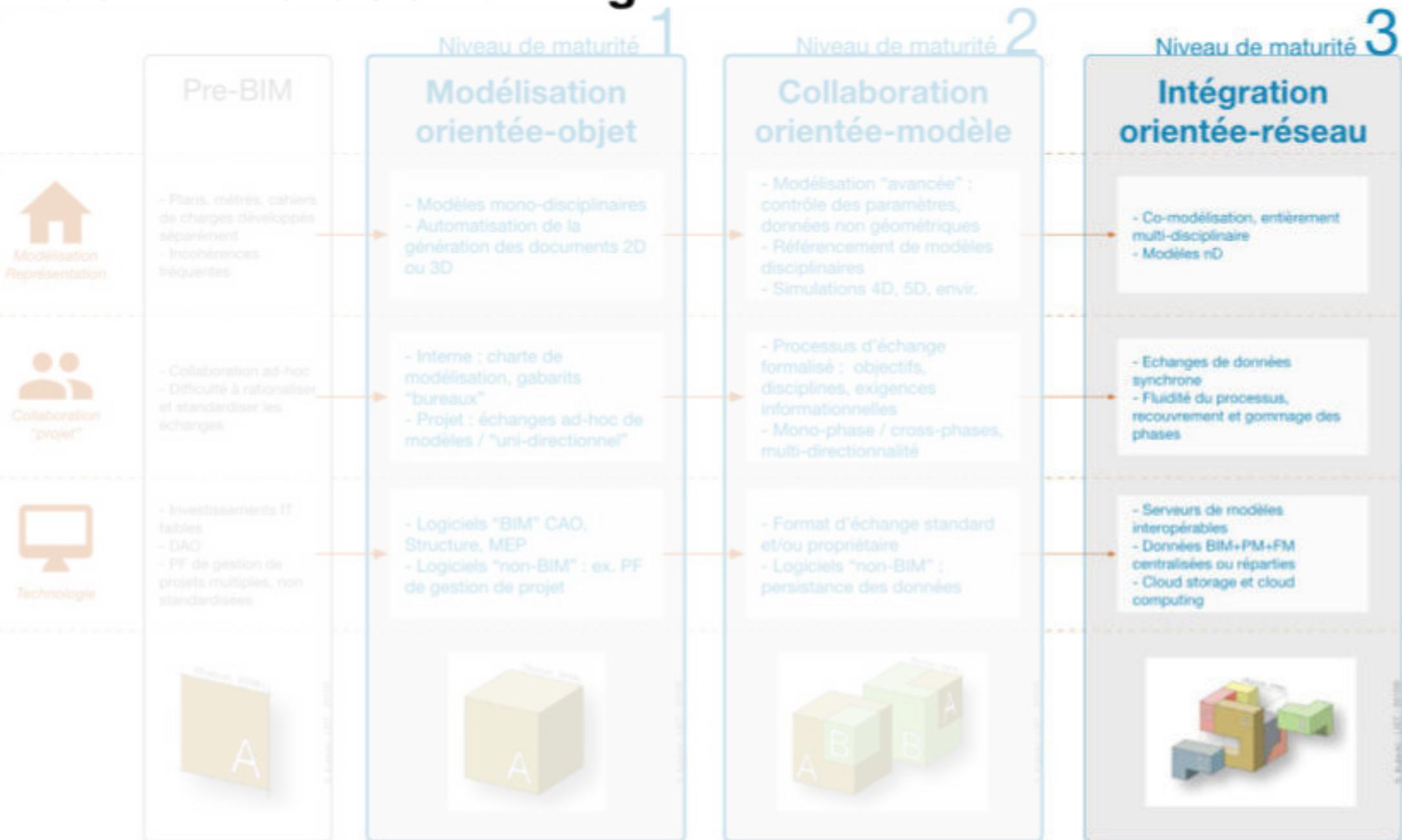
8. PLATEFORMES COLLABORATIVES

1. INTRODUCTION : SIA 2051 & COORDINATION

SUJET DU COURS « little big BIM »

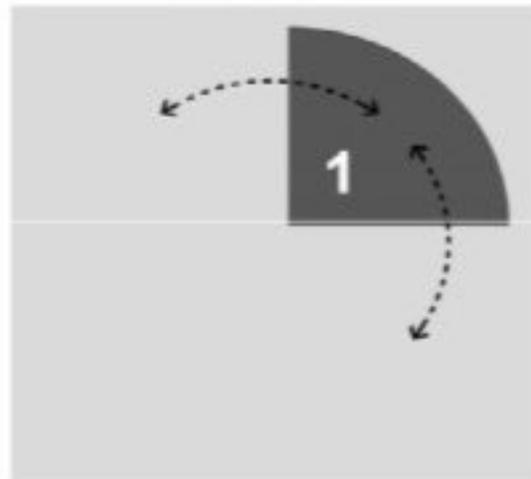


SUJET DU COURS « big BIM »



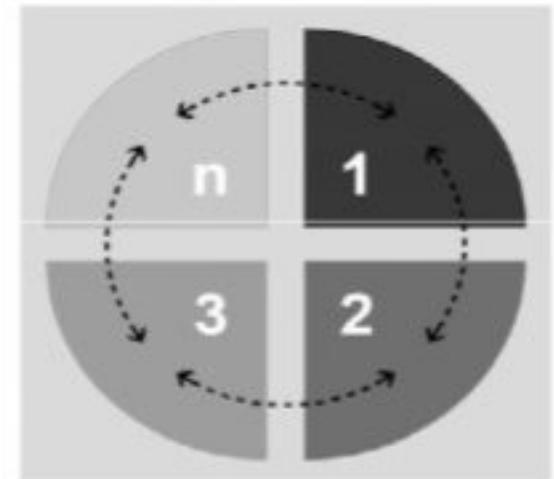
SIA 2051 : 4 « formes des modèles »

Modèle individuel



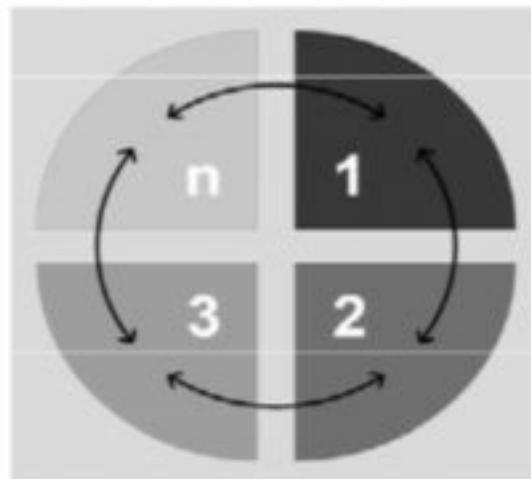
Propriétés pour la collaboration:
- Rien de spécial

Modèles indépendants



Propriétés pour la collaboration:
- Voir si le modèle doit être réutilisé ultérieurement

Modèle de coordination / Modèles des spécialistes et modèles partiels harmonisés



Propriétés pour la collaboration:
- « open & close BIM » possible

Un modèle commun



Propriétés pour la collaboration:
- Uniquement possible dans une famille logicielle « closed BIM »

LE DANGER DU closedBIM

CROSS

Confidential Reporting on Structural-Safety

For an introduction to CROSS see www.structural-safety.org. Email: structures@structural-safety.org

NEWSLETTER No 45, JANUARY 2017

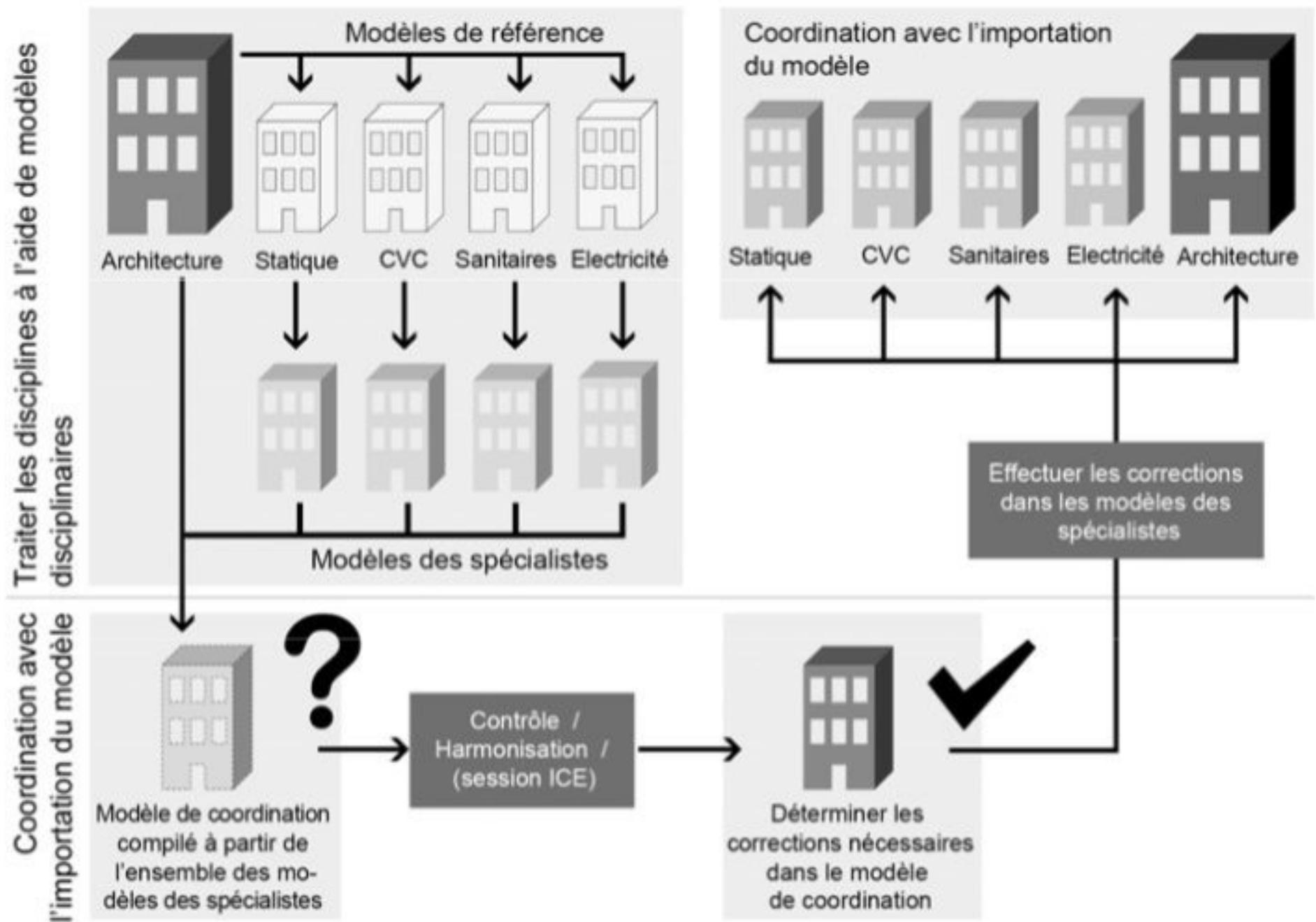
614 COLUMNS MISSING DUE TO 3-D MODELLING

A new 8-storey residential concrete frame building is being constructed and several columns have been omitted from the ground and first floor level drawings, says a reporter. Without the columns, a 225mm thick RC slab was being asked to span up to 14m. Some of the missing columns were spotted by the concrete frame company's project manager. Others were not immediately obvious due to transfer structures and column plan positions changing up the building. Consequently, these columns were not built by the contractor, who continued to prop off the slab in the usual way during construction of the upper floors. The consulting engineers cited the use of BIM modelling software as the reason for these serious omissions. Is the use of 3-D modelling a distraction to producing clear, accurate and well thought out construction drawings?

unusual to lose complete elements but it is possible that the columns were deleted by someone not appreciating their structural role. [...]

[...] It is

SIA 2051 : § 2.7 « procédure de coordination »



SIA 2051 : § 274 la coordination

2.7.4

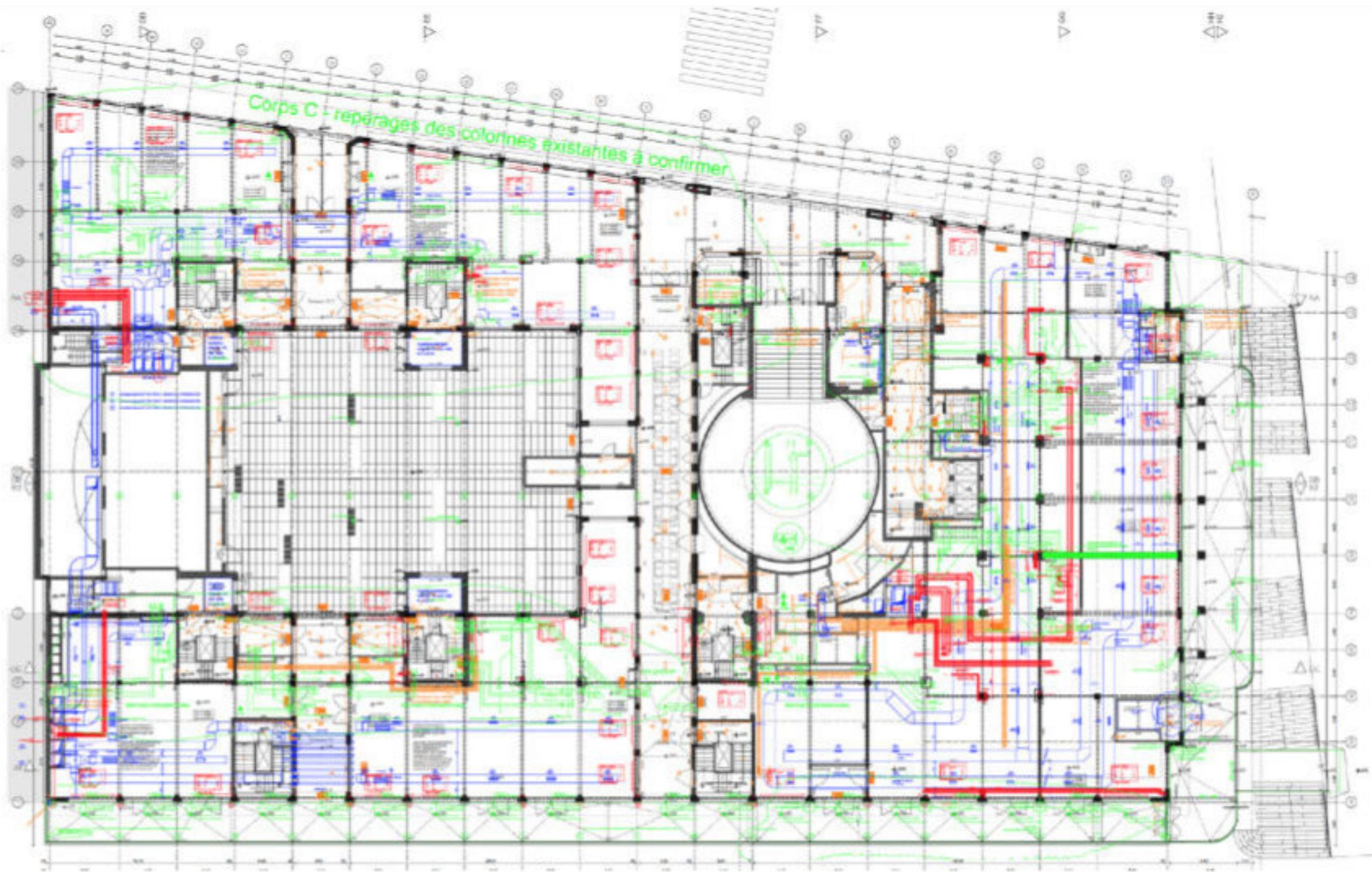
Coordination BIM et coordination technique des installations du bâtiment

2.7.4.1

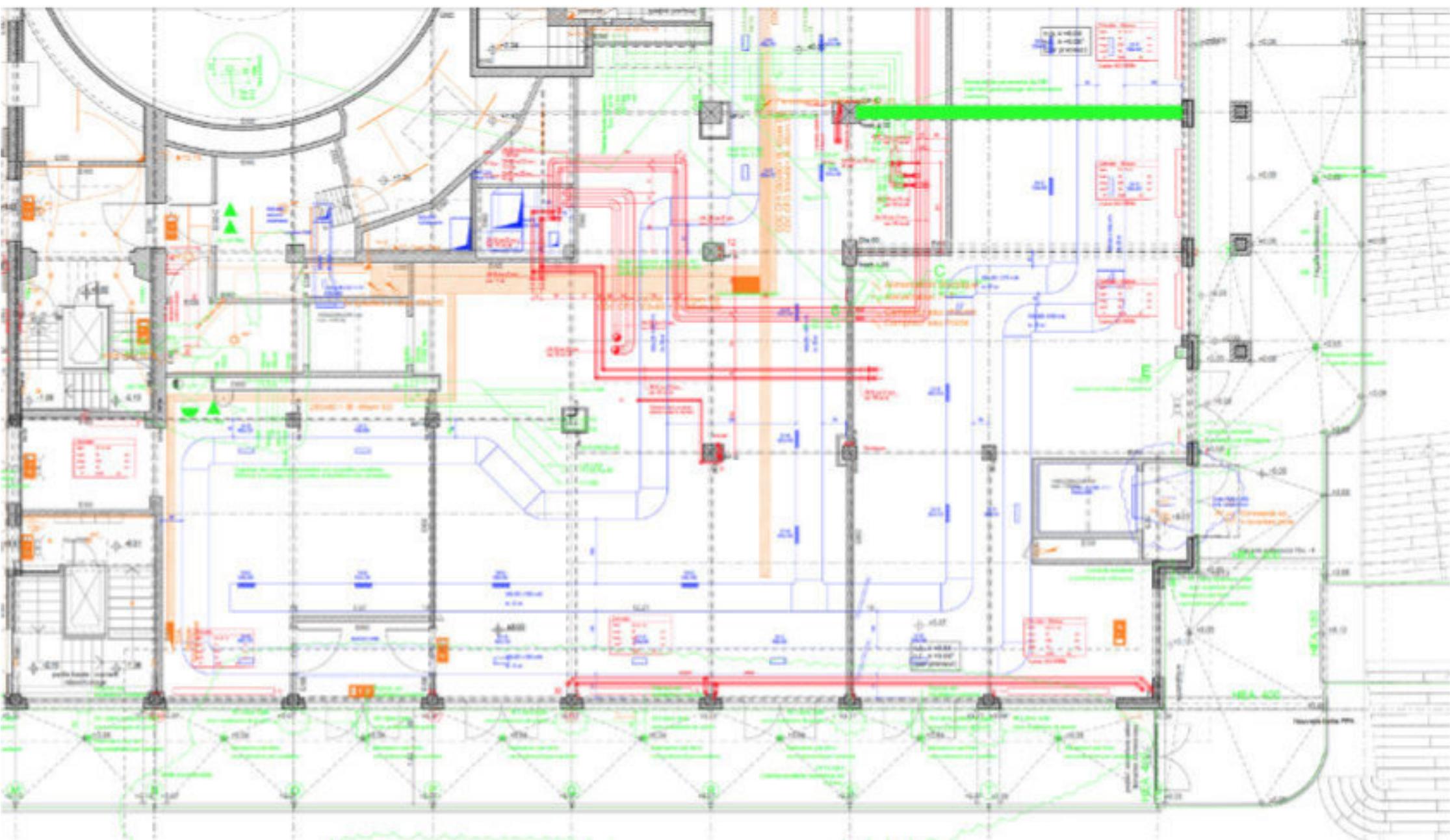
Coordination BIM et coordination technique des installations du bâtiment

La coordination technique des installations du bâtiment doit être différenciée de la coordination BIM. La coordination technique et spatiale des installations du bâtiment peut être soutenue par l'utilisation de la méthode BIM et optimisée. **C'est le responsable global ou le coordinateur technique qui est responsable de la direction de la coordination technique des installations du bâtiment.** Lorsque des modèles numériques de l'ouvrage sont utilisés pour la coordination technique des installations du bâtiment, les mesures correspondantes doivent être notées dans le plan de coordination BIM. Il faut en plus déterminer qui est responsable du regroupement des modèles des spécialistes et du contrôle de l'intégrité des modèles. En ce qui concerne les projets avec des exigences élevées en matière de coordination des installations du bâtiment, la coordination BIM peut être assurée par un coordinateur technique disposant de connaissances BIM correspondantes. Il assume ainsi les rôles de manager BIM et/ou de coordinateur BIM.

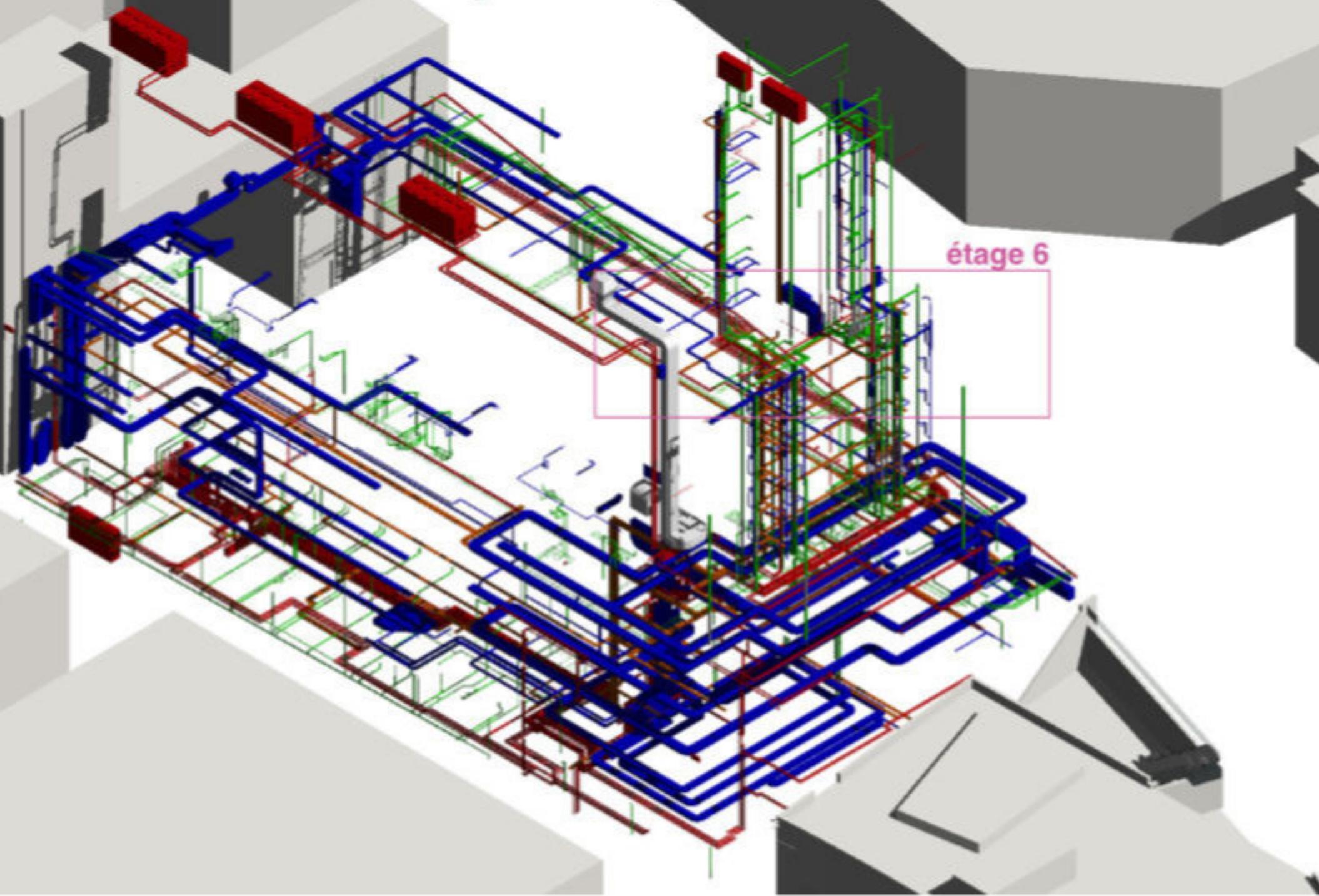
COORDINATION : exemple de plan à vérifier!



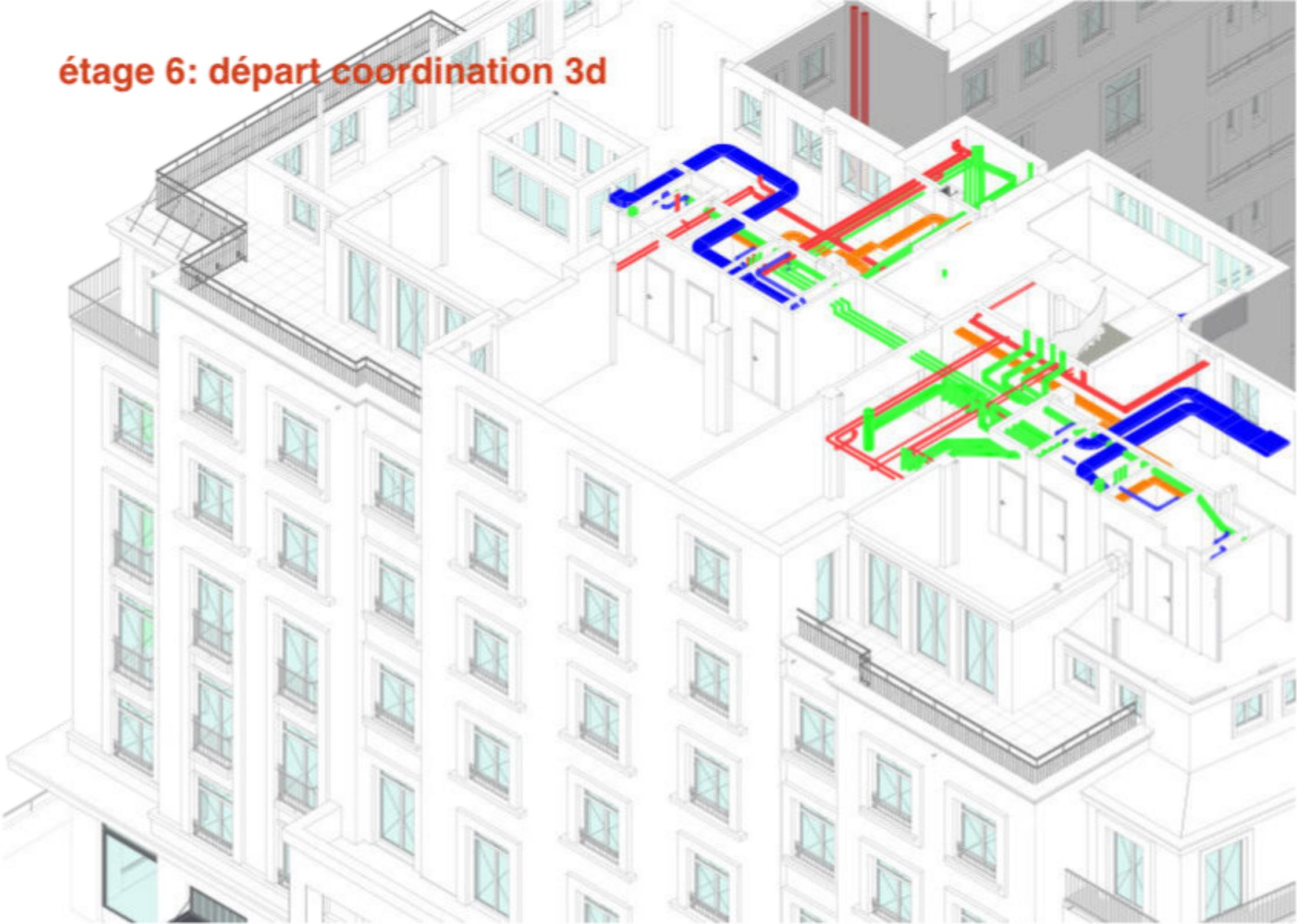
COORDINATION : exemple de plan (détail)

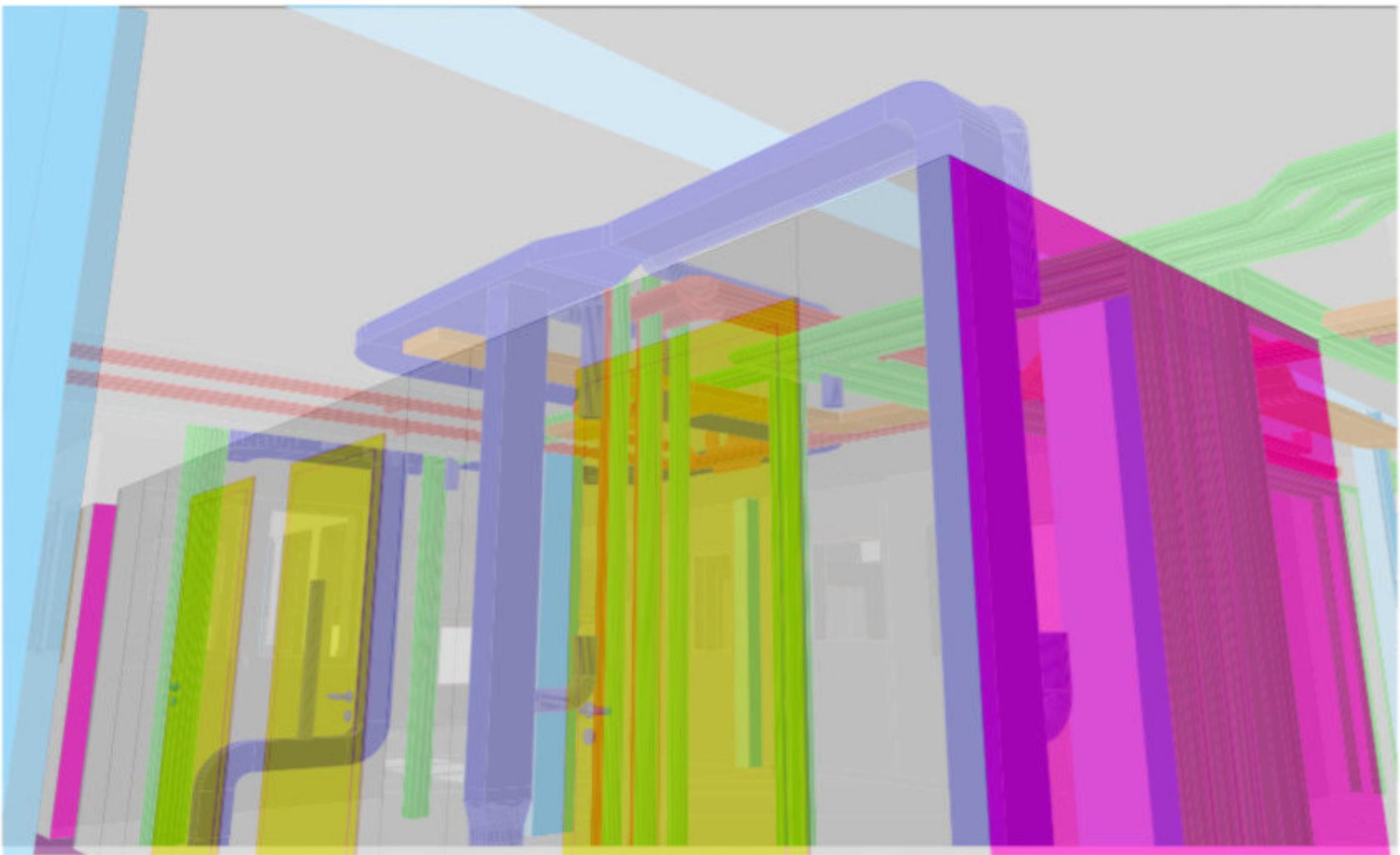


COORDINATION BIM Complexe Bel-Air



étage 6: départ coordination 3d







2. VISIONNEUSES D'.IFC

CERTIFICATION DE LOGICIEL PAR DOMAINE



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Model Support Group
Implementation Support Group

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All Applications by Category

This is a filtered list, by primary functional category, of all software applications/utilities in the IFC-Compatible Implementations Database. These applications/utilities are purported, by their developers, to provide IFC import and/or export functionality. The intent of the database is to track all such applications/utilities, providing an official, centralized resource for the public and development community interested in IFC. The buildingSMART ISG is responsible for the creation and maintenance of this database, but due to the fluid nature of software development and the volatility of the AEC industry, it is possible that information will be outdated, at times. Vendor and public feedback about the contents of the database is greatly appreciated and can be directed via the contact link at the upper right-hand corner of this page.

Search:

	Type	Name	Import/Export	Url
+	Architectural			
+	Building Performance Energy Analysis and Simulation			
+	Building Services			
+	Construction Management			
+	Data Server			
+	Development Tools			
+	Facility Management			
+	General Modeling			
+	Geographic Information System			
+	Model Viewer			
+	Other			
+	Structural			

Showing 1 to 204 of 204 entries.

[View as static table](#)

Implementation

- get involved
- first steps and tools
- IFC2x3 Impl guidance
- IFC4 Impl guidance
- Implementer's community
- accompanying documents
- frequently asked questions
- Implementations
 - All Applications by Category
 - All Vendors
 - All Applications

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IFC Add2 published
Jul 15, 2016

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IFC Dev Blog

IFC Add2 published
Jul 15, 2016

[More...](#)

VISIONNEUSES D'<.IFC> (non exhaustif):

- SOLIBRI MODEL VIEWER



- DDS CAD VIEWER



- TEKLA BIMsight



- REVIZTO

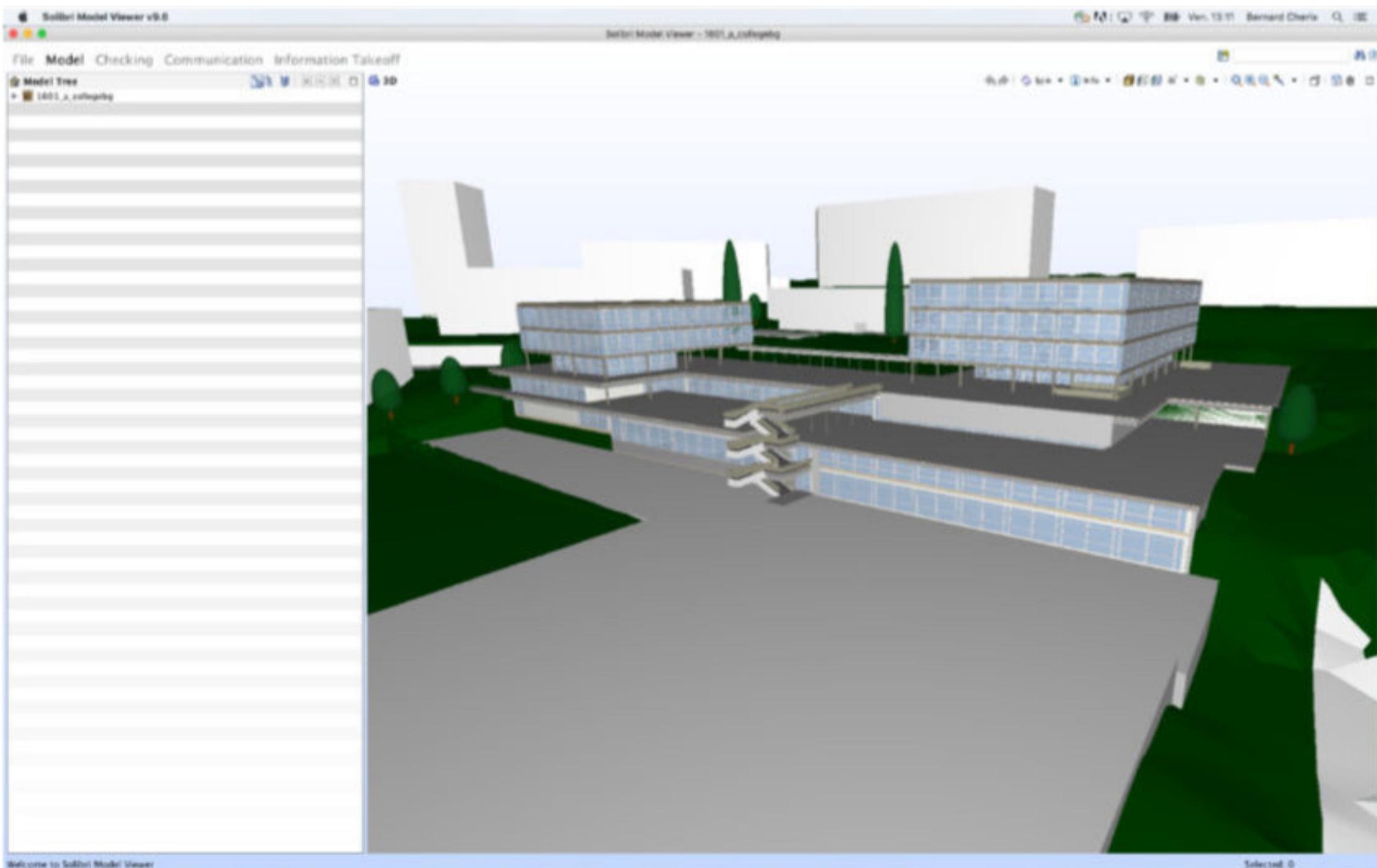


SOLIBRI MODEL VIEWER

Nemetschek



POUR CONTRÔLE VISUEL RAPIDE D'IFC: SOLIBRI



3. LE BIM COLLABORATION FORMAT (.bcf)

BIM COLLABORATION FORMAT : outil d'annotation

CAD MANAGER
STRUCTURAL ENGINEER
MEP ENGINEER
ARCHITECT

CLASH!

BCF

CAD Manager 10:54 (2014-2-11)
Clash between the structure and the ventilation system.
Please, solve the issue.

EXEMPLE D'USAGE: 2 maquettes .ifc compilées

The screenshot displays the BIMPLUS web application interface. The main view is a 3D architectural model of a building complex with a yellow roof and blue glass facade. The interface includes a top navigation bar, a left sidebar with a 'Tâches navigator', a central data table, and a right sidebar with task details.

Sujets (1)

Type	Titre	Auteur	Personne responsable	Nombre	Date d'échéance	Priorité	Statut
Problème	Déplacer structure	Bernard Charix	Mattéo Reibel	20/10/2016	18/10/2017	Moyen	Quart

Propriété de la tâche

1 éléments sélectionnés

Description: Poser la structure T38m trop à gauche.

Priorité: Moyen | Statut: Quart

Personne responsable: Mattéo Reibel (EPFL)

Email CC: alexis.moussier@epfl.ch, val.corb@epfl.ch

Date d'échéance: 18/10/2017 | 227 jours 8 heures dépassés!

Type: Problème

Étiquette:

Navigation icons: Home, Overview, Measure, Rotate, Copy, Paste, View, Refresh.

ORIGINE STRUCTURE À CORRIGER

The screenshot shows a web application interface with a table at the top, a 3D model of a building structure, and a right-hand panel with task properties and a description.

Échéance	Priorité	Statut				
2017	Moyen	Ouvrir	0	0	0	0

The 3D model shows a building structure with a yellow roof and blue walls, set against a green landscape. A red box highlights a specific part of the structure.

Propriété de la tâche

1 objects selected

[Éditer](#)

Description:

Position structure 720cm trop à gauche.

4. FLUX DE TRAVAIL EN openBIM

MODÈLES PROPRIÉTAIRES & MODÈLES .IFC

maquette paramétrique

maquette d'échange

modèle propriétaire

publication

modèle non modifiable .IFC

GÉNIE CIVIL



ARCHITECTE

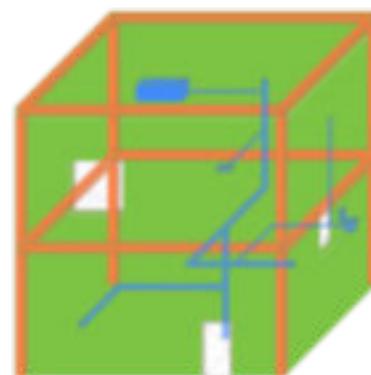


TECHNIQUES DU BÂTIMENT

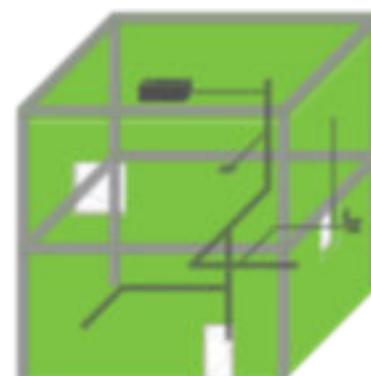


BIM POUR COORDINATION

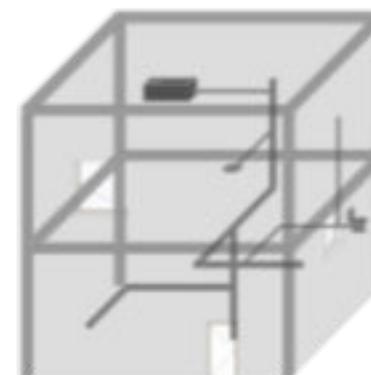
a. BIM Niv. 3 ou closedBIM
- réaliste ?



b. COORDINATION ARCHITECTE
- maquettes .ifc chez architecte



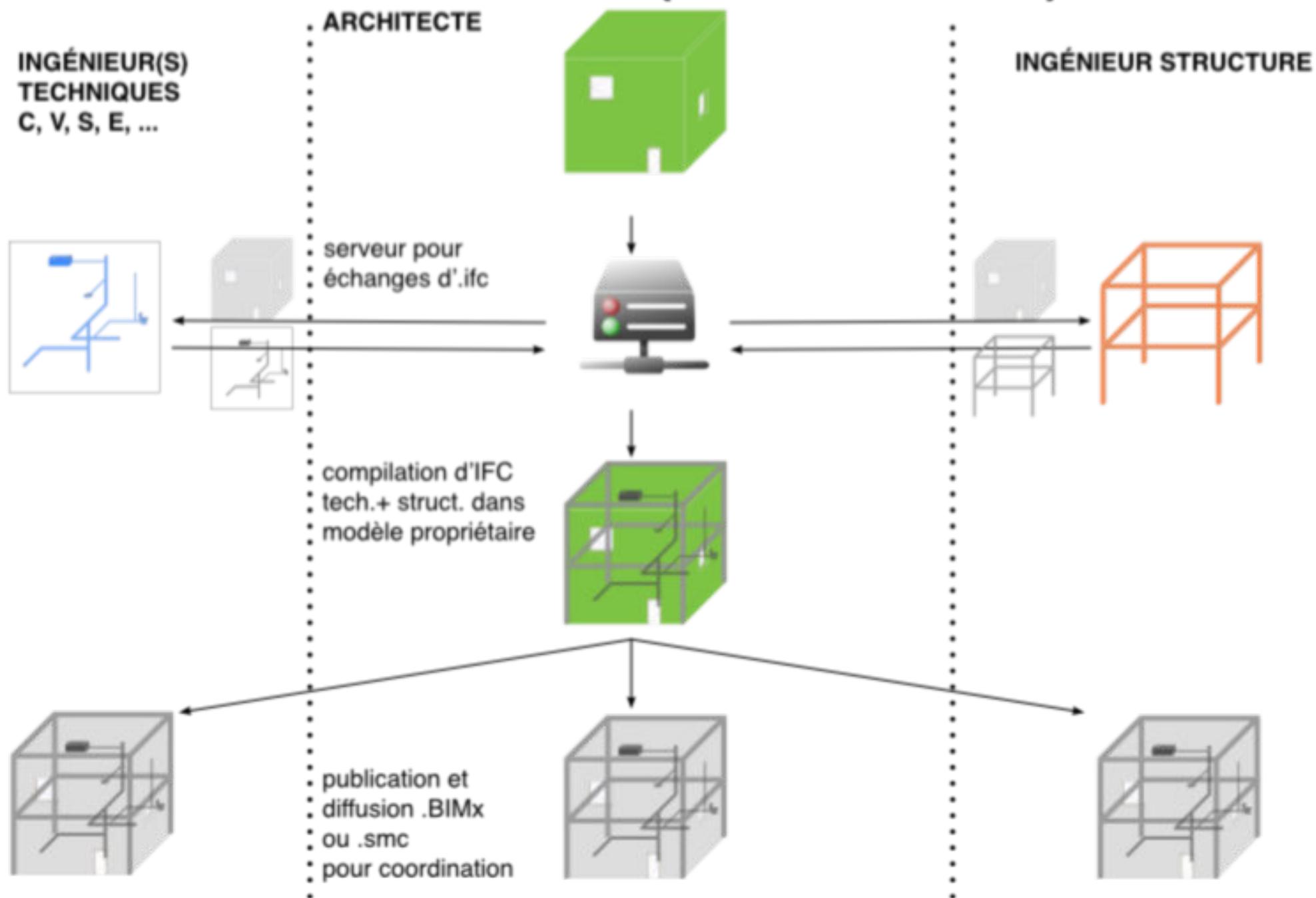
c. coordination conjointe
- toutes maquettes .ifc compilées



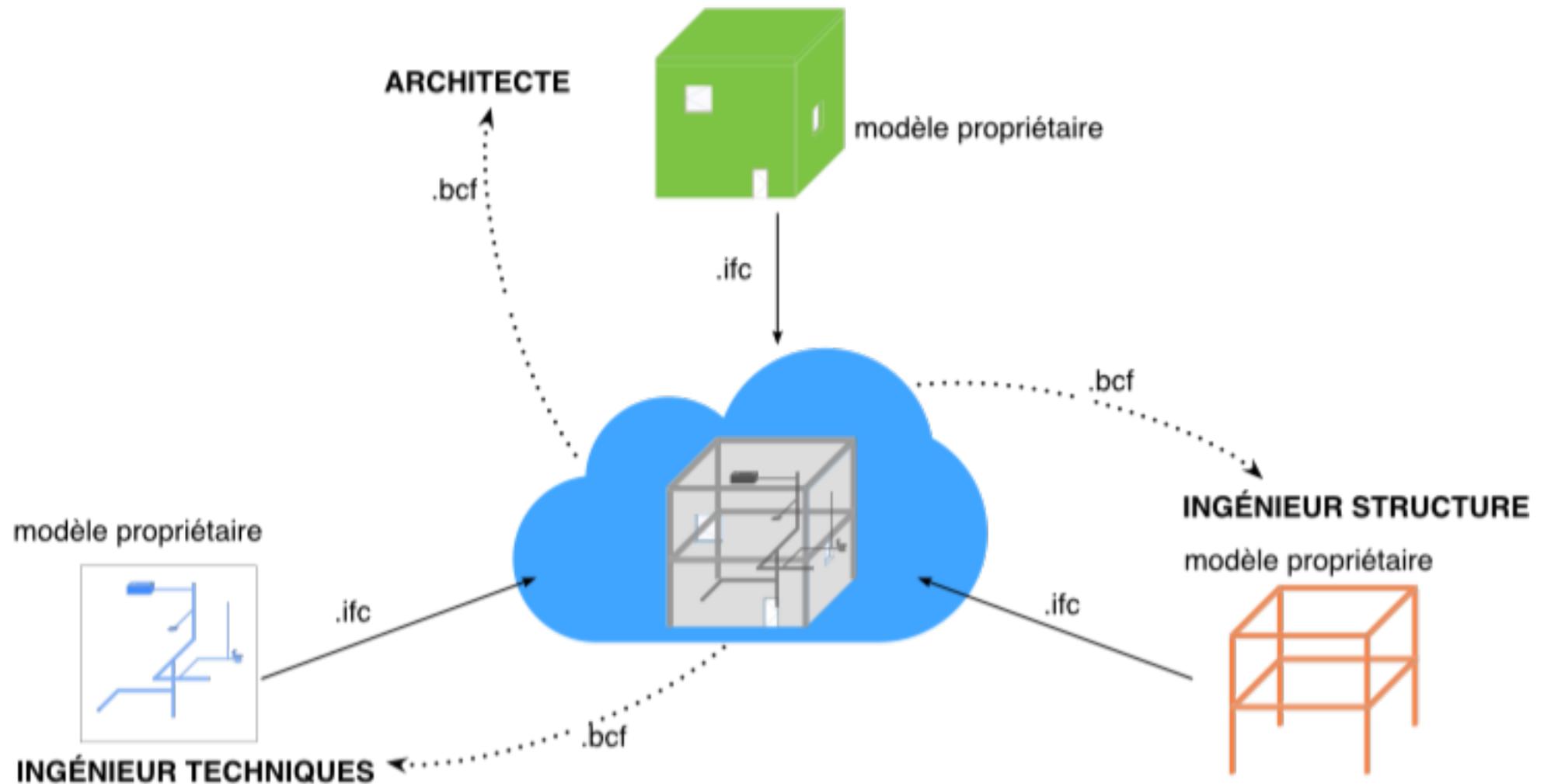
QUATRE EXEMPLES DE FLUX DE TRAVAIL

1. SERVEUR ARCHITECTE (cp. échanges .dxf)
2. PLATEFORME COLLABORATIVE (nuage informatique)
3. MAQUETTE DE CONTRÔLE DE COLLISION
4. SYSTÈME EMBARQUÉ

1. SERVEUR ARCHITECTE (i.e. BIM Bel-Air) sans BCF

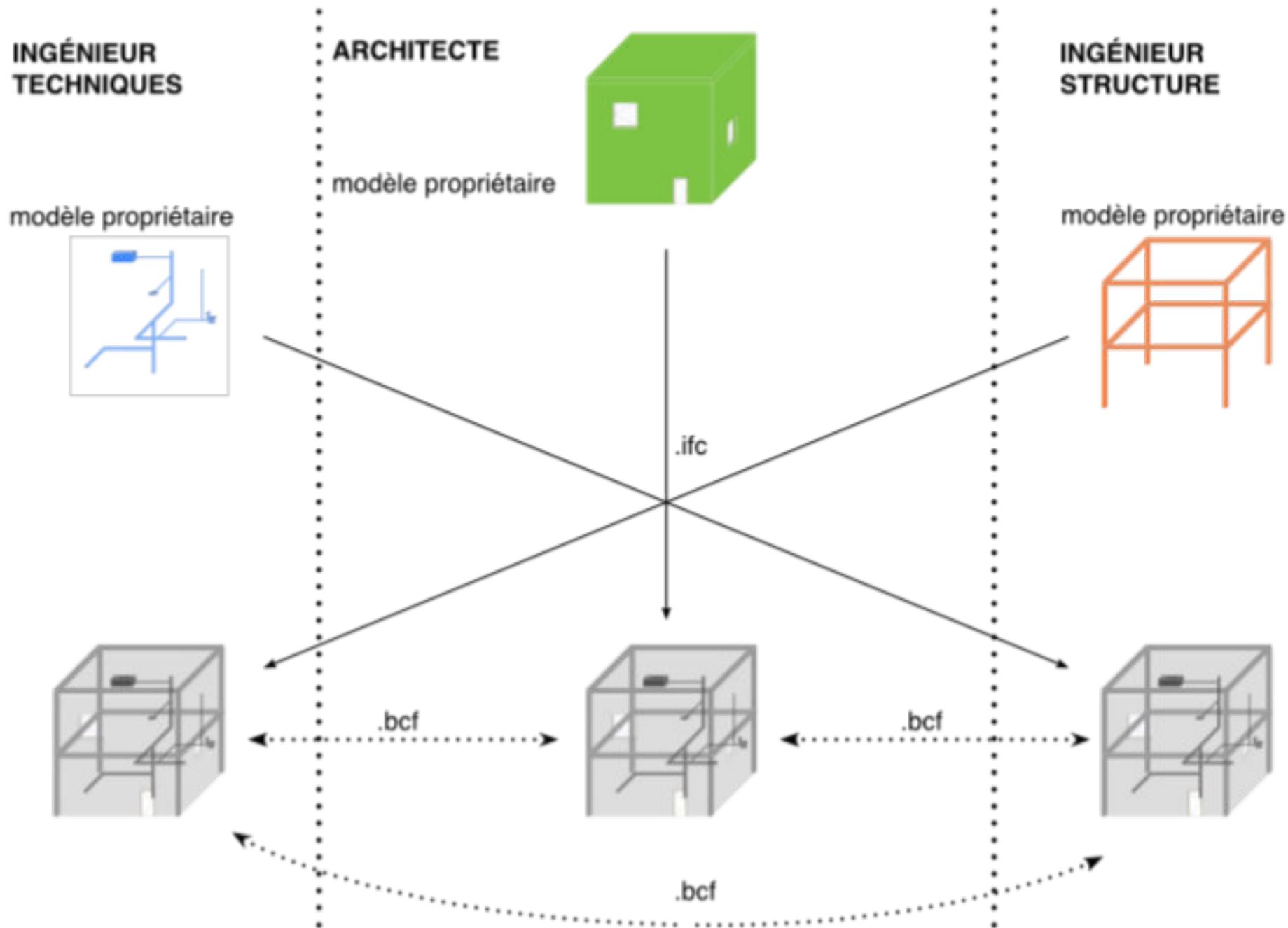


2. NUAGE INFORMATIQUE -plateforme collaborative- i.e. BIM+, Trimble connect



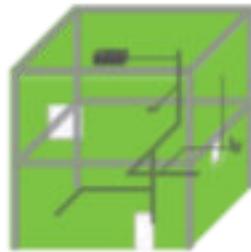
⚠ pas de serveurs « cloud » en Suisse

3. MAQUETTE DE CONTRÔLE COLLISION (Solibri, Navisworks...)



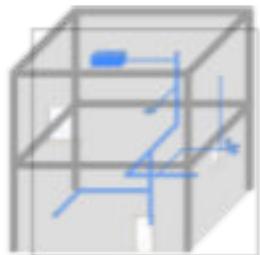
4 .SYSTEME EMBARQUE (i.e. BIMcollab)

ARCHITECTE



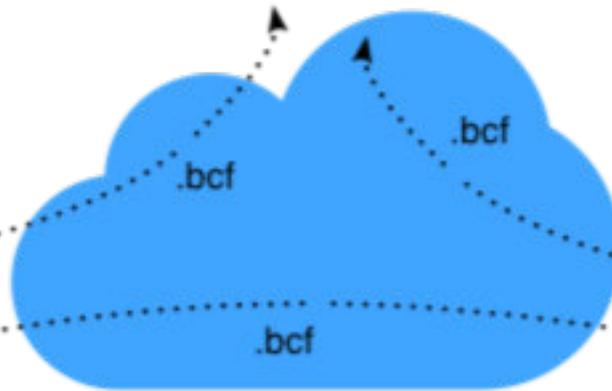
modèle propriétaire
avec .ifc mandataires

modèle propriétaire
avec .ifc mandataires

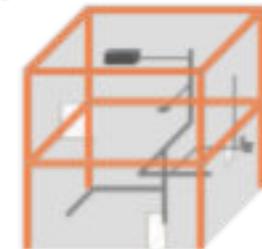


INGÉNIEUR
TECHNIQUES

Avec:
DDS-CAD
Revit MEP



modèle propriétaire
avec .ifc mandataires



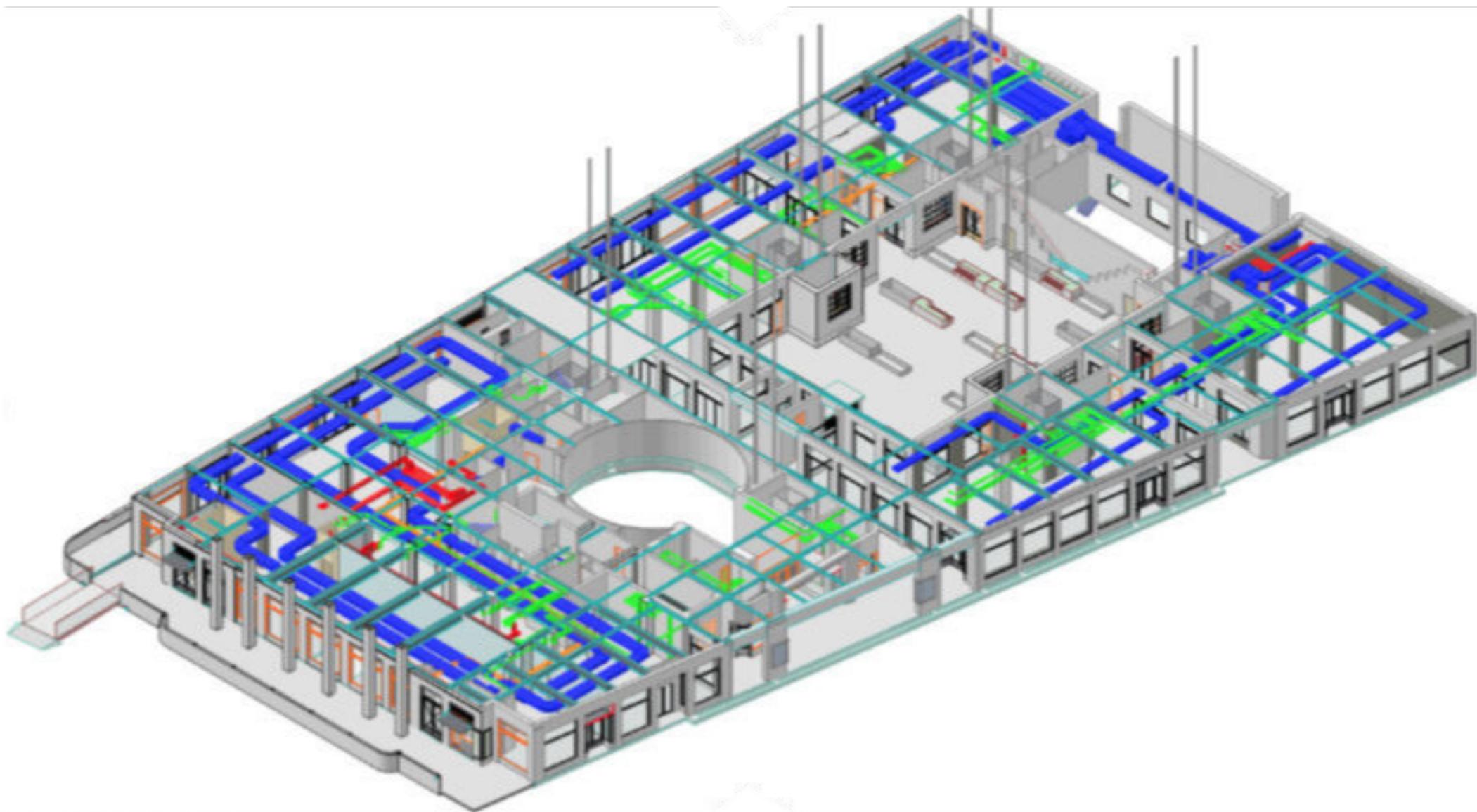
INGÉNIEUR
STRUCTURE

Avec:
Tekla
Revit structure

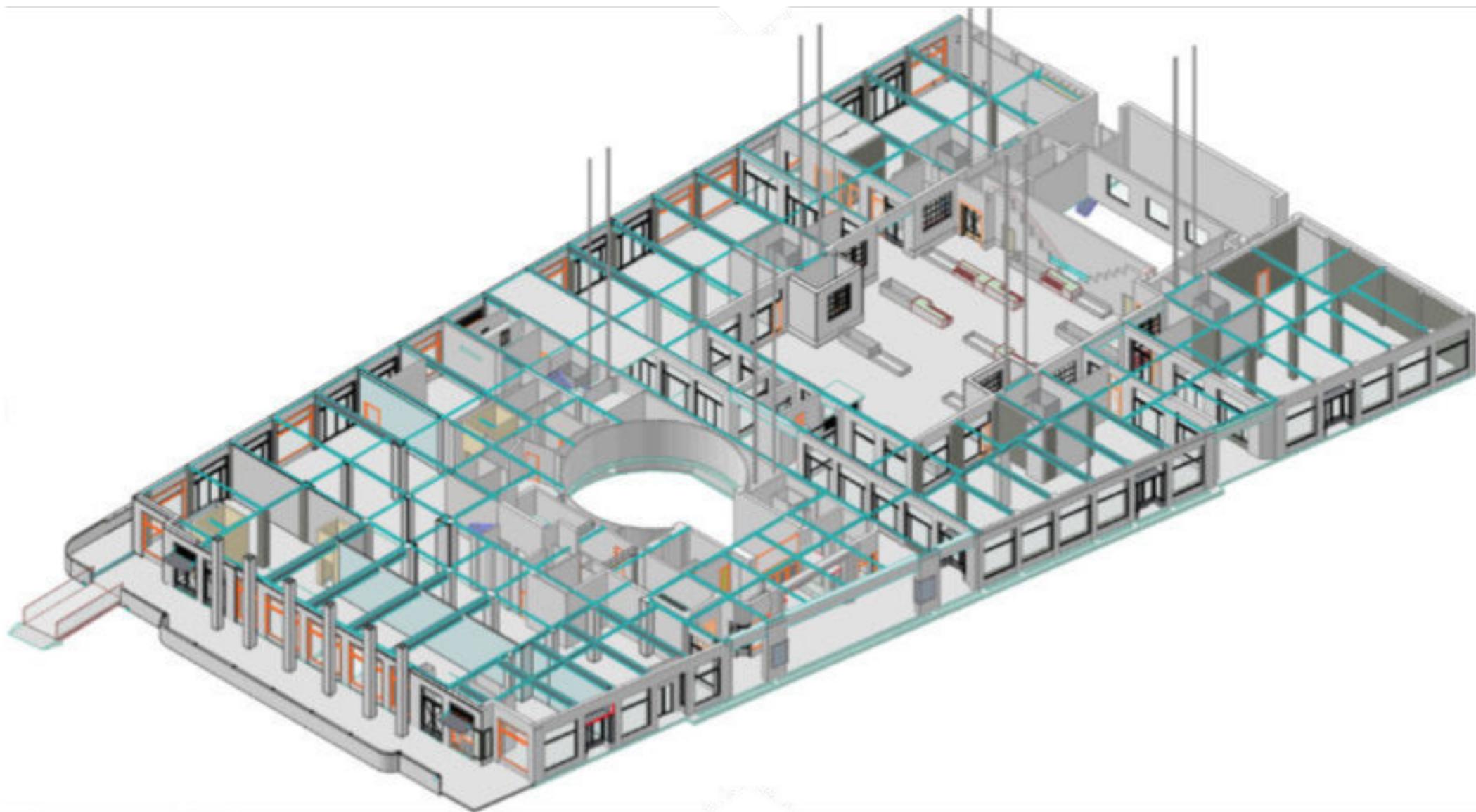
Avec:
ARCHICAD
Revit Architecture

BIM niveau de maturité 2 (modèles indépendants)
5. COMPILATION AVEC SERVEUR ARCHITECTE

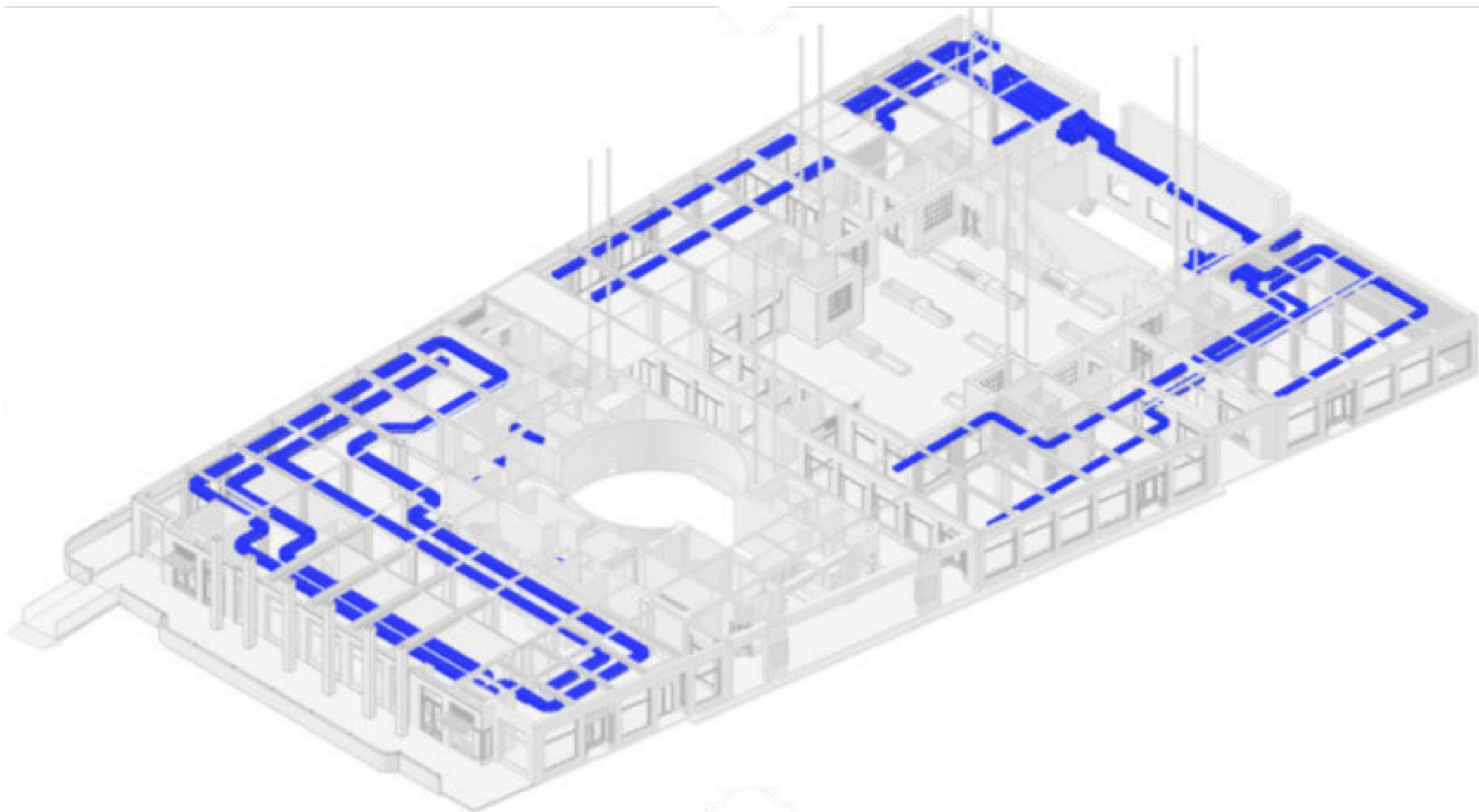
COMPILATION DE MAQUETTES EN 3 TEMPS



1. ÉLABORATION DE LA 1^{ère} MAQUETTE PAR ARCH.



2. ÉLABORATION LA PARTIE V PAR MANDATAIRE



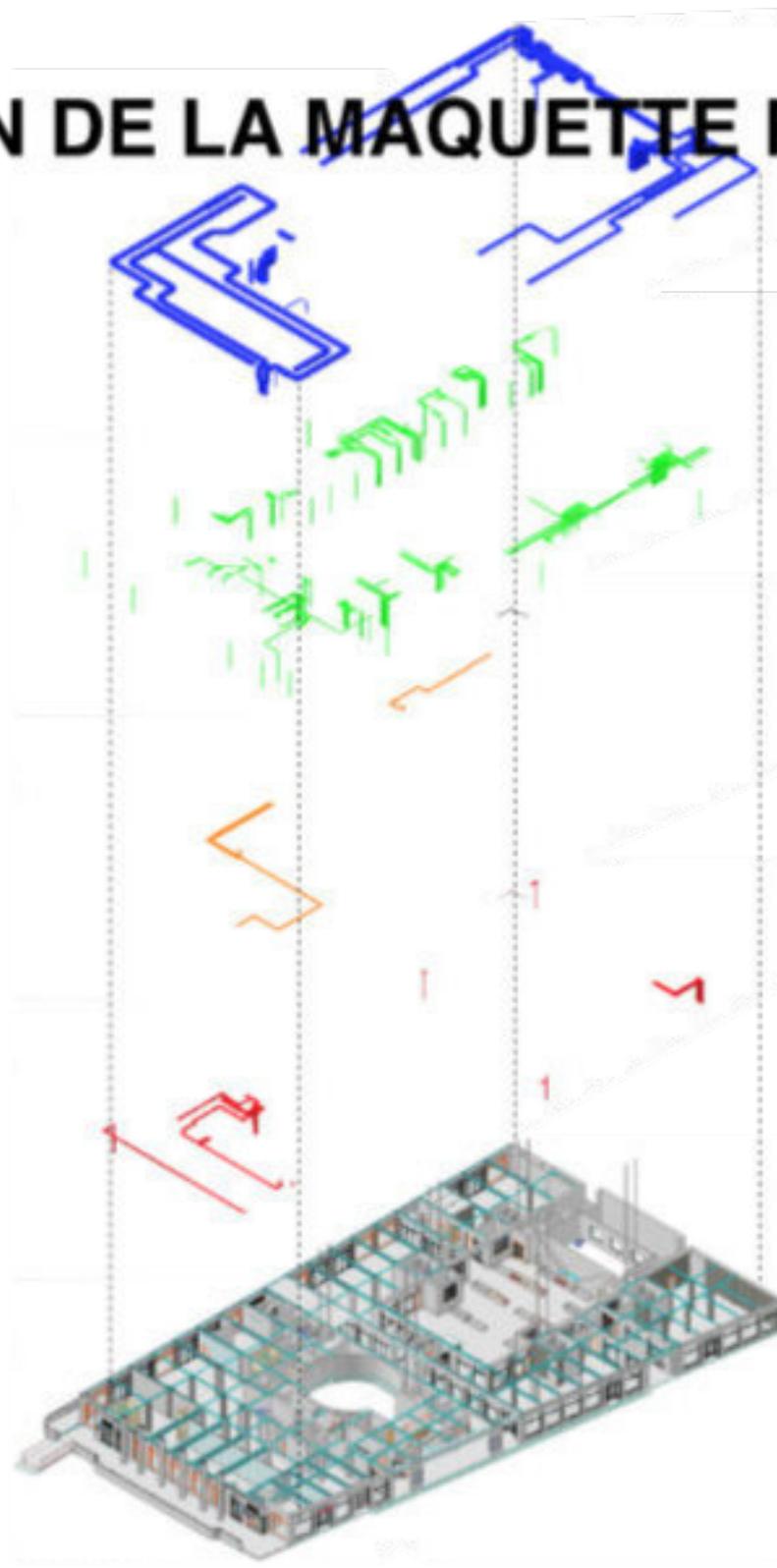
3. COMPILATION DE LA MAQUETTE P/ ARCHITECT

ventilation

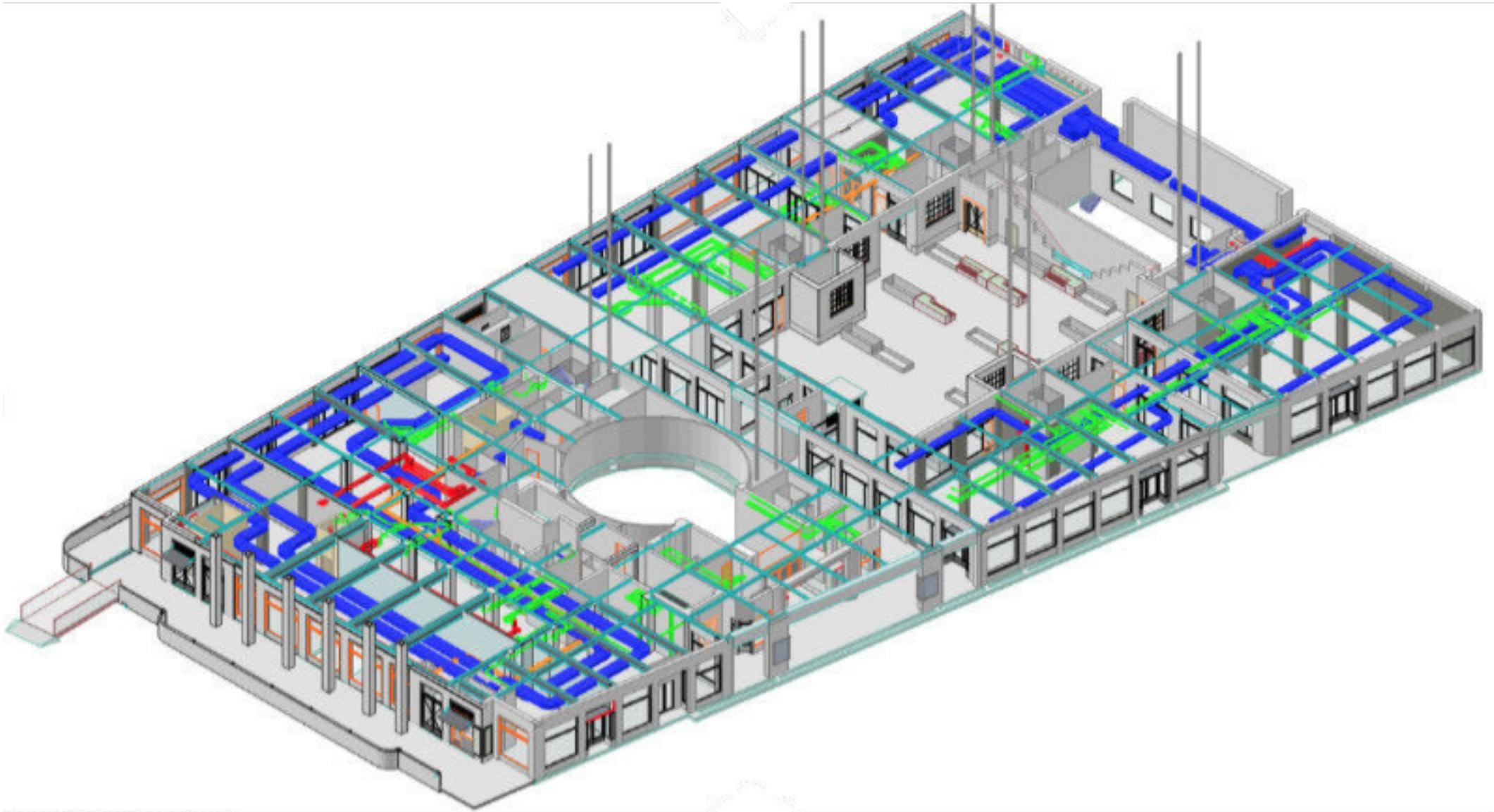
sanitaire

électricité

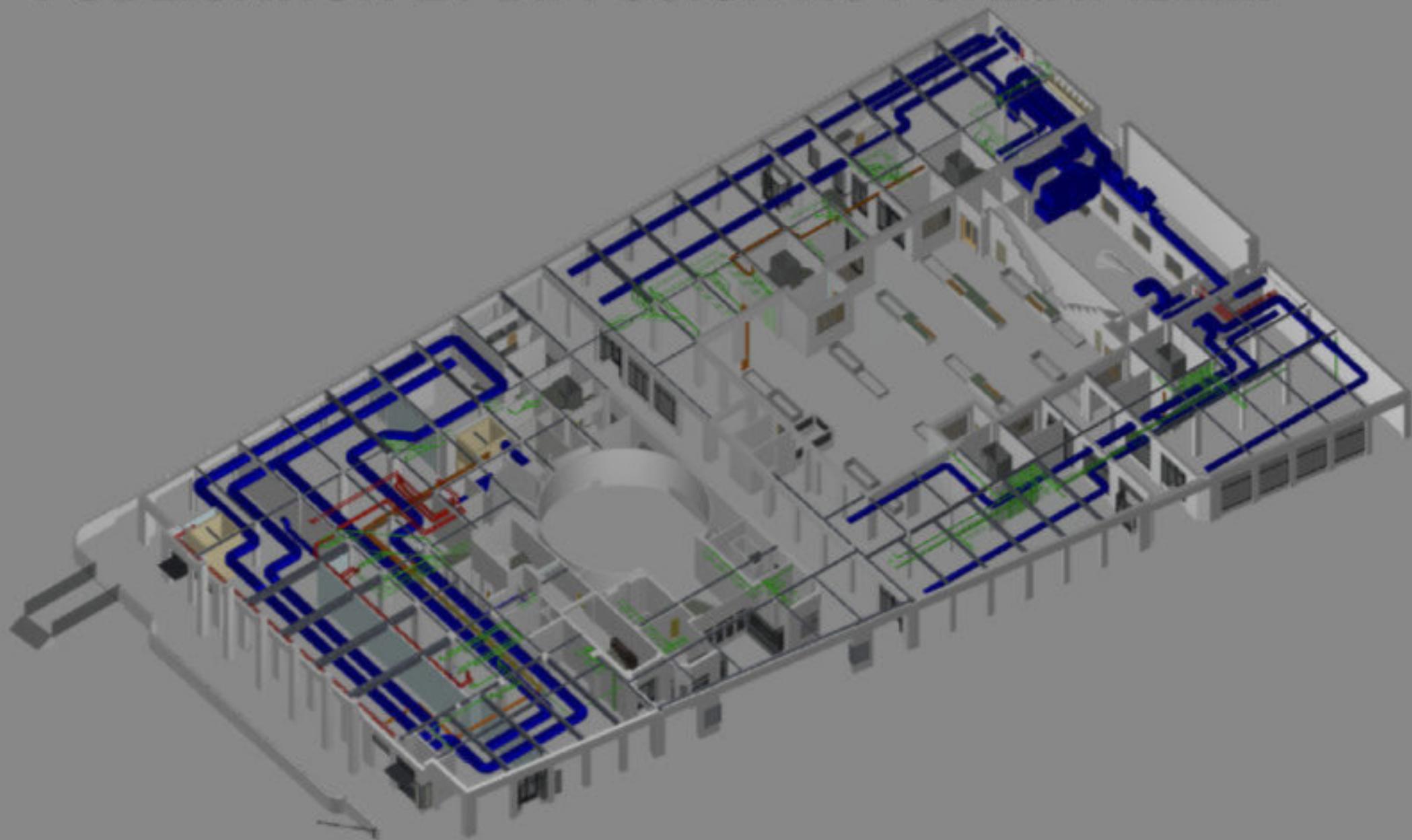
chauffage



3. COMPILATION DE LA MAQUETTE P/ ARCHITECT

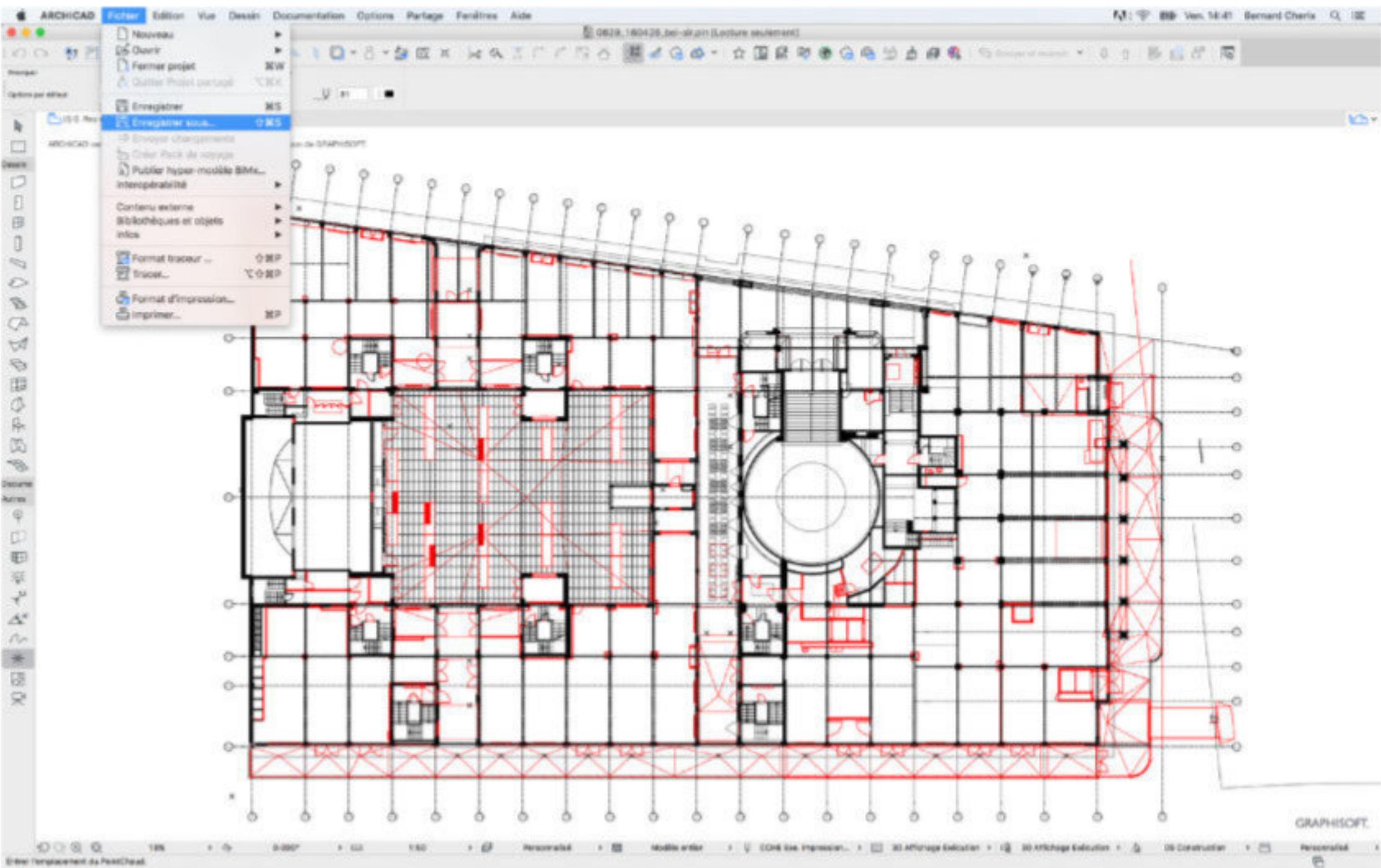


PUBLICATION ET DIFFUSION AU FORMAT .BIMx



6. PROCESSUS D'EXPORTATION & IMPORTATION

EXPORT DE MAQUETTE : enregistrer comme IFC



EXPORT DE MAQUETTE : traducteurs IFC

The screenshot displays the ARCHICAD software interface. The main window shows a 3D architectural model of a building structure, with a red wireframe overlay. A dialog box titled "Designeur Plan" is open, showing the "Enregistrer sous" (Save As) field set to "Sans Titre" and the "Type" field. Below this, a file list is visible, and a dropdown menu for "Traducteur" (Translator) is open, listing various translation options. The selected option is "Traducteur générique".

Traducteur

- Traducteur générique
- Via de données IFC
- Via de transfert de données IFC
- IFC Export

Format : IFC

Exporter : Exportation de données de structure

Traducteur : Traducteur générique

Marquer : Marquer les éléments à exporter

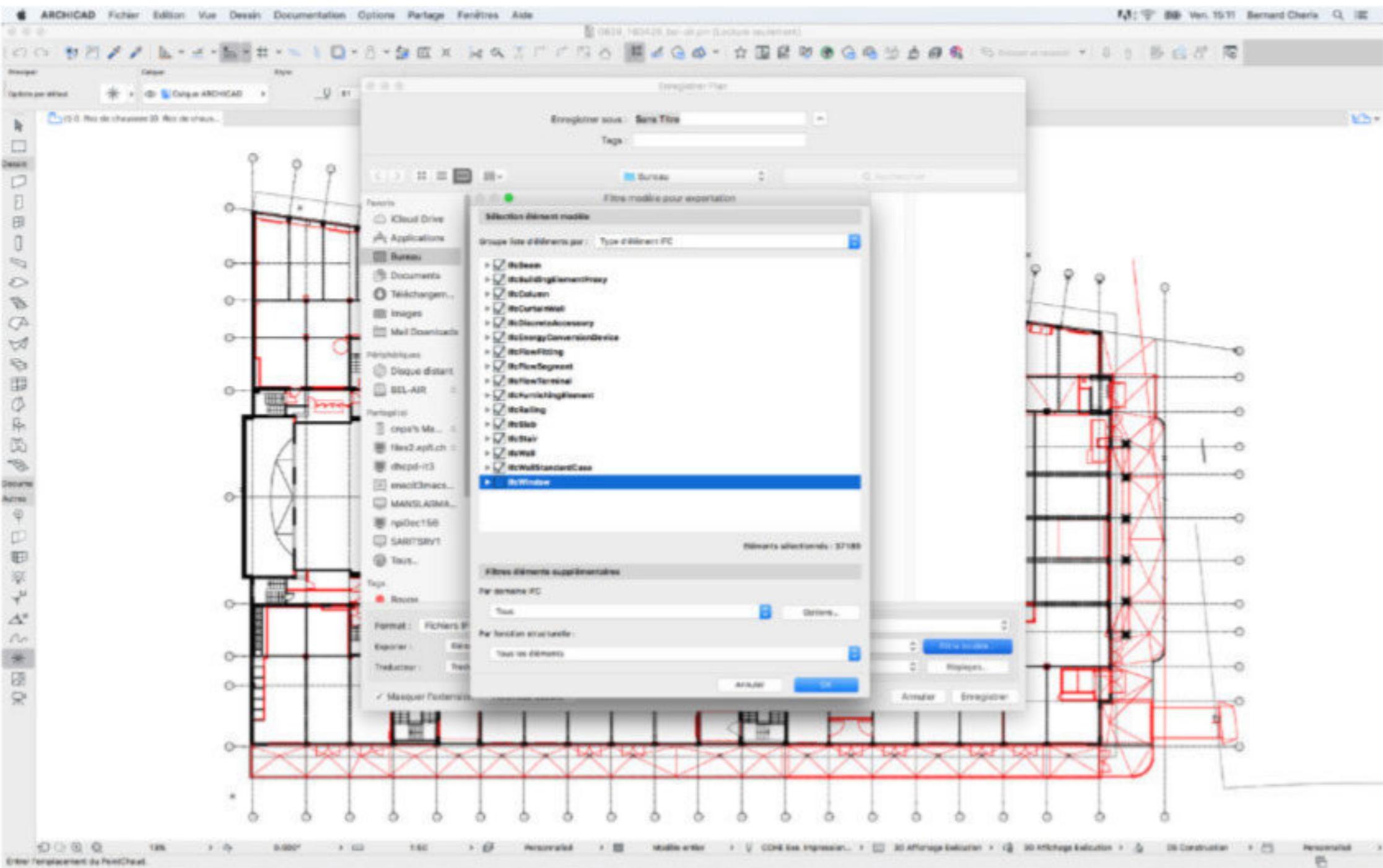
Options : Options de l'exportation

Annuler **OK**

TAILLE LIMITE RENCONTRÉE (selon logiciels)



OPTION DE RÉDUCTION DE TAILLE DU FICHER 1



OPTION DE RÉDUCTION DE TAILLE DU FICHER 2

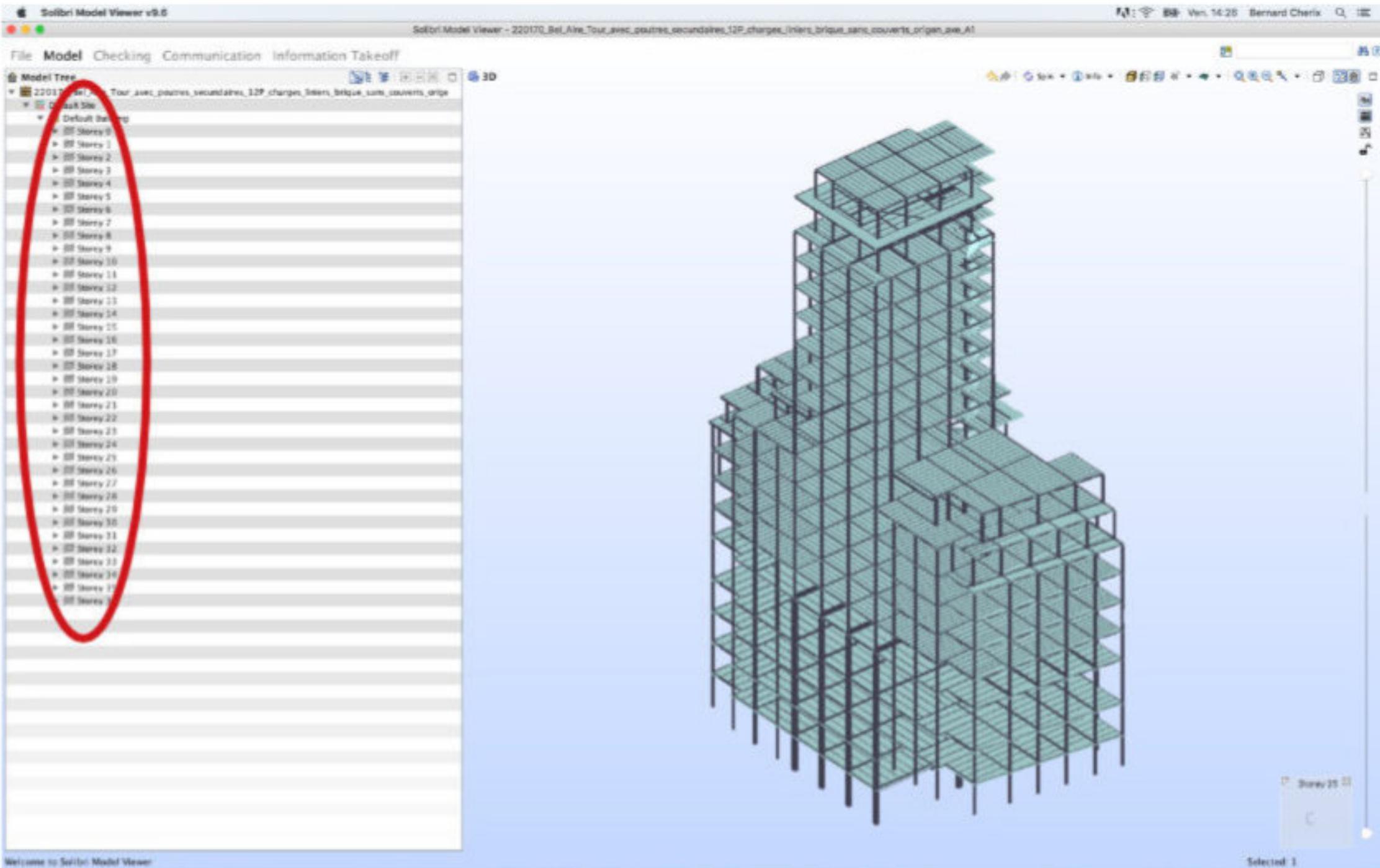
The screenshot displays the ARCHICAD interface with a floor plan open. A dialog box titled "Enregistrer Plan" (Save Plan) is active, showing the file name "Sans Titre" and a "Tags" field. Below this, a file browser window shows the contents of the "Bureau" (Desktop) folder, listing various files and folders. A smaller dialog box is overlaid on the file browser, titled "Format", "Exporter", and "Traduction". It contains the following options:

- Format: Éléments 40%
- Profil entier
- Filaires visibles (sur tous les étages)
- Tous les éléments sur l'étage actif
- Les murs visibles sur l'étage actif

Buttons for "Masquer l'extension", "Nouveau dossier", "Annuler", and "Enregistrer" are visible at the bottom of the dialog boxes. The background shows a detailed architectural floor plan with red lines indicating structural elements and a grid system.

PROCESSUS D'IMPORTATION

VISUALISATION ET REPÉRAGE D'INCOMPATIBILITÉS



The image displays the Solibri Model Viewer v9.0 interface. The main window shows a 3D wireframe model of a multi-story building structure. The left sidebar contains the Model Tree, which lists the building's components. A red oval highlights the 'Floors' section of the tree, which includes a list of floors from 00 Storey 0 to 00 Storey 31. The top menu bar includes 'File', 'Model', 'Checking', 'Communication', 'Information', and 'Takeoff'. The bottom status bar indicates 'Selected: 1'.

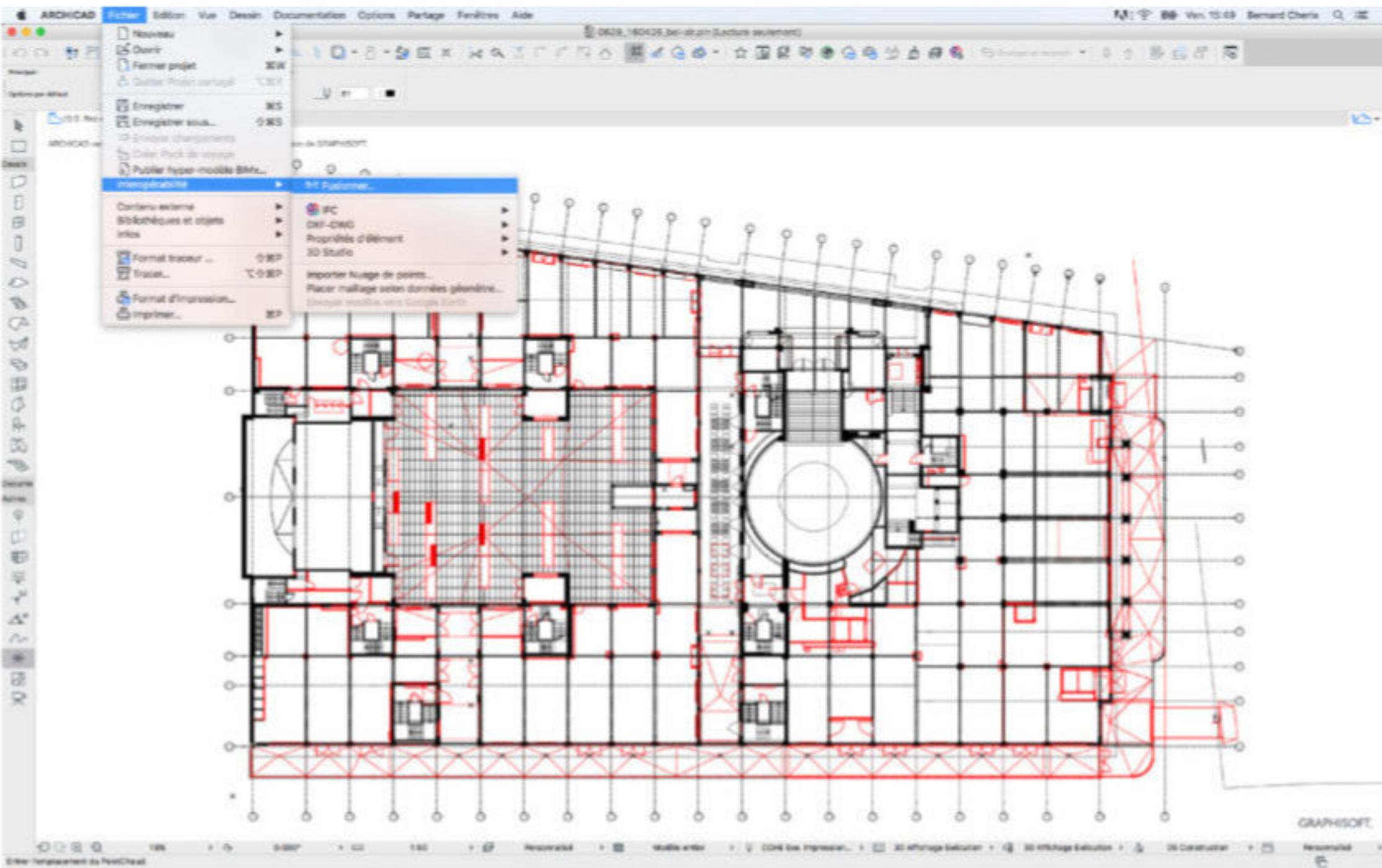
Model Tree

- 220170_Bel_Aire_Tour_avec_poutres_secondaires_12P_charges_biers_brique_sans_couverts_origen_ave_A1
 - Task Site
 - Default Settings
 - 00 Storey 0
 - 00 Storey 1
 - 00 Storey 2
 - 00 Storey 3
 - 00 Storey 4
 - 00 Storey 5
 - 00 Storey 6
 - 00 Storey 7
 - 00 Storey 8
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 - 00 Storey 10
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 - 00 Storey 34
 - 00 Storey 35
 - 00 Storey 36

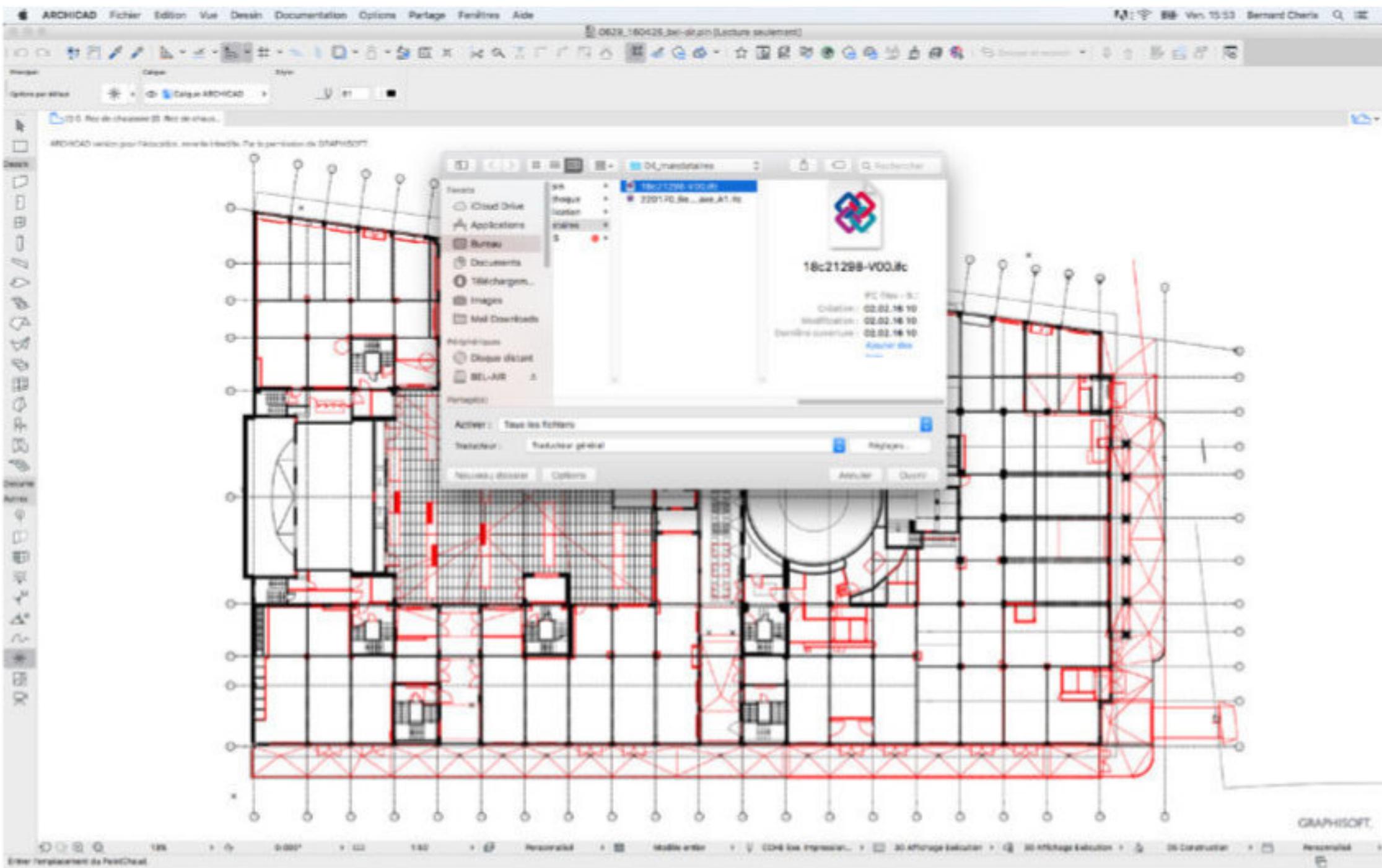
VISUALISATION : modèle cohérent



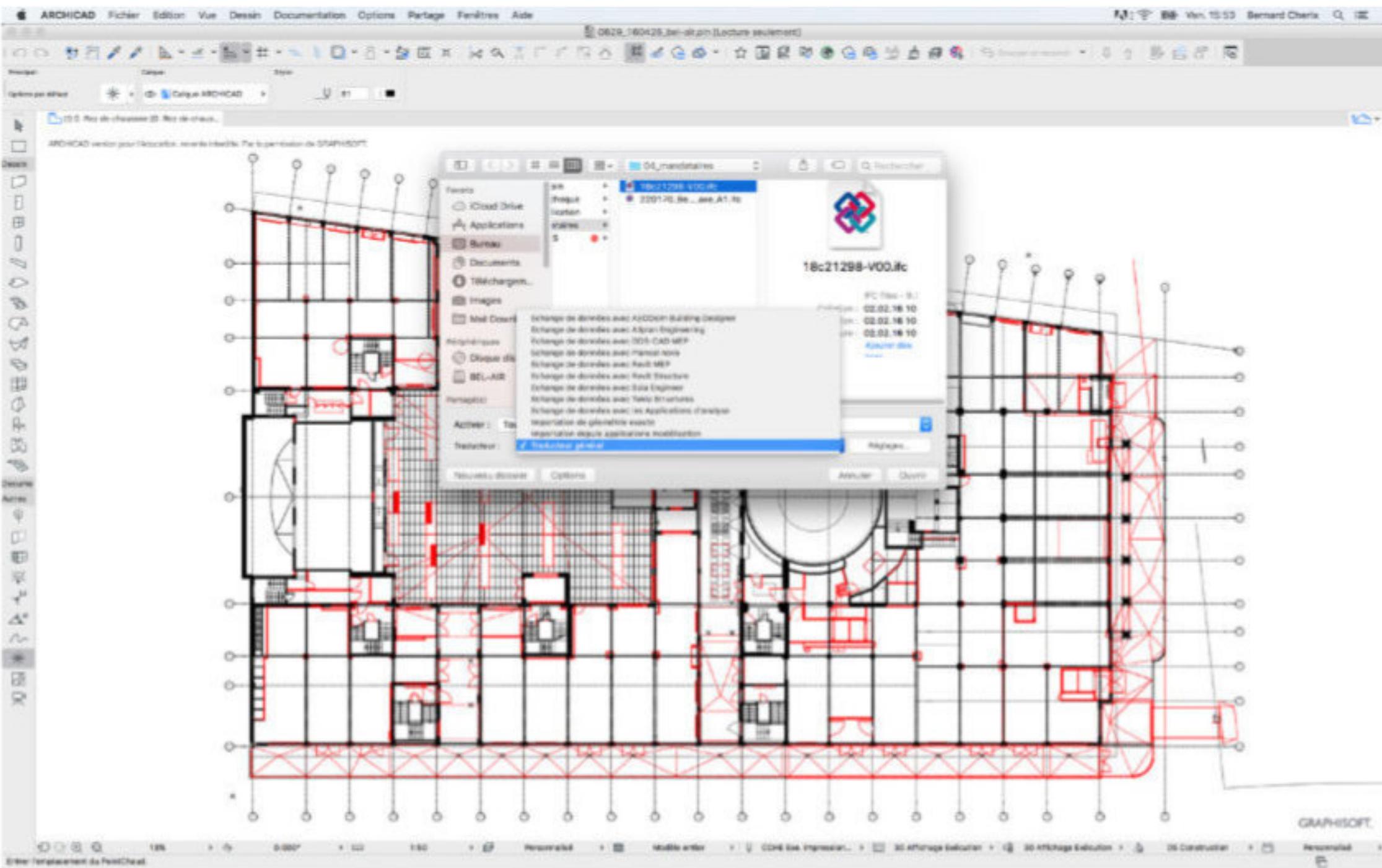
IMPORTATION DE MAQUETTES DE TIERS



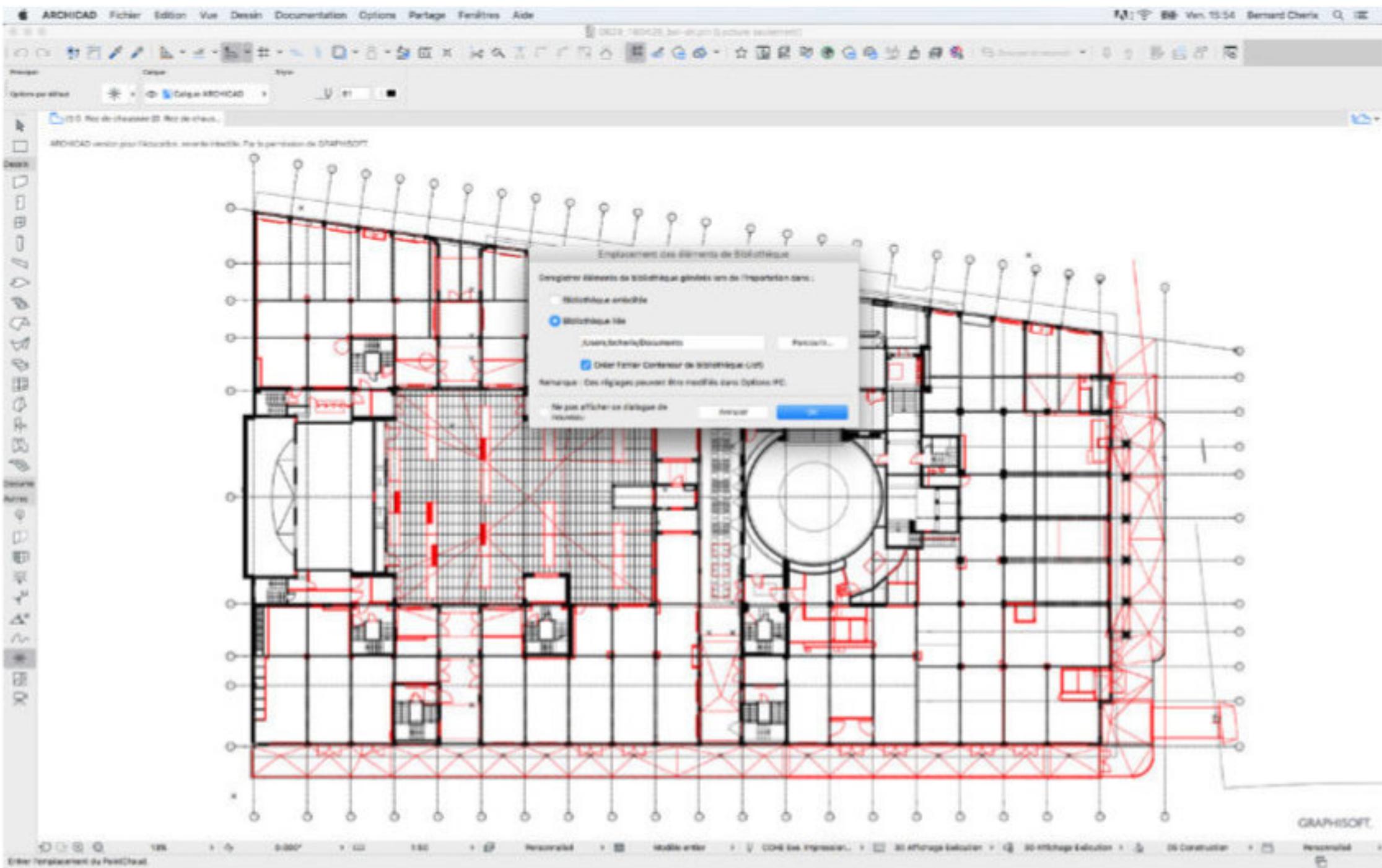
IMPORTATION DE MAQUETTES DE TIERS



IMPORTATION DE MAQUETTES DE TIERS



GESTION D'OBJETS DE TIERCES MAQUETTES



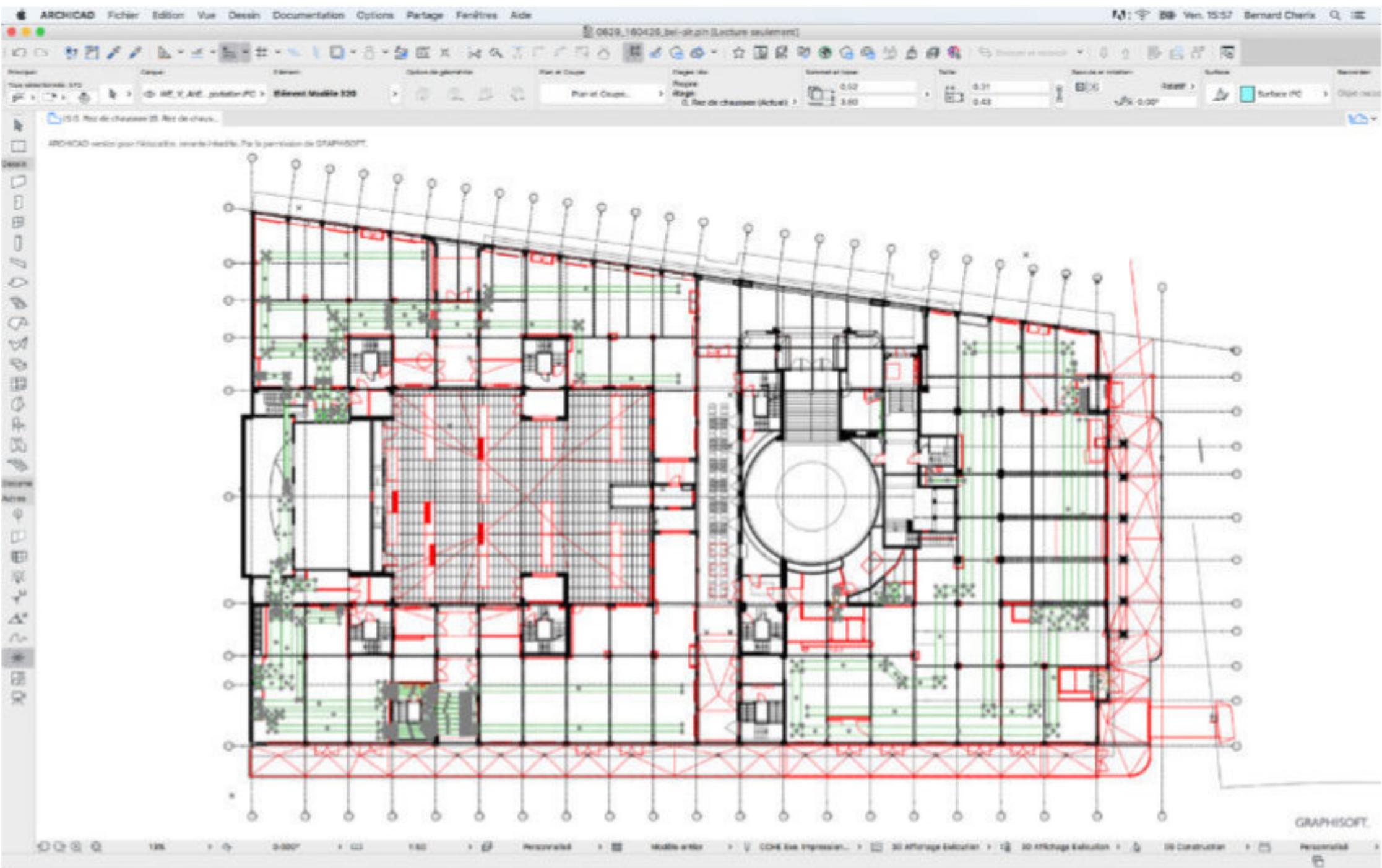
POSITIONNEMENT DE LA MAQUETTE TIERCE EN Z

The image shows a screenshot of the ARCHICAD software interface. The main window displays a structural floor plan with a grid of columns and beams. A dialog box titled "Fuservier Etages" is open in the center, with the following fields and options:

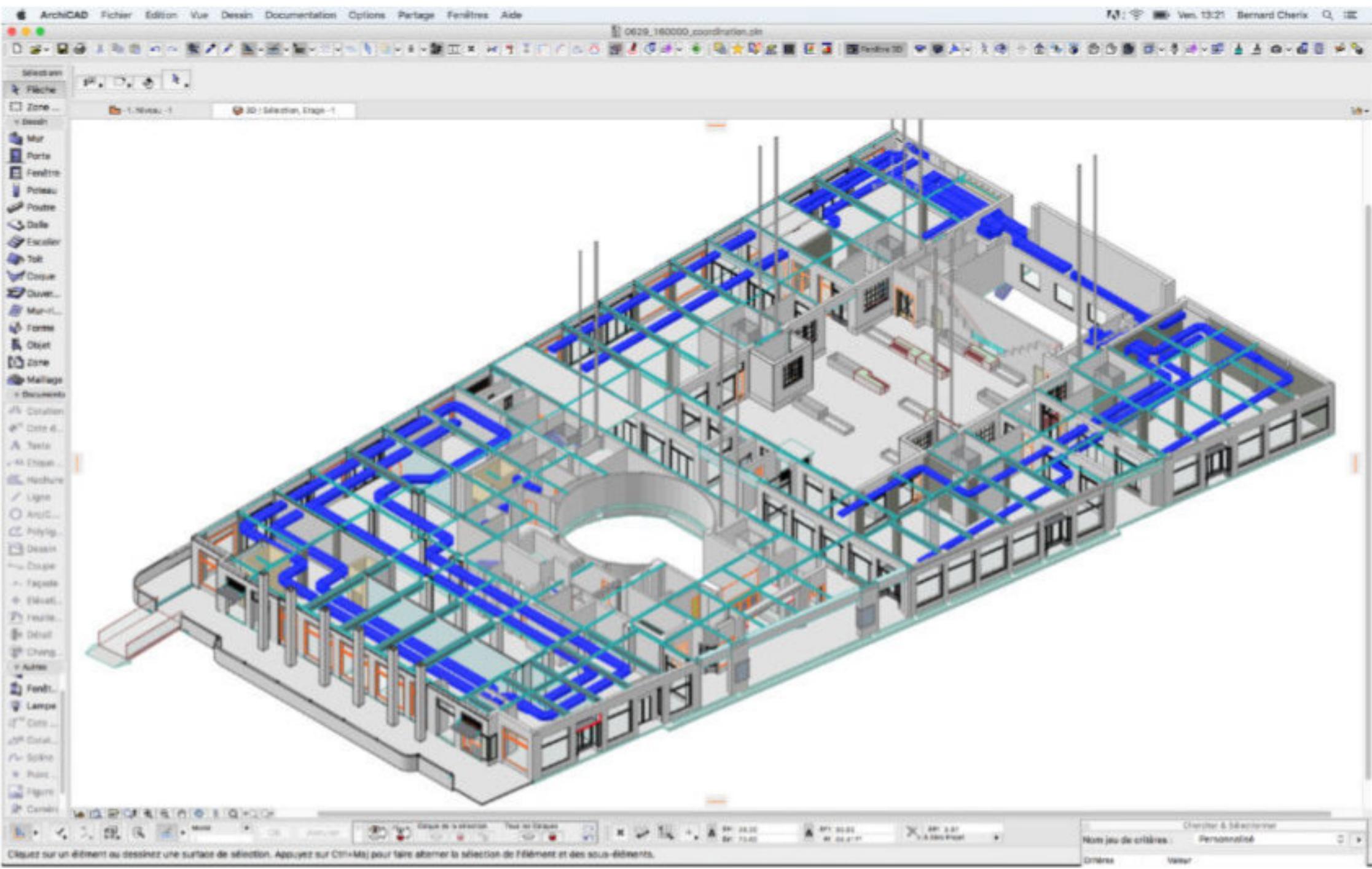
- L' étage courant est : 0 Rez de chaussée (0.00)
- Etages à fusionner : 0 - 0
- Quel étage de la structure à fusionner correspond à l'étage courant ? : 0 Etage (0.00)
- Décalage d'altitude : 0.00

Buttons for "Annuler" and "OK" are visible at the bottom of the dialog. The software interface includes a menu bar at the top with options like "Fichier", "Edition", "Vue", "Dessin", "Documentation", "Options", "Partage", "Fenêtres", and "Aide". The status bar at the bottom shows the current view as "Personnalité" and the scale as "1:50".

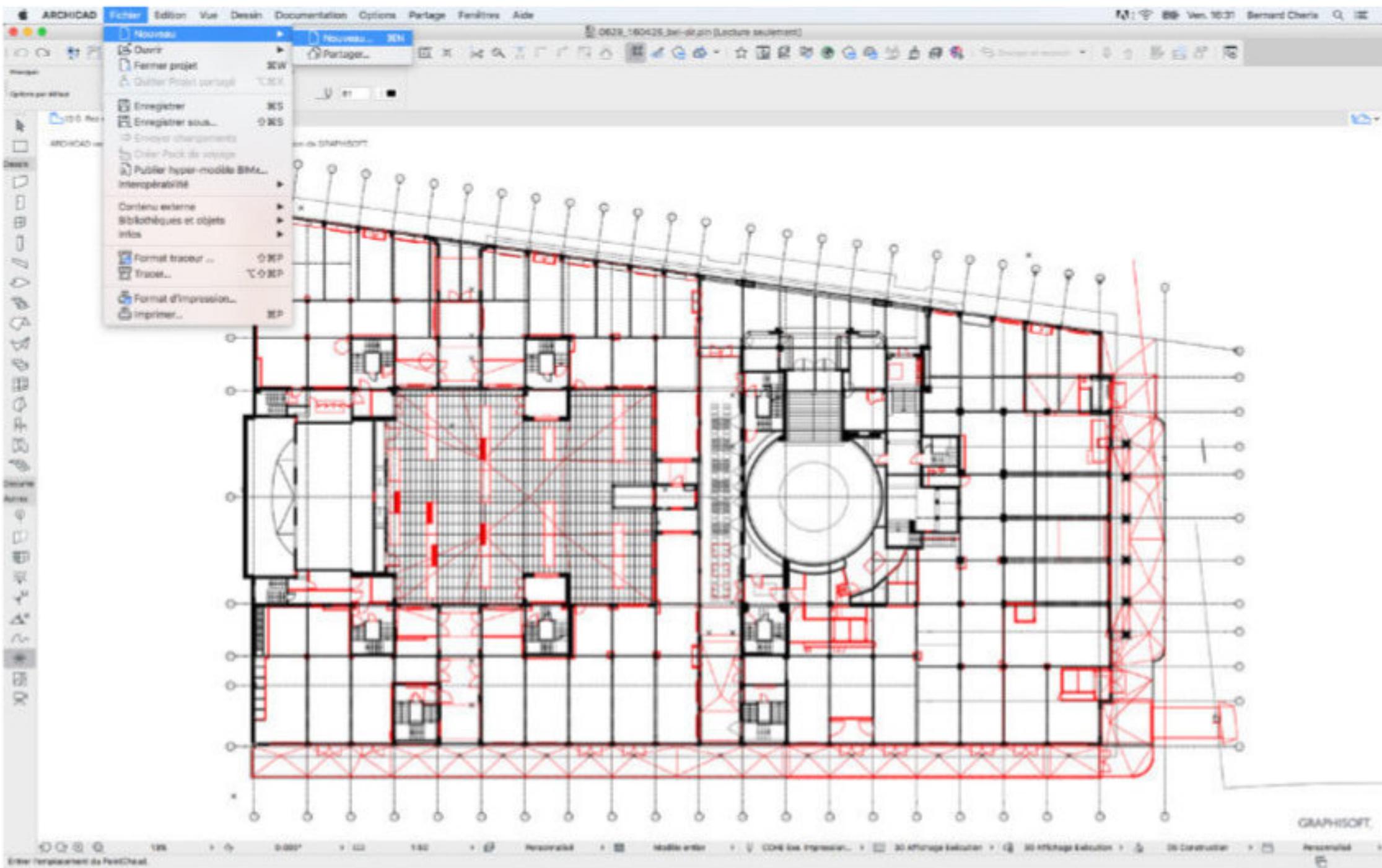
MAQUETTE TIERCE COMPILÉE



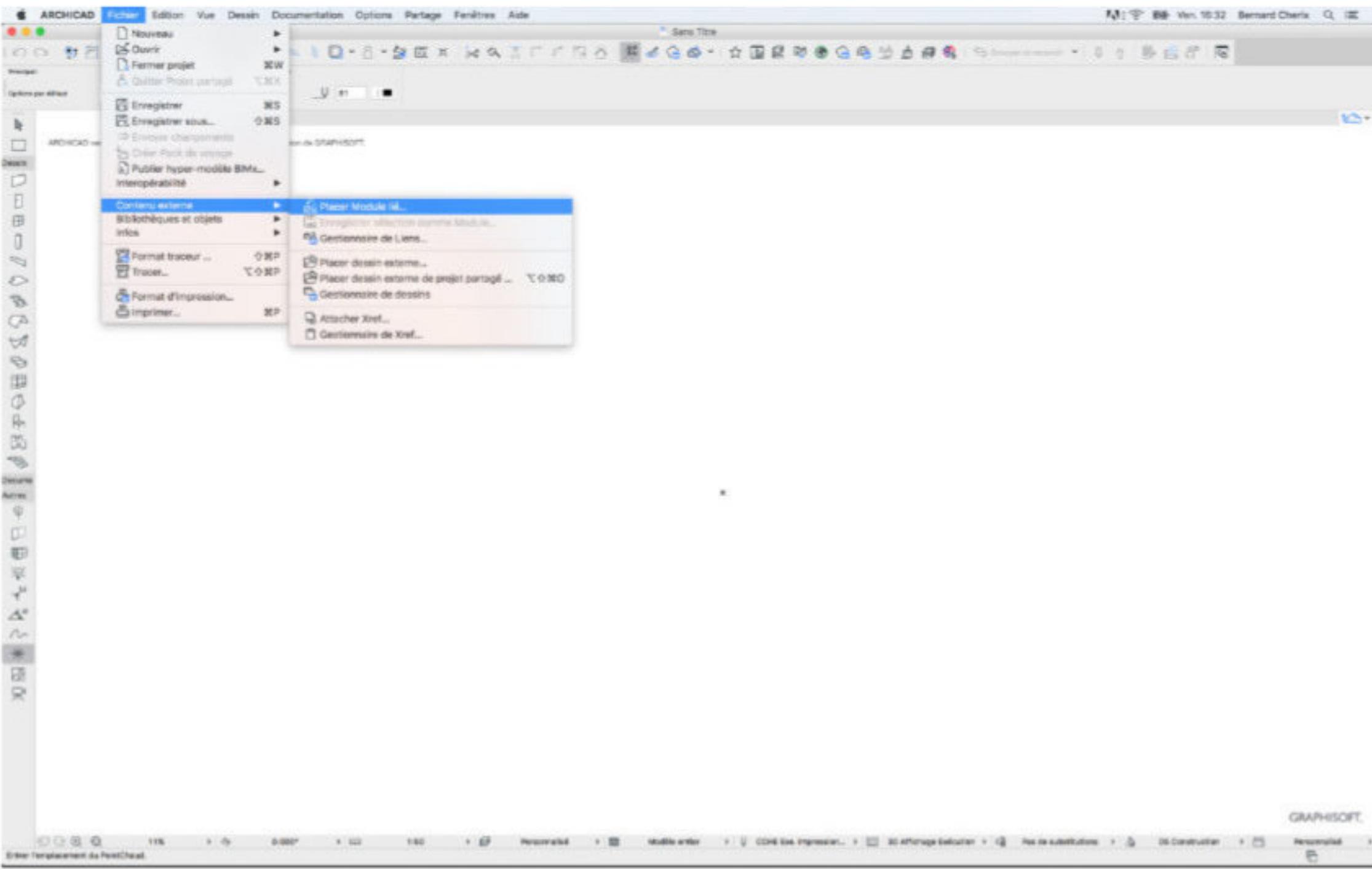
MAQUETTE TIERCE COMPILÉE



ALTERNATIVE P/ GESTION DES COMPLICATIONS



ALTERNATIVE MODULE (v. cours 03)



7. DÉTECTION DE COLLISION

DÉTECTION DE COLLISION (non exhaustif):

- ARCHICAD (dés v. 21)



- NAVISWORKS



- TEKLA BIMsight



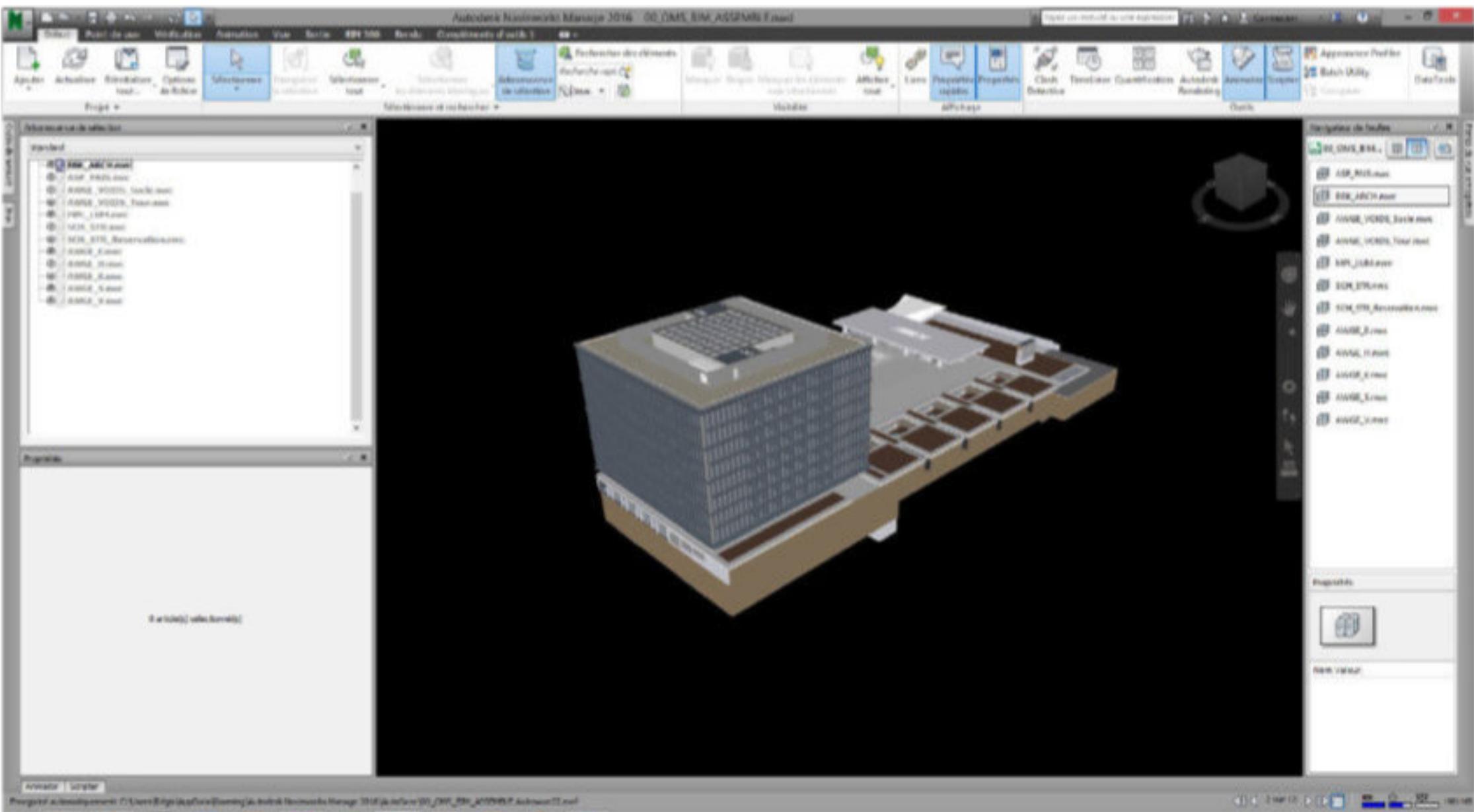
- SOLIBRI MODEL CHECKER



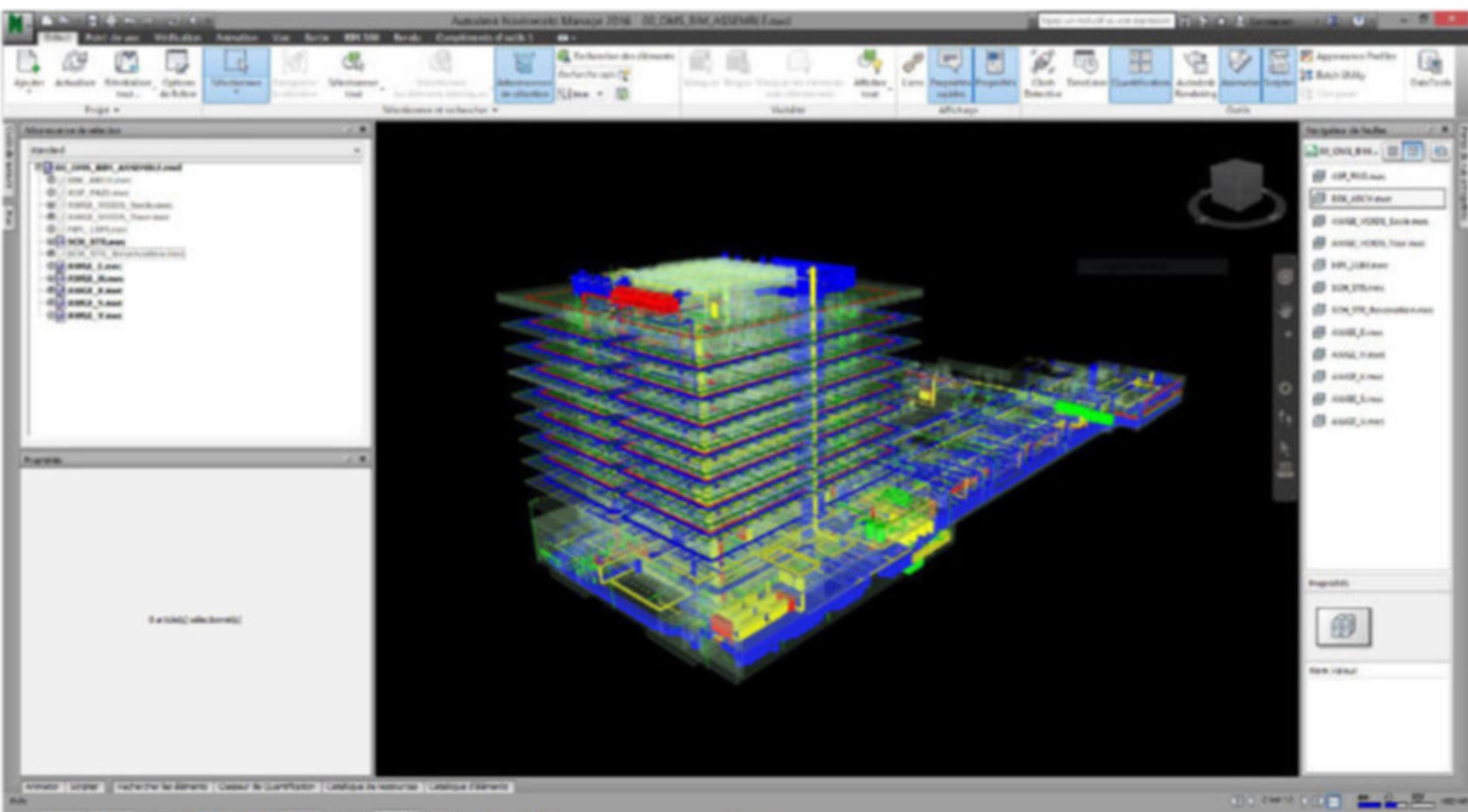
NAVISWORKS -manage- Autodesk



CONTRÔLE VISUEL -Navisworks Freedom-



COMPILATION DES MAQUETTES



DÉTECTION DE COLLISION

The screenshot displays the Autodesk Navisworks Manage 2016 interface. The main view shows a 3D model of a building structure with a green floor slab and a red vertical beam. The 'Clash Detection' window is open, showing a table of clashes. The table has columns for Name, Status, Category, Area, Volume, and Approval. The table lists various clashes, all with a status of 'Nouveau' and a date of '08-21-24 05-07-2017'. The 'Properties' window on the right shows the selected element's details.

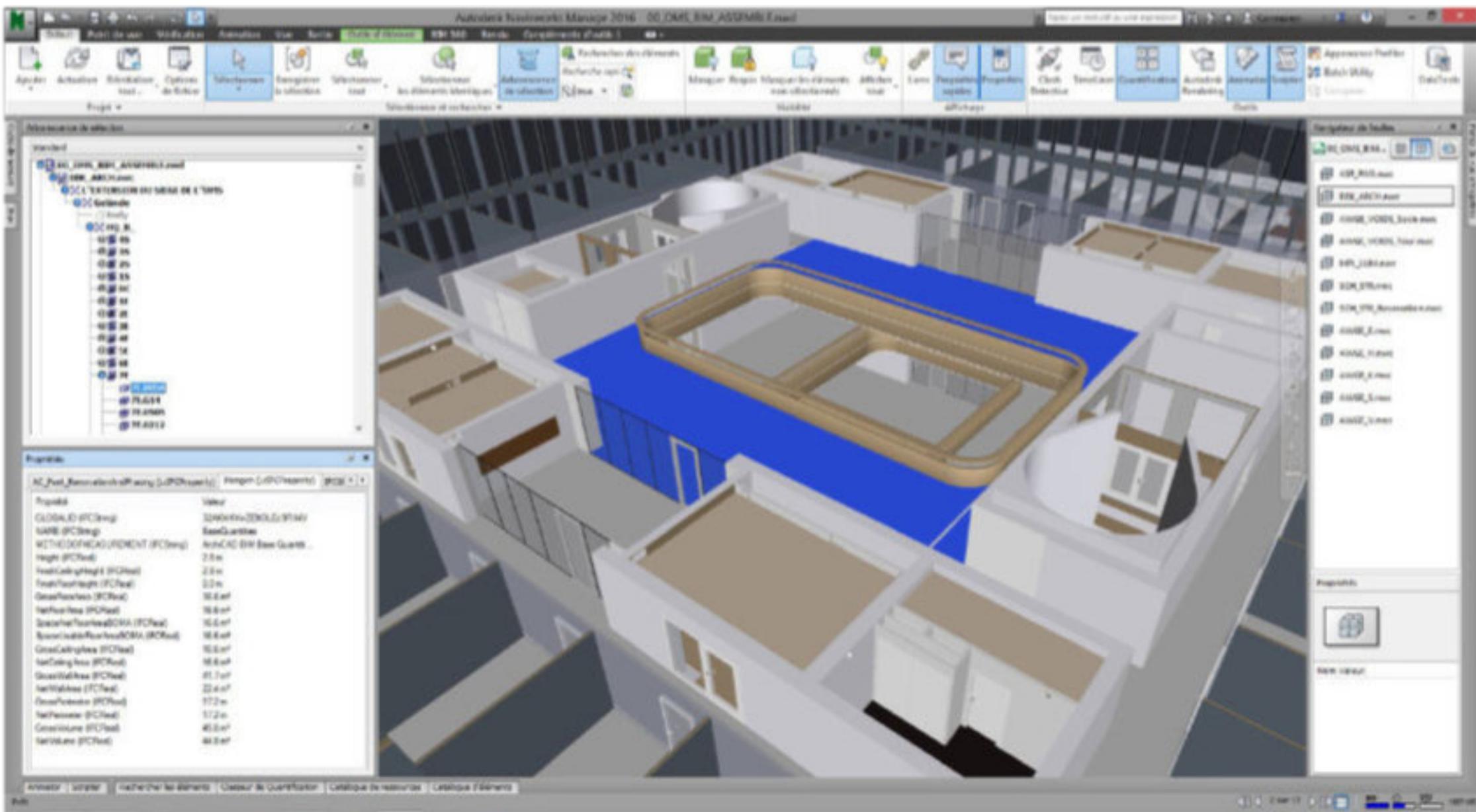
Clash	Statut	Catégorie	Surface	Volume	Approuvé	Description
Car601	Nouveau					Der (système) et Der (système)
Car602	Nouveau					Der (système) et Der (système)
Car603	Nouveau					Der (système) et Der (système)
Car604	Nouveau					Der (système) et Der (système)
Car605	Nouveau					Der (système) et Der (système)
Car606	Nouveau					Der (système) et Der (système)
Car607	Nouveau					Der (système) et Der (système)
Car608	Nouveau					Der (système) et Der (système)
Car609	Nouveau					Der (système) et Der (système)
Car610	Nouveau					Der (système) et Der (système)
Car611	Nouveau					Der (système) et Der (système)
Car612	Nouveau					Der (système) et Der (système)
Car613	Nouveau					Der (système) et Der (système)
Car614	Nouveau					Der (système) et Der (système)
Car615	Nouveau					Der (système) et Der (système)
Car616	Nouveau					Der (système) et Der (système)
Car617	Nouveau					Der (système) et Der (système)
Car618	Nouveau					Der (système) et Der (système)
Car619	Nouveau					Der (système) et Der (système)

DÉTECTION DE COLLISION > .bcf en option...

The screenshot displays the Autodesk Navisworks Manage 2016 interface. The main view shows a 3D model of a building structure with a green floor slab and a red vertical column. The 'Clash Detection' panel is visible on the left, showing a list of elements with columns for Name, Status, Date, Approval, and Description. The 'Properties' panel on the right shows the selected element's details.

Clash	Name	Status	Date	Approval	Description
1	Carb01	Nouveau	06/11/24 05-07-2017		Der (système)...
2	Carb02	Nouveau	06/11/24 05-07-2017		Der (système)...
3	Carb03	Nouveau	06/11/24 05-07-2017		Der (système)...
4	Carb04	Nouveau	06/11/24 05-07-2017		Der (système)...
5	Carb05	Nouveau	06/11/24 05-07-2017		Der (système)...
6	Carb06	Nouveau	06/11/24 05-07-2017		Der (système)...
7	Carb07	Nouveau	06/11/24 05-07-2017		Der (système)...
8	Carb08	Nouveau	06/11/24 05-07-2017		Der (système)...
9	Carb09	Nouveau	06/11/24 05-07-2017		Der (système)...
10	Carb10	Nouveau	06/11/24 05-07-2017		Der (système)...
11	Carb11	Nouveau	06/11/24 05-07-2017		Der (système)...
12	Carb12	Nouveau	06/11/24 05-07-2017		Der (système)...
13	Carb13	Nouveau	06/11/24 05-07-2017		Der (système)...
14	Carb14	Nouveau	06/11/24 05-07-2017		Der (système)...
15	Carb15	Nouveau	06/11/24 05-07-2017		Der (système)...
16	Carb16	Nouveau	06/11/24 05-07-2017		Der (système)...
17	Carb17	Nouveau	06/11/24 05-07-2017		Der (système)...
18	Carb18	Nouveau	06/11/24 05-07-2017		Der (système)...
19	Carb19	Nouveau	06/11/24 05-07-2017		Der (système)...

CONTRÔLE DES DONNÉES DE COMPOSANTS



The image displays the Autodesk Revit MEP 2016 software interface. The central 3D view shows a building model with a blue floor slab highlighted. The software's ribbon and toolbars are visible at the top. On the left, the Project Browser shows a tree view of the model's structure. On the right, the Properties palette is active, displaying a table of properties for the selected component.

Property	Value
GLOBAL (FCling)	329076x2202x9144
NAME (FCling)	BasQuartr
WETHE (OFFICAL) (FMENT) (FCling)	AutCAD BIM Bas Quatr...
Height (FCling)	2.5m
FloorCasingHeight (FCling)	2.0m
FloorFinishHeight (FCling)	2.0m
GrossFloorArea (FCling)	36.6 m ²
NetFloorArea (FCling)	36.6 m ²
StructureFloorArea (FCling)	36.6 m ²
StructureFloorArea (FCling)	36.6 m ²
GrossCasingArea (FCling)	36.6 m ²
NetCasingArea (FCling)	36.6 m ²
GrossWallArea (FCling)	81.7 m ²
NetWallArea (FCling)	22.4 m ²
GrossPerimeter (FCling)	17.2 m
NetPerimeter (FCling)	17.2 m
GrossVolume (FCling)	93.0 m ³
NetVolume (FCling)	93.0 m ³

REPÉRAGE DES ÉLÉMENTS DE LA MAQUETTE...

The screenshot displays the Autodesk Navisworks Manage 2016 interface. The main window shows a 3D perspective view of a building floor plan, rendered in a dark, semi-transparent style. Several rooms and corridors are highlighted with red rectangular markers, indicating the location of specific elements. The interface includes a ribbon at the top with various toolsets such as 'Project', 'Visibility', 'Attachment', and 'Data'. On the left side, there is a 'Browser' pane listing a hierarchy of elements, including folders like 'Région' and 'Lieu', and numerous individual elements with IDs such as 'RLL-01001-01' through 'RLL-01050-01'. On the right side, there is a 'Navigation de l'élément' pane showing the current selection 'RLL-01001-01'. The bottom status bar indicates the current view is 'Annoter' and the software version is 'Autodesk Navisworks Manage 2016 (64-bit)'. The title bar shows the file name '170301_Metro-finance_1.rvt'.

... LIENS AVEC LES PLANS 2D

The screenshot displays the Autodesk Navisworks Manage 2016 interface. The main workspace shows a 2D architectural floor plan of a building with a grid. Two rectangular areas on the plan are highlighted in red. A smaller, semi-transparent 3D model view is overlaid on the right side of the plan, with a large black arrow pointing from the 3D view back to the 2D plan, indicating a bidirectional link. The software's ribbon is visible at the top, and the 'Administration de la sélection' (Selection Administration) panel is open on the left. The 'Propriétés de feuille' (Sheet Properties) panel is open on the right, showing a list of sheets and a detailed property table for the selected sheet.

Propriétés	
Nom	
ID	
Création	16.09.2016
Modification	16.09.2016
Nom de la feuille	002_8_010
Taille de la feuille	841,7 x 594

QUANTIFICATION (MÉTRÉS)

Autodesk Navisworks Manage 2016 - 171011_Métrés_Francis_1.rvt

Quantification des éléments

Menu: Fichier, Plan de vue, Visualiser, Analyser, Vue, Outils, Liste d'éléments, 3D/360, Sécurité, Outils de mesure, Outils de calcul

Quantification des éléments

Menu: Mesurer, Règles, Mesurer les éléments non sélectionnés, Afficher tout, Lignes, Propriétés rapides, Propriétés, Clash, Détection, Tolerances, Quantification, Activer/désactiver le Rendement, Activer/désactiver le Support, Apparence Profiler, Batch Utility, Data Tools

Quantification

Menu: Modifier les analyses, Mettre à jour

Éléments	WBI	Stat	WBI	Stat	Description	Comment	Longueur	Largeur	Épaisseur	Hauteur	Perimètre	
Terrain	A	0.1.1.000	0.1.1.000	0.1.1.000								
Terrains préexistants	B	0.1.1.000.0	0.1.1.000.0	0.1.1.000.0	Surfaces		104.378 m	0.000 m	0.000 mm	0.000 m	421.978 m	1.261.933 m
Croisements	C	0.1.1.000.1	0.1.1.000.1	0.1.1.000.1	Interfaces		20.000 m	0.000 m	0.000 mm	0.000 m	40.000 m	0.000 m
Installations	D	0.1.1.000.2	0.1.1.000.2	0.1.1.000.2	Contour		17.000 m	0.000 m	0.000 mm	0.000 m	34.000 m	0.000 m
Revêtements de façades et de murs contre-terre	E	0.1.1.000.3	0.1.1.000.3	0.1.1.000.3	Bois		61.000 m	0.000 m	0.000 mm	75.000 mm	70.700 m	0.000 m
Terrains	F											
Aménagements intérieurs	G											
Clous, portes, fenêtres	G.1											
Revêtements de sols	G.2											
Revêtements de parois et de plafonds	G.3											
Éléments de parois	G.3.1											
Supports pour revêtements de parois	G.3.2											
Revêtements de parois fixes	G.3.3											
273.2 Doublage bois fixe	G.3.3.2732	0.1.1.000.0.0	0.1.1.000.0.0	0.1.1.000.0.0			1.743 m	0.000 m	2.000 mm	2.000 m	0.000 m	4.772 m ²
273.3 Doublage bois encorpore	G.3.3.2733	0.1.1.000.0.1	0.1.1.000.0.1	0.1.1.000.0.1			0.137 m	0.000 m	2.000 mm	2.000 m	0.000 m	0.413 m ²
273.4 Doublage bois lisse	G.3.3.2734	0.1.1.000.0.2	0.1.1.000.0.2	0.1.1.000.0.2			2.137 m	0.000 m	2.000 mm	2.000 m	0.000 m	5.627 m ²
273.5 Doublage bois plaqué	G.3.3.2735	0.1.1.000.0.3	0.1.1.000.0.3	0.1.1.000.0.3			2.000 m	0.000 m	2.000 mm	2.000 m	0.000 m	5.200 m ²
273.6 Doublage bois fixe	G.3.3.2736	0.1.1.000.0.4	0.1.1.000.0.4	0.1.1.000.0.4			1.743 m	0.000 m	2.000 mm	2.000 m	0.000 m	4.772 m ²
202.0 Faïence	G.3.3.2020	0.1.1.000.0.5	0.1.1.000.0.5	0.1.1.000.0.5			2.137 m	0.000 m	2.000 mm	2.000 m	0.000 m	5.627 m ²
202.1 Faïence sur enduit	G.3.3.2021	0.1.1.000.0.6	0.1.1.000.0.6	0.1.1.000.0.6			2.000 m	0.000 m	2.000 mm	2.000 m	0.000 m	5.200 m ²
Revêtements de plafonds	G.4											
Équipements fixes, dispositifs de protection	G.5											
Préfabriqués complémentaires à l'aménagement intérieur	G.6											
Installations spéciales	H											
Éléments de bâtiments	I											
Aménagement, décoration	J											
État de projet	V											
Pois secondaires	W											
Revêtements	V											
Taxe sur la valeur ajoutée	Z											

Quantification des éléments

Menu: Fichier, Plan de vue, Visualiser, Analyser, Vue, Outils, Liste d'éléments, 3D/360, Sécurité, Outils de mesure, Outils de calcul

Quantification des éléments

Menu: Mesurer, Règles, Mesurer les éléments non sélectionnés, Afficher tout, Lignes, Propriétés rapides, Propriétés, Clash, Détection, Tolerances, Quantification, Activer/désactiver le Rendement, Activer/désactiver le Support, Apparence Profiler, Batch Utility, Data Tools

Quantification

Menu: Modifier les analyses, Mettre à jour

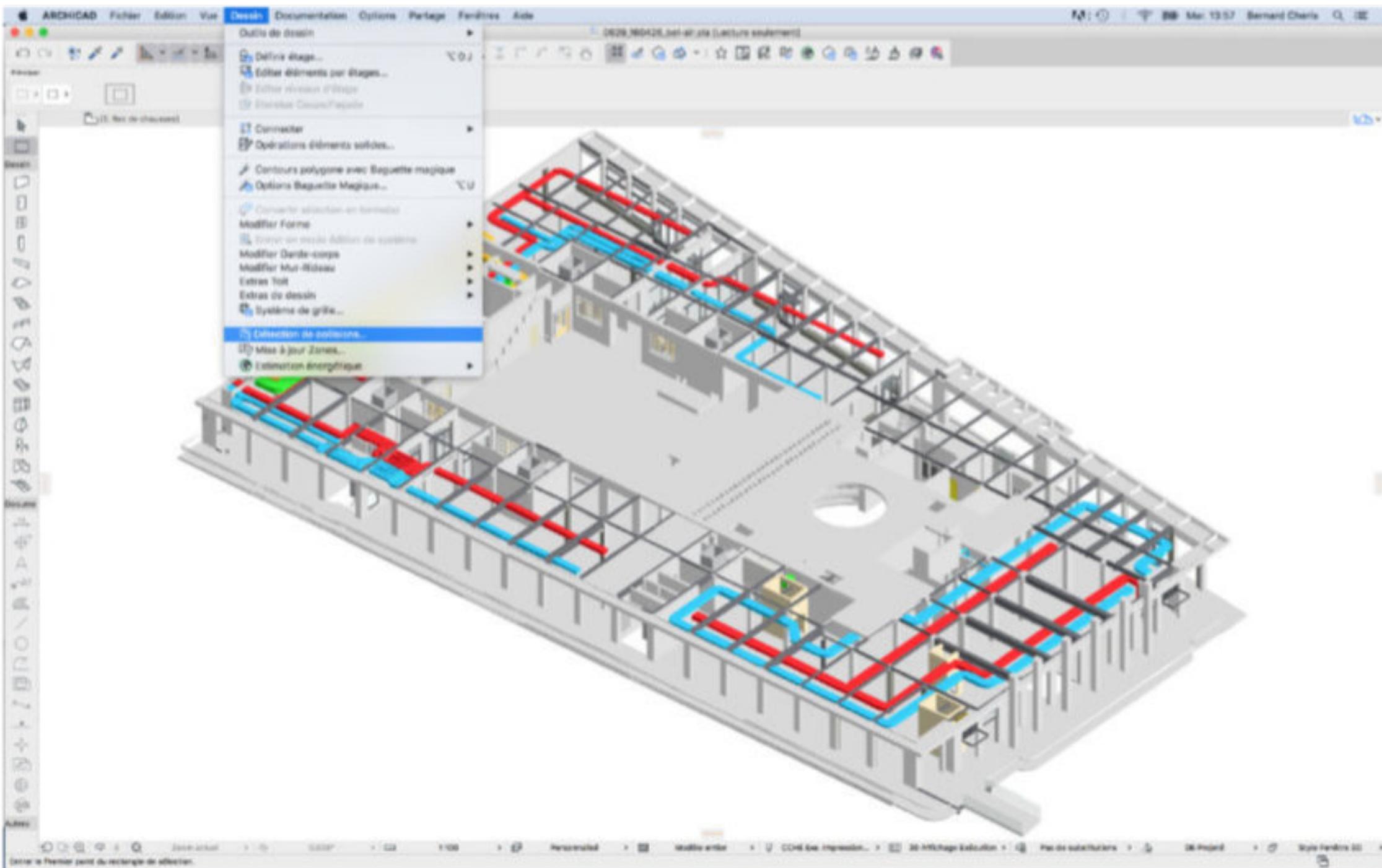
Project: C:\Users\Francis\Documents\Autodesk Navisworks Manage 2016\Francis_171011_Métrés_Francis_1.rvt

ARCHICAD 21

Grafisoft (Nemetschek)



DETECTION DE COLLISION INTÉGRÉ



PARAMÈTRES DE DÉTECTION

The screenshot shows the ARCHICAD software interface. The main window displays a 3D model of a building's structural frame in red, with some elements highlighted in blue and green. A dialog box titled "Détection de collisions" is open in the center, providing options to define collision detection parameters.

Détection de collisions

Vérifier collisions entre les deux groupes suivants.
Fondé sur les éléments existants de la fenêtre 3D.

- Choisir l'option dans la détection de collision des réseaux de ventilation en 3D en volume
- Les connexions faites sur les poutres ne peuvent pas se coller
- Les tubulures d'évacuation doivent être groupées

CRITÈRE 1

Critères: Volume

Type d'élément: mur plan

Mur de 10: mur 10.1000.000 1. Plage: Mur de 10.1000.000

Ajouter: Effacer

CRITÈRE 2

Critères: Volume

Type d'élément: mur plan

Ajouter: Effacer

Buttons: Annuler, Oui (Yes)

Bottom status bar: Enter le Premier point de rectangle de sélection.

PARAMÈTRES DE DÉTECTION

The screenshot displays the ARCHICAD interface with a 3D model of a building's structural frame and MEP systems. A dialog box titled "Détection de collisions" is open, allowing users to define collision detection parameters for two groups of elements.

Détection de collisions

Vérifier collisions entre les deux groupes suivants.
Basé sur les éléments visibles de la fenêtre 3D.

- L'élément "Touche dans la détection de collisions" des matrices de construction est pris en compte
- Les connexions forcées sur les priorités ne causent pas de collisions
- Les Oubliés éléments actifs sont ignorés

GRUPE 1

Critères Valeur
Type d'élément est Objet

Mur de 1002190 V00 - 1. Etage - Modèle AC21 DÉFA... N'importe quel Lien

1002190 V00 - 1. Etage - Modèle AC21 DÉFAUT, Import de Revit MEP

Ajouter... Effacer

GRUPE 2

Critères Valeur
Type d'élément est Mur

Ajouter... Effacer

Annuler Valider

The background 3D model shows a red structural frame with blue and red MEP pipes and ducts. The dialog box is centered over the model, and a search dropdown is visible for selecting elements from the model.

PARAMÈTRES DE DÉTECTION

The image shows the ARCHICAD software interface with a 3D model of a building structure. A dialog box titled "Détection de collisions" is open, displaying the following content:

Détection de collisions

Vérifier collisions entre les deux groupes suivants.
Basé sur les éléments visibles de la fenêtre 3D.

- Les Tolérances dans la détection de collisions des matrices de construction ont été en court.
- Les collisions basées sur les priorité ne peuvent pas de collisions.
- Les Solutions éléments collés sont ignorés.

GRUPE 1

Critères	Valeur
Type d'élément	est <input type="checkbox"/> Objet
Module 3D	est <input type="checkbox"/> 10621000-001 - 1. Etage - Module AC21 DEFA...

Ajouter... Effacer

GRUPE 2

Critères	Valeur
Type d'élément	est <input type="checkbox"/> Mur

Ajouter... Effacer

Annuler

The dialog box also features a dropdown menu for "Type d'élément" in the second group, which is currently set to "Mur". The menu options are: Tous Types, Faces 3D, Mur, Plaque, Fenêtre, Porte, Objet, Escalier, Gardé-cors, Dalle, and Sol.

DÉTECTION DE COLLISION

The screenshot displays the ARCHICAD software interface. The main window shows a 3D wireframe model of a building structure with various pipes and ducts highlighted in red and blue. A dialog box titled "Rapport de Détection de collisions" (Collision Detection Report) is open in the center, displaying the following data:

Rapport de Détection de collisions	
Éléments vérifiés dans :	
Groupe 1 :	372
Groupe 2 :	12214
Collisions détectées :	79
Nouveaux articles d'annotation :	79

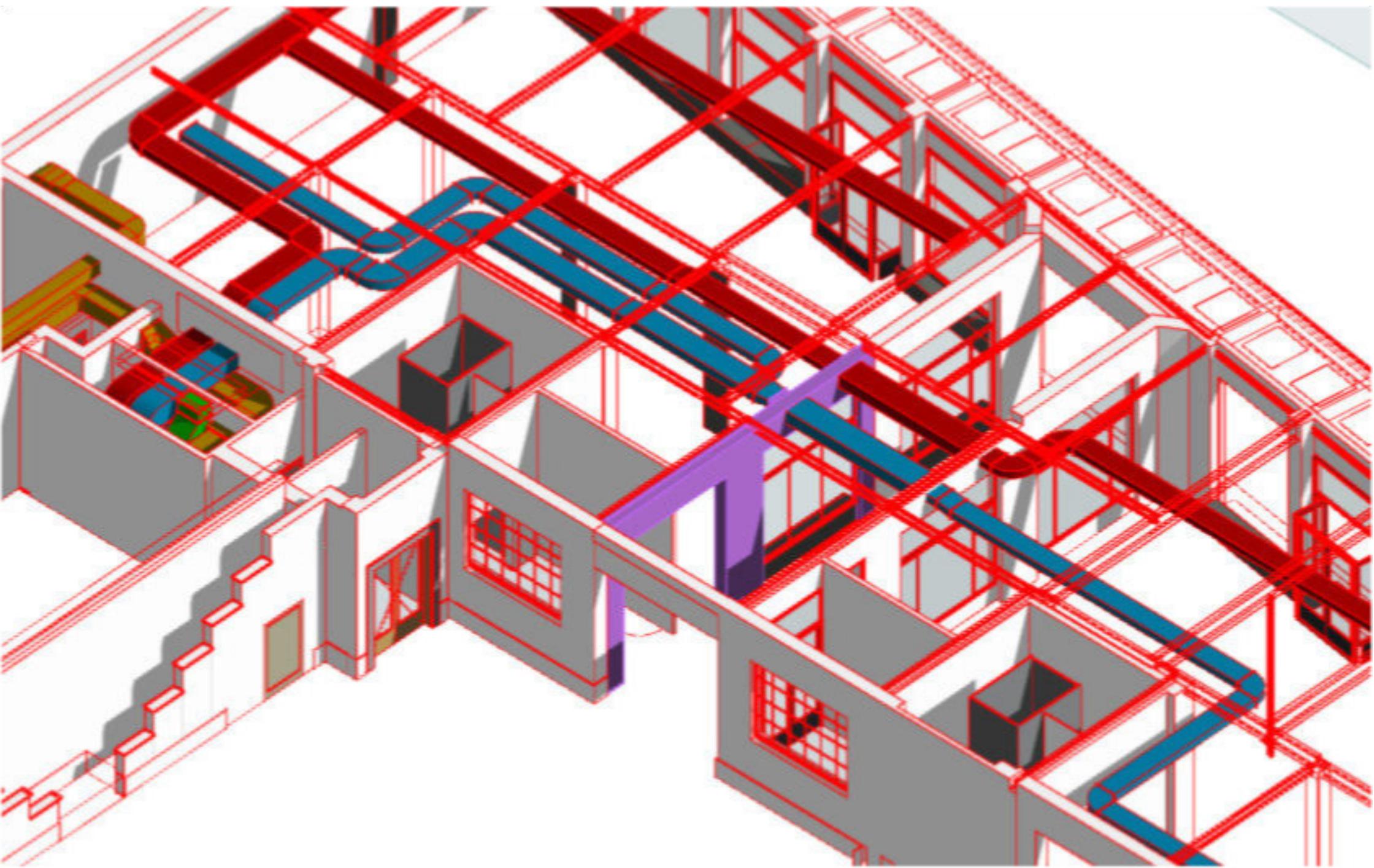
The dialog box also features a "Continuer" (Continue) button at the bottom right. The software interface includes a menu bar at the top with options like "Fichier", "Édition", "Vue", "Dessin", "Documentation", "Options", "Partage", "Fenêtres", and "Aide". The status bar at the bottom shows the current view as "Perspective" and the scale as "1:100".

EXEMPLE DE COLLISION

The image displays the ARCHICAD software interface. The main window shows a 3D perspective view of a building's structural frame, overlaid with a red grid. Blue pipes are routed through the structure, and a red circle highlights a specific collision point where a pipe intersects with a structural member. The software's menu bar at the top includes 'Fichier', 'Edition', 'Vue', 'Dessin', 'Documentation', 'Options', 'Partage', 'Fenêtres', and 'Aide'. The status bar at the bottom shows the current project name '0022_160426_bat-sr-pta (Lecture seulement)', the current view '00 / Zone d'insertion, étage 03', and the current level 'Niveau 7'. The right-hand side of the interface features a 'Outils d'annotation' (Annotation Tools) panel with various options for creating and managing annotations, including a list of active annotations and a table for their details.

Outils d'annotation	
Outils d'annotation	
Éléments actifs:	
Contour 100	
Corrections:	
Aligner: 0	
Éléments cotés:	
Aligner: 2	
Zoom et sélectionner:	
Articles d'annotation	
Trier par: Vuus	
Contour 100	
Niveau 7	
Nom:	Contour 100
Style:	Collision
Cl:	Rec de chaussee
Créé:	27/06/17 16:28:04
Vue attachée	
Capturer: Ajouter	
Étiquette et discussion	
Touche d'étiquette: Place sur l'élément	
Commentaires:	
Auteur	Date
Ajouter Commentaires...	

> PLAN DE PERCEMENTS



OUTIL D'ANNOTATIONS: recherche de changements

The image displays a software interface for managing annotations in a 3D model. The main view shows a structural model with several elements highlighted in different colors: a blue horizontal beam, a green vertical column, a red diagonal beam, and another green diagonal beam. A blue arrow points to the green column, which is selected.

The 'Mark-Up Tools' panel on the left is divided into several sections:

- Mark-Up Tools:** Includes 'Active Entry' (Modified Element 0001), 'Corrections' (Added: 1), 'Highlight Elements' (Added: 1), and 'Zoom and Select'.
- Mark-Up Entries:** A table listing entries with columns for Name, Style, and a visual indicator.
- Active Entry Details:** Fields for Name, Style, Where, and Created.

Mark-Up Entries Table:

Name	Style	Visual Indicator
Deleted Elem...	Deleted ...	Red bar
Deleted Elem...	Deleted ...	Red bar
Modified Ele...	Modified...	Green bar
Modified Ele...	Modified...	Green bar
Modified Ele...	Modified...	Green bar
New Element ...	New Ele...	Blue bar

Active Entry Details:

- Name: Modified Element 0001
- Style: Modified Element
- Where: plan 4
- Created: 15/04/2016 01:55:27

Column (Selected) Properties:

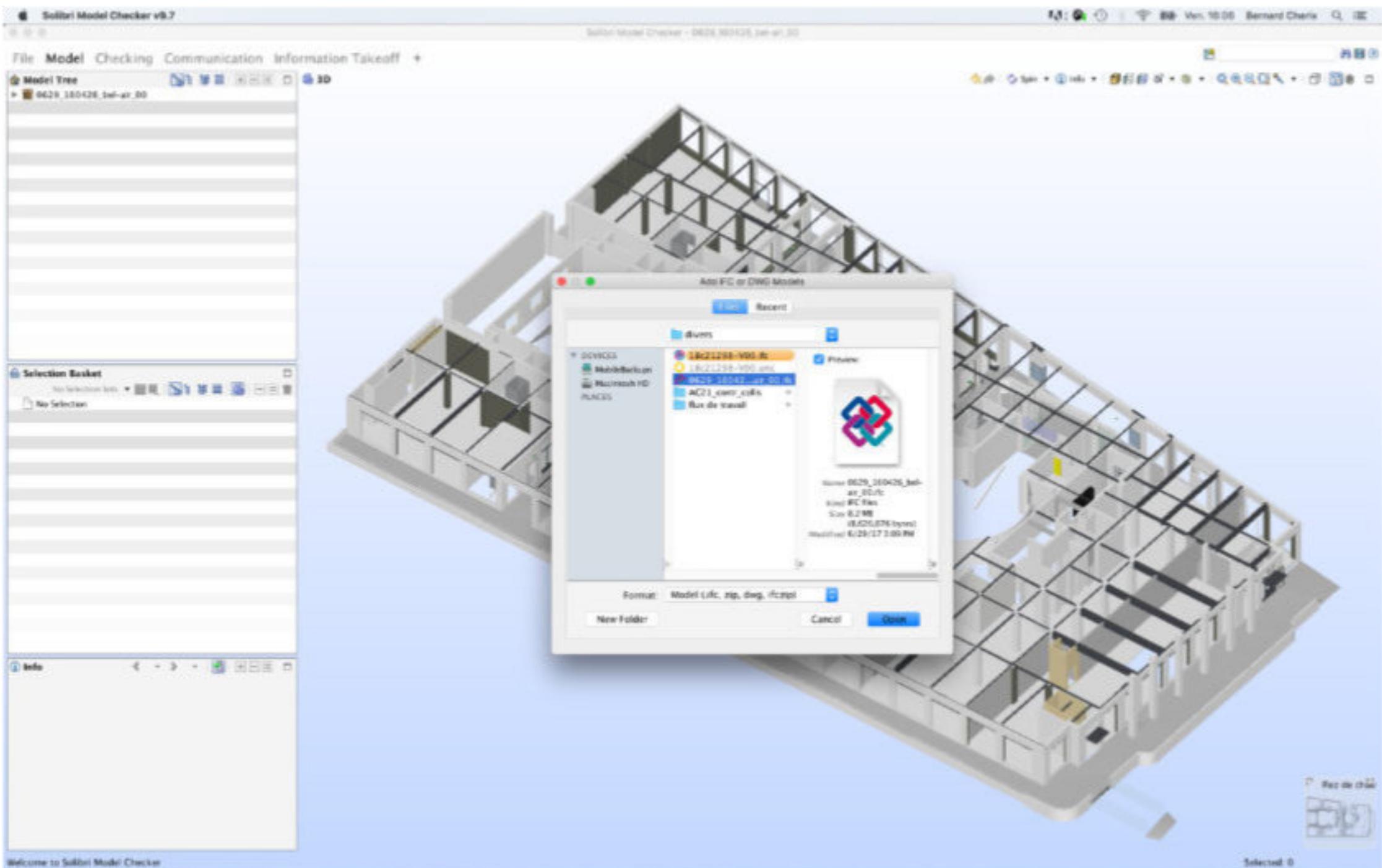
- Structure: HEB200 (1)
- Base Elevation: 395
- W/D: 200 / 200
- Height: Not linked
- Layer: IFC Imported New
- Story: 0

SOLIBRI MODEL CHECKER

Nemetschek



IMPORT DU MODÈLE ARCHITECTE



IMPORT DU MODÈLE D'UN MANDATAIRE TIERS

The image shows the Solibri Model Checker v9.7 interface. The main window displays a 3D model of a building's structural frame. A dialog box titled "Add IFC or DWG Models" is open, showing a file selection process. The dialog box has tabs for "Files" and "Recent". The "Files" tab is active, showing a file browser with a sidebar containing "DEVICES", "MobileBackups", "Macintosh HD", and "PLACES". The main area lists files, with "18c21298-V03.ifc" selected. A preview of the IFC file is shown on the right, along with its metadata: Name: 18c21298-V03.ifc, Size: IFC file, Size: 8.9 MB, Modified: 2/2/16 10:36 AM. The dialog box also includes a "Format" dropdown set to "Model IFC, zip, dwg, ifczip" and buttons for "New Folder", "Cancel", and "Open".

Solibri Model Checker v9.7

Solibri Model Checker - 0629_180426_bel-ar_00

File Model Checking Communication Information Takeoff +

Model Tree

0629_180426_bel-ar_00

Selection Basket

No Selection Sets

No Selection

Info

Welcome to Solibri Model Checker

Selected: 0

CONFIRMATION DE LA DISCIPLINE

The screenshot displays the Solibri Model Checker v9.7 interface. The main window shows a 3D model of a building with red and blue piping. A dialog box titled "Ensure Model Discipline" is open, showing a list of disciplines. The "Ventilation" discipline is selected. The interface includes a menu bar (File, Model, Checking, Communication, Information Takeoff), a Model Tree on the left, a Selection Basket, and an Info panel. The bottom status bar shows "Welcome to Solibri Model Checker" and "Sélection 0".

Model	Short Name	Discipline
18x21298-100		Building Services
18x21298-100		Building Services
18x21298-100		Electrical
18x21298-100		Heat
18x21298-100		Structural
18x21298-100		Ventilation
18x21298-100		Plumbing
18x21298-100		Sprinkler
18x21298-100		Inventory

CHOIX DU RÔLE DU CONTRÔLEUR : architecte

The screenshot displays the Solibri Model Checker v8.7 interface. The main window shows a 3D model of a building with various MEP systems highlighted in red, blue, and yellow. A dialog box titled "Please Choose a Role" is open in the foreground, allowing the user to select a role for the controller. The dialog box contains the following information:

Choose the role you want to use from the list on the left.
The description shows what you can achieve with selected role.

Roles	Description
<input checked="" type="radio"/> Architectural Checking	Use this role to make typical quality checks for the Architectural models. This role contains Rulesets for general BM validation, space program, consistency of Architectural model with Structural or MEP models, etc.
<input type="radio"/> BM Coordination	
<input type="radio"/> BM Validation - Architectural	
<input type="radio"/> BM Validation - FM	
<input type="radio"/> BM Validation - MEP	
<input type="radio"/> BM Validation - Structural	
<input type="radio"/> Energy Analysis	
<input type="radio"/> Example Rules	
<input type="radio"/> Quantity Take-off	
<input type="radio"/> Training	

At the bottom of the dialog box, there is a checkbox for "Save as Default Role" and a "Next >" button.

The background interface includes a menu bar (File, Model, Checking, Communication, Information, Takeoff), a toolbar, and several panels: "Checking" (with a "Click to add rulesets..." button), "Result Summary", "Results" (with "No filtering" and "Automatic" options), and "Info". The status bar at the bottom left says "Welcome to Solibri Model Checker" and the bottom right says "Selected 0".

i.e. CONTRÔLE & VALIDATION ARCHITECTURALE

The image shows the Solibri Model Checker v9.7 software interface. The main window displays a 3D architectural model of a building with various components highlighted in red, blue, and yellow. A dialog box titled "Please Select Rulesets You Want to Use" is open in the foreground, allowing the user to choose from a list of rulesets. The dialog box contains the following information:

Please Select Rulesets You Want to Use

Choose the Rulesets you want to check from the list on the left. The description shows what you can check with a Ruleset.

Rulesets	Description
<input type="checkbox"/> Advanced Space Check	<p>This Ruleset includes rules to validate BIM models in general. This Ruleset does not check intersections between components nor spaces (there are other Rulesets for them)</p> <p>PLEASE NOTE: This check should be done before any further analysis of the model!</p>
<input checked="" type="checkbox"/> BIM Validation - Architectural	
<input type="checkbox"/> Egress Analysis	
<input type="checkbox"/> Furniture and Other Objects Check	
<input type="checkbox"/> General Space Check	
<input checked="" type="checkbox"/> Intersections Between Architectural Components	
<input type="checkbox"/> MEP models and Architectural model	
<input type="checkbox"/> Model Revisions Comparison - Architecture	
<input type="checkbox"/> Space Program	
<input type="checkbox"/> Structural versus Architectural Models	
<input type="button" value="Add Rulesets..."/>	

< Back OK

At the bottom of the interface, there is a "Welcome to Solibri Model Checker" message and a "Selected: 0" indicator.

i.e. ISSUES DE SECOURS > respect prescriptions AEA1

The screenshot displays the Solibri Model Checker v8.7 interface. The main window shows a 3D architectural model of a building with fire escape routes highlighted in red and blue. A dialog box titled "Please Select Rulesets You Want to Use" is open, allowing the user to choose rulesets for checking. The dialog box contains a list of rulesets and a description of the selected "Egress Analysis" ruleset.

Rulesets

- Advanced Space Check
- BIM Validation - Architectural
- Egress Analysis
- Furniture and Other Objects Check
- General Space Check
- Intersections Between Architectural Components
- MEP models and Architectural model
- Model Revision Comparison - Architecture
- Space Program
- Structural versus Architectural Models

Description

This Ruleset checks fire compartments and escape routes of the building. Before results of this Rulesets are reliable, Gross Area and Fire Compartments have to be specified. This is done in the [Classification View](#). Exit doors shall be defined manually since BIM files do not include this information. This is done in the [Classification View](#). Rule parameters depend on the project, location, and type of the building. All rule parameters should be checked before using the rule set.

DISCLAIMER: These rules use information available in BIM files. This information may be inaccurate or false, or relevant information is missing causing false or misleading results. The rules do not cover all aspects of the egress analysis and will only indicate potential problems. Passing all the available rules does not mean that all aspects of egress analysis have been solved. In all cases more detailed analysis shall be done according to the applicable codes.

< Back OK

Bottom left: Welcome to Solibri Model Checker
Bottom right: Selected 0

CHOIX DU RÔLE DU CONTRÔLEUR : génie civil

The screenshot displays the Solibri Model Checker v8.7 interface. The main window shows a 3D model of a building structure with various elements highlighted in red and blue. A dialog box titled "Please Choose a Role" is open in the center, prompting the user to select a role from a list. The dialog box contains the following information:

Please Choose a Role

Choose the role you want to use from the list on the left. The description shows what you can achieve with selected role.

Roles	Description
<input type="radio"/> Architectural Checking	<p>Use this role to validate general quality of Structural models. This contains Rulesets for QA/QC and selected Information Takeoffs.</p> <p>It is recommended that these checks are performed prior to further analysis since the dependability and usability of the results, and reliability of information depends on the quality of the model.</p>
<input type="radio"/> BIM Coordination	
<input type="radio"/> BIM Validation - Architectural	
<input type="radio"/> BIM Validation - FM	
<input type="radio"/> BIM Validation - MEP	
<input checked="" type="radio"/> BIM Validation - Structural	
<input type="radio"/> Energy Analysis	
<input type="radio"/> Example Rules	
<input type="radio"/> Quantity Take-off	
<input type="radio"/> Training	

Save as Default Role Next >

The interface also shows a sidebar on the left with panels for "Checking", "Result Summary", "Results", and "Info". The "Checking" panel has a button that says "Click to add rulesets...". The "Results" panel shows "No Filter set" and "Automatic" options. The "Info" panel is currently empty. The bottom status bar displays "Welcome to Solibri Model Checker" and "Selected 0".

i.e. CONTRÔLE & VALIDATION STRUCTURELLE

The screenshot displays the Solibri Model Checker v8.7 interface. The main window shows a 3D model of a building structure with various components highlighted in red, blue, and yellow. A dialog box titled "Please Select Rulesets you Want to Use" is open in the center, allowing the user to choose from a list of rulesets. The dialog box contains the following information:

Choose the Rulesets you want to check from the list on the left. The description shows what you can check with a Ruleset.

Rulesets	Description
<input checked="" type="checkbox"/> BIM Validation - Structural	This rule set checks that the model is acceptable as a structural BIM file. PLEASE NOTE: This check should be done before any further analysis of the model!
<input checked="" type="checkbox"/> Intersections Between Structural Components	
<input checked="" type="checkbox"/> Model Revisions Comparison - Structure	
<input checked="" type="checkbox"/> Reinforcing Bar	
<input checked="" type="checkbox"/> Structural versus Architectural Models	

Buttons: < Back, OK

Bottom left: Welcome to Solibri Model Checker

Bottom right: Selected: 0

CHOIX DU RÔLE DU CONTRÔLEUR : coordinateur BIM

The screenshot displays the Solibri Model Checker v9.7 interface. The main window shows a 3D model of a building with red and blue lines representing MEP systems. A dialog box titled "Please Choose a Role" is open in the center, prompting the user to select a role from a list. The selected role is "BM Coordination".

Roles List:

- Architectural Checking
- BM Coordination
- BM Validation - Architectural
- BM Validation - FM
- BM Validation - MEP
- BM Validation - Structural
- Energy Analysis
- Example Rules
- Quantity Take-off
- Training

Description: Use this role to check consistency of models from various disciplines.

Buttons: Save as Default Role, Next >

Software Interface Elements:

- Top Bar: Solibri Model Checker v9.7, Bolton Model Checker - 0628_380426_bel-ar_00, Ven: 10:35, Bernard Cherix
- Menu: File, Model, Checking, Communication, Information Takeoff
- Left Panel: Checking (Click to add rulesets...), Result Summary, Results (No Filtering, Automatic), Info
- Bottom Left: Welcome to Solibri Model Checker
- Bottom Right: Selected: 0

CONTRÔLE DE COLLISION : architecture-ventilation

Solibri Model Checker v9.7

Solibri Model Checker - 0629_M0426_dcf-01_00

File Model Checking Communication Information Takeoff +

Checking 30

Ruleset

- MEP models and Architectural model
- MEP models and Structural model
- Structural versus Architectural Models

Result Summary

	🔴	🟡	🟢	✖	✔
Issue Count	13	55	16	0	0
Issue Density	0.90	4.8	1.1	0	0

Results

Please select a checked rule with results.

Info

MEP models and Architectural model

[Description](#) [Hyperlinks](#)

This ruleset checks locations of components in MEP models referring to architectural model.

Checked: 8/30/17 4:36 PM
Checked Model Version: 1 (8/30/17 4:35 PM)
Current Model Version: 1 (8/30/17 4:35 PM)

Welcome to Solibri Model Checker

Rule: BIM Coordination Selected: 0

RÉSUMÉ DES RÉSULTATS

The screenshot displays the Solibri Model Checker v9.7 interface. The main view is a 3D cutaway of a building structure with MEP systems (pipes and ducts) overlaid in red and blue. The left sidebar contains several panels:

- Checking**: A tree view showing the model's structure. The selected item is "Building Services and Other Construction Components (Insulations Not Included)".
- Result Summary**: A table showing the distribution of issues.
- Results**: A list of specific issues, including "Intersections of Duct (3/4)" and "Intersection of Wall (5/10)".
- Info**: A detailed description of the selected rule, explaining its purpose and exceptions.

Issue Count	0	1	2	3	4	5
Issue Count	10	10	6	0	0	0
Issue Density	0.55	1.2	0.42	0	0	0

Info Panel:
Building Services and Other Construction Components (Insulations Not Included)
Description: Hyperlinks
This rule checks intersections between building services and other construction components. This rule doesn't check MEP insulations (Covering). There is a separate rule for that. Note that
- ducts, pipes and cable carriers going through partition walls do not create issues (check Exceptions in rule [Parameters](#))
- small pipes going through slabs or suspended ceilings do not make an issue

At the bottom of the interface, the status bar shows "Rule: BIM Coordination" and "Selected: 0".

RÉSUMÉ DES RÉSULTATS : collisions critiques...

The screenshot displays the Solibri Model Checker v9.7 interface. The main view shows a 3D architectural model of a building with several red rectangular markers indicating critical collisions. The interface includes a menu bar (File, Model, Checking, Communication, Information, Takeoff), a toolbar, and several panels:

- Checking Panel:** Shows a tree view of checking rules. The rule "Building Services and Other Construction Components (Insulations Not Included)" is selected and highlighted in blue.
- Result Summary Panel:** A table showing the status of the check. It includes a "Issue Count" row and a "Issue Details" row.
- Results Panel:** Lists the results of the check, including "Intersections of Tab (0/4)" and "Intersections of Wall (0/10)".
- Info Panel:** Provides detailed information about the selected rule, including a description and exceptions.

Issue Count	Issues with Critical Severity	Issues with High Severity	Issues with Medium Severity	Issues with Low Severity	Issues with Info Severity
0	14	6	0	0	0
Issue Details	0	0.42	0	0	0

Info Panel Content:

Building Services and Other Construction Components (Insulations Not Included)

Description: [Hyperlink](#)

This rule checks intersections between building services and other construction components. This rule doesn't check MEP insulations (coverings). There is a separate rule for that. Note that

- ducts, pipes and cable carriers going through partition walls do not create issues (check Exceptions in rule [Parameters](#))
- small pipes going through slabs or suspended ceilings do not make an issue

Solibri, Inc. - 2014-09-18

Welcome to Solibri Model Checker

Rule: BIM Coordination Selected: 0

RÉSUMÉ DES RÉSULTATS : collisions modérée...

Solibri Model Checker v8.7

Solibri Model Checker - 0629_380426_bim-4r_20

File Model **Checking** Communication Information Takeoff +

Checking 3D

Rules

- MEP models and Architectural model
 - Building Services and Architectural Components
 - Building Services and Doors and Windows
 - Building Services and Beams and Columns (Insulations Not Included)
 - Building Services and Other Construction Components (Insulations)
 - Building Services and Furniture and Other Objects
 - Insulations and Beams and Columns
 - Insulations and Other Construction Components
 - Distances between Components
 - Spaces and MEP
 - MEP models and Structural model
 - Structural versus Architectural Models

Result Summary

Issue Count	0	1	2	3	4	5	6	7	8	9	10
Issue Count	18	0	0	0	0	0	0	0	0	0	0
Issue Density	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Results

- Intersection of Sub (2/4)
- Intersection of Wall (2/10)

Info

Building Services and Other Construction Components (Insulations Not Included)

[Hyperlink](#)

This rule checks intersections between building services and other construction components. This rule doesn't check MEP insulations (Coverings). There is a separate rule for that. Note that

- ducts, pipes and cable carriers going through partition walls do not create issues (check Exceptions in rule [Parameters](#))
- small pipes going through slabs or suspended ceilings do not make an issue

Solibri, Inc. - 2014-09-10

Welcome to Solibri Model Checker

Rule: BIM Coordination Selected: 0

RÉSUMÉ DES RÉSULTATS : collisions mineures...

Solibri Model Checker v9.7

Solibri Model Checker - 0629_30426_bef-ar_20

File Model Checking Communication Information Takeoff +

Te-De-Cl/S

30

Checking

- MTP models and Architectural model
- Building Services and Architectural Components
 - Building Services and Doors and Windows
 - Building Services and Beams and Columns (Insulations Not Included)
 - Building Services and Other Construction Components (Insulations)
 - Building Services and Furniture and Other Objects
 - Insulations and Beams and Columns
 - Insulations and Other Construction Components
- Distance between Components
- Spaces and MEP
- MEP models and Structural model
- Structural versus Architectural Models

Result Summary

	🔴	🟡	🟠	🟢
Issue Count	10	18	0	0
Issue Density	0.65	1.2	0	0

Issues with Low Severity: 0

Results

- Intersections of Sub (3/4)
- Intersections of Wall (3/13)

Help

Building Services and Other Construction Components (Insulations Not Included)

[View Details](#) [Hyperlink](#)

This rule checks intersections between building services and other construction components. This rule doesn't check MEP insulations (Coverings). There is a separate rule for that. Note that

- ducts, pipes and cable carriers going through partition walls do not create issues (check exceptions in rule [Parametric](#))
- small pipes going through slabs or suspended ceilings do not make an issue

Solibri, Inc. - 2014-09-10

Welcome to Solibri Model Checker

Rule: BIM Coordination Selected: 0

DESCRIPTIF DE LA COLLISION

Sollibri Model Checker v8.7

Sollibri Model Checker - 0628_360426_bml-ar_D0

File Model Checking Communication Information Takeoff +

To-Do 0/5

30

Checking

- MEP models and Architectural model
 - Building Services and Architectural Components
 - Building Services and Doors and Windows
 - Building Services and Beams and Columns (Insulation Noticker)
 - Building Services and Other Construction Components (Insulation)**
 - Building Services and Furniture and Other Objects
 - Insulations and Beams and Columns
 - Insulations and Other Construction Components
 - Distance between Components
 - Spaces and MEP
 - MEP models and Structural model
 - Structural versus Architectural Models

Result Summary

Issue Count	10	10	6	0	0
Issue Density	0.69	3.2	0.42	0	0

Results

No Filtering Automatic

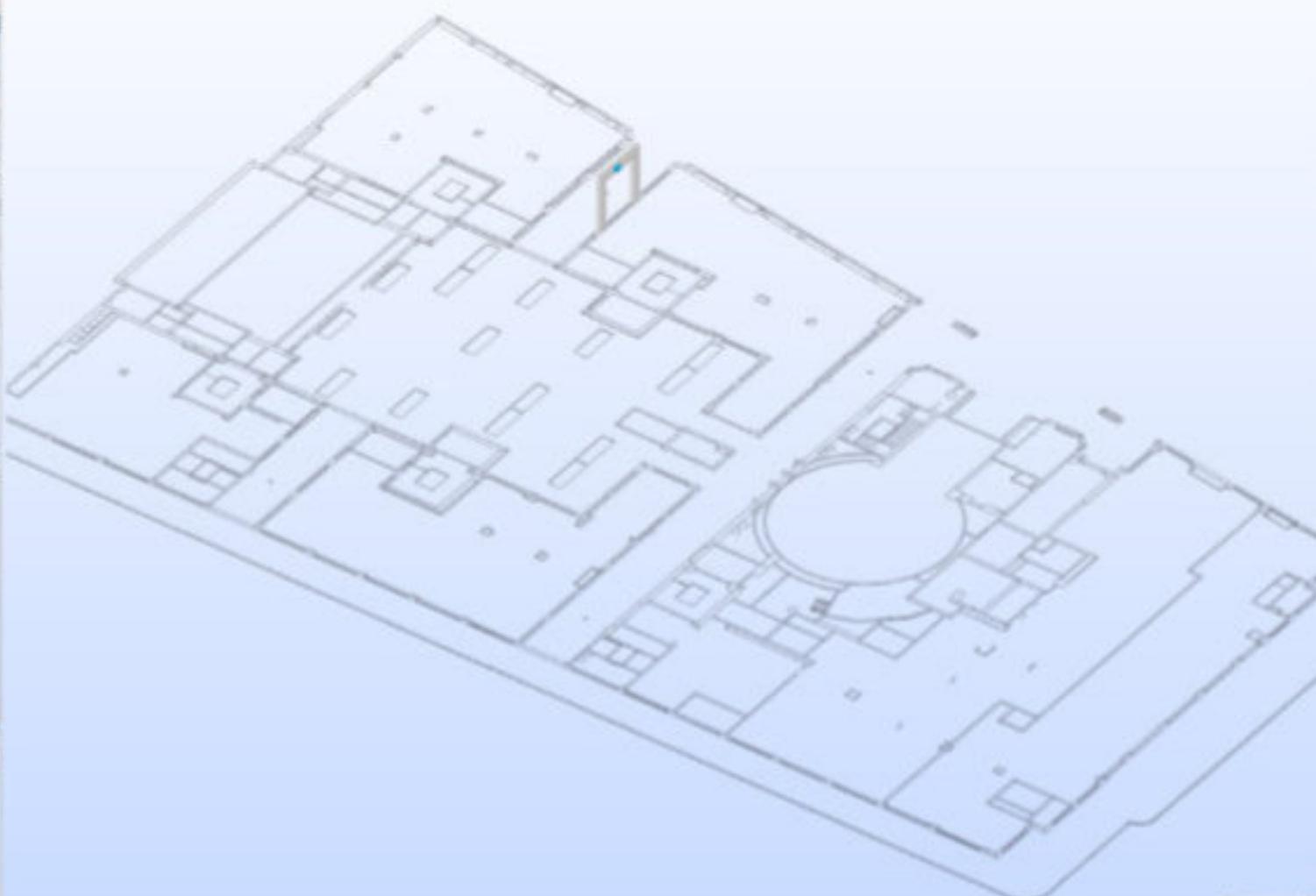
- Interactions of Sub (0/4)
- Interactions of Wall (0/10)
 - Wall 0.1200 (015 Macomero 2130749665 300) (0/1)
 - Wall 0.1334 (BA mur Rez - cr+plot+ar+br covec+pers 4071710040 350) (0/2)
 - Wall 0.205 (BA mur Rez - cr+plot+ar+br covec+pers 4071710040 350) (0/2)
 - BA mur Rez - cr+plot+ar+br covec+pers 4071710040 350 and DN_V_Air
 - (B) Duct 0.115 (Cane rectangulaire 500 xH 200 mm and Wall 0.205 (BA m**
 - BA mur Rez - cr+plot+ar+br covec+pers 4071710040 350 and DN_V_Air
 - Wall 0.215 (011 Brique 3343442753 (25) (0/1)
 - Wall 0.486 (015 Macomero 2130749665 300) (0/3)
 - Wall 0.839 (015 Macomero 2130749665 300) (0/1)
 - Wall 0.869 (015 Macomero 2130749665 300) (0/3)

Info

(B) Duct 0.115 (Cane rectangulaire 500 xH 200 mm and Wall 0.205 (BA mur Rez - cr+plot+ar+br covec+pers 4071710040 350) (0/2)

[View in 3D](#) [Hyperlinks](#)

The depth, width, height, and volume of the intersections are: (B) Duct 0.115, Wall 0.205, 500 mm, 350 mm, 200 mm, 35 l



Wellcome to Sollibri Model Checker

Rule: BIM Coordination Selected: 0

OUVERTURE D'UN DOSSIER DE COLLISIONS TYPES

The screenshot displays the Solibri Model Checker v9.7 application window. The title bar indicates the file path: "Solibri Model Checker - 0629_30436_def-01.D0". The menu bar includes "File", "Model", "Checking", "Communication", and "Information Takeoff". The main workspace shows a 3D wireframe model of a complex building structure, viewed from an isometric perspective. The interface includes several panels:

- Presentation Panel (Top Left):** Contains a "Click to Add New Presentation..." button and a "3D" view indicator.
- Issues Panel (Bottom Left):** A table for tracking issues, with columns for "No.", "Title", "Tracking ID", and "Status".
- Issues Sorter Panel (Bottom Center):** A panel for sorting and filtering the issues.
- Navigation Tools (Top Right):** A toolbar with various icons for navigation and viewing.
- Viewport (Center):** The main area displaying the 3D model.
- Thumbnail View (Bottom Right):** A small thumbnail of the current view.

The status bar at the bottom of the window shows "Welcome to Solibri Model Checker" on the left, "Rule: BIM Coordination" in the center, and "Selected: 0" on the right.

AJOUT D'UNE ICÔNE RELATIVE À LA COLLISION

The screenshot displays the Solibri Model Checker v9.7 interface. The main window shows a 3D model of a building with a collision detection context menu open over a specific collision point. The menu includes options such as 'Add Slide', 'Zoom to Slide', 'Mark as Accepted', 'Mark as Rejected', 'Mark as Undefined', 'Mark as Unhandled', 'Add to Selection Basket', 'Remove from Selection Basket', 'Set to Selection Basket', 'Section Box', 'Highlight', 'Zoom', and 'Hyperlinks'. A tooltip 'Add a New Slide' is visible next to the 'Add Slide' menu item.

Checking Panel:

- MEP models and Architectural model
- Building Services and Architectural Components
 - Building Services and Doors and Windows
 - Building Services and Beams and Columns (Insulations Not Included)
 - Building Services and Other Construction Components (Insulation)
 - Building Services and Furniture and Other Objects
 - Insulations and Beams and Columns
 - Insulations and Other Construction Components
- Distance between Components
- Spaces and MEP
- MEP models and Structural model
- Structural versus Architectural Models

Result Summary:

Issue Count	10	30	6	0	0
Issue Density	0.65	1.2	0.42	0	0

Results Panel:

- Intersections of Slab (0/4)
- Intersections of Wall (0/30)
 - Wall 0.1260 (015 Macconerie 2130749665 350) (0/1)
 - Wall 0.1334 (BA mar Rez - cr+plate+al+br concrete-pliers 4071710040 350) (0/2)
 - Wall 0.205 (BA mar Rez - cr+plate+al+br concrete-pliers 4071710040 350) (0/2)
 - BA mar Rez - cr+plate+al+br concrete-pliers 4071710040 350 and DN_V_Air
 - Wall 0.115 (Carre rectangulaire 500 mm x 200 mm et Wall 0.205 (BA mar Rez - cr+plate+al+br concrete-pliers 4071710040 350) (0/2)
 - BA mar Rez - cr+plate+al+br concrete-pliers
 - Wall 0.215 (011 Brique 3343442753 175) (0/1)
 - Wall 0.480 (015 Macconerie 2130749665 350)
 - Wall 0.839 (015 Macconerie 2130749665 350)
 - Wall 0.869 (015 Macconerie 2130749665 350)

Info Panel:

(B) Duct.0.115 (Carre rectangulaire 500 mm x 200 mm et Wall 0.205 (BA mar Rez - cr+plate+al+br concrete-pliers 4071710040 350) (0/2)

Description: Hyperlink

The depth, width, height, and volume of the intersect: 500 mm, 350 mm, 200 mm, 35 l

Bottom status bar: Rule: BM Coordination Selected: 0

STATUT DE LA COLLISION

The screenshot displays the Solibri Model Checker v9.7 interface. The main window shows a 3D model of a building structure with a collision highlighted in red. The interface is divided into several panels:

- Checking Panel:** Shows a tree view of the model's structure, including MEP models and Architecture. A 'Check' button is visible.
- Issue Details Panel:** Displays the details of the selected collision:
 - Title:** 60 mm and Wall 0.205 (BA mur Rez : cr+plac+ar+br ciment+plâtre 4071710040 150) are intersecting.
 - Description:** Perçement pour conduit de ventilation à faire.
 - Coordination:** Rejected (indicated by a red 'X').
 - Status:** Open (indicated by a red 'X').
 - Response:** A dropdown menu is open, showing options: Open, Assigned, Closed, Open, Resolved.
- Results Panel:** Lists the results of the check, including the intersection of the duct and wall.
 - Intersection of Wall (1/1):** Wall 0.1260 (115 Macramis 2130749), Wall 0.1334 (BA mur Rez : cr+plac+ar+br ciment+plâtre 4071710040 150), Wall 0.205 (BA mur Rez : cr+plac+ar+br ciment+plâtre 4071710040 150), BA mur Rez : cr+plac+ar+br ciment, BA mur Rez : cr+plac+ar+br ciment, Wall 0.215 (111 Brique 1545442753 1), Wall 0.486 (115 Macramis 2130749), Wall 0.839 (115 Macramis 2130749).
- Info Panel:** Provides details for the selected intersection:
 - Location:** BA mur Rez : cr+plac+ar+br ciment.
 - Created:** 2017-06-30 16:48:01.
 - Author:** bcharis.

The bottom of the interface shows the status bar with 'Role: BIM Coordination' and 'Sécurité: B'. A 'To-Do (3/5)' indicator is also present in the top right corner.

DESCRIPTIF DE LA COLLISION i.e. passage gaine

Solibri Model Checker v9.7

File Model Checking Communication Information Takeoff +

Presentation

Issues

Issue Details

Title: Percements

Description: Passage gaine de ventilation

Coordination

Status: Open ICF Status: Error

Responsibility: ABC

Percevements

Issue Sorter

Percevements

Welcome to Solibri Model Checker

Rule: BM Coordination Selected: 2 Tracking ID: 1 Status: Open 1/1

PUBLICATION DU DOSSIER DE COLLISIONS

The screenshot displays the Solibri Model Checker v9.7 interface. The main window shows a 3D wireframe model of a building. On the left, there are panels for 'Presentation' and 'Issues'. The 'Issues' panel is active, showing a table with the following data:

Issue	No.	Title	Tracking ID	Status
Perçements	1	Passage gaine de ventilation		Open

Below the table, the 'Perçements' issue is detailed with the title 'bcherix, 2017-06-30 Passage gaine de ventilation'. The 'Issue Sorter' panel at the bottom left shows a thumbnail of the 3D model with the issue highlighted.

At the bottom of the interface, the status bar indicates: 'Welcome to Solibri Model Checker', 'Rôle: BM Coordination', 'Selected: 1', 'Tracking ID: 1', 'Status: Open', and '1/1'.

FORMAT DE LA PUBLICATION i.e. .xls / .bcf

The screenshot displays the Solibri Model Checker v8.7 interface. The main window shows a project titled "Presentation 1" with a "Percevements" issue. The "Issue Sorter" panel at the bottom left shows a thumbnail of the issue. Two dialog boxes are open: "Create Report" and "Save Report".

Create Report Dialog:

- Report Title: Presentation 1
- Content: Report All (selected), Report Only Marked (D)
- Report Type: BCF Report (BCFIP) v1.0 (selected), v2.0
- General Report: PDF (selected), BIF
- Coordination Report: Excel
- Template: CoordinationReportTemplate.xls
- Options: Page Setup, Image Quality: High
- Buttons: Save Report, Cancel

Save Report Dialog:

- File Name: correction.bcfip
- Location: /Users/bcherix/Projects/2017-05-30_Passage_gaine_de_ventilation/02-05-2017/02-05-2017-001
- Buttons: New Folder, Cancel, Save As

Main Interface Details:

- Menu: File, Model, Checking, Communication, Information, Takeoff
- Issue Title: Percevements
- Issue Description: bcherix, 2017-05-30 Passage gaine de ventilation
- Status: Open
- Bottom Bar: Rule: BM Coordination, Selected: 2, Tracking ID: 1, Status: Open, 1/1

RETOUR À REPRÉSENTATION D'ORIGINE > show all

The screenshot displays the Solibri Model Checker v9.7 interface. The main window shows a 3D perspective view of a complex building floor plan, rendered in a light blue wireframe style. The interface includes a top menu bar with options like File, Model, Checking, Communication, and Information Takeoff. On the left side, there are two panels: the 'Model Tree' and the 'Selection Basket', both containing hierarchical lists of model elements. The bottom left corner features a 'Info' panel with navigation controls and a 'Report Links' button. The bottom right corner shows a 'Page de 3/33' indicator and a small thumbnail of the current view. The status bar at the very bottom indicates 'BIM Coordination' and 'Selected 3'.

REPÉRAGE DE LA COLLISION DANS SOLIBRI MV

The screenshot displays the Solibri Model Viewer v9.0 interface. The main window shows a 3D perspective view of a building model with a collision detection window open. The window is titled "Issue Details" and contains the following information:

- Title:** Percements
- Description:** Passage gaine de ventilation
- Viewpoint:** A small thumbnail view of the model with a red box indicating the collision location. Controls for "Reset" and "Previous" are visible.
- Comments:** A text area for notes, with expand/collapse and refresh icons.
- Location:** Rez de chaussée

At the bottom of the interface, a status bar shows "Selected: 0", "Tracking ID: 1", "Status: Open", and "1/1".

Percements
bcherix, 2017-06-30 Passage gaine de ventilation

Selected: 0 Tracking ID: 1 Status: Open 1/1

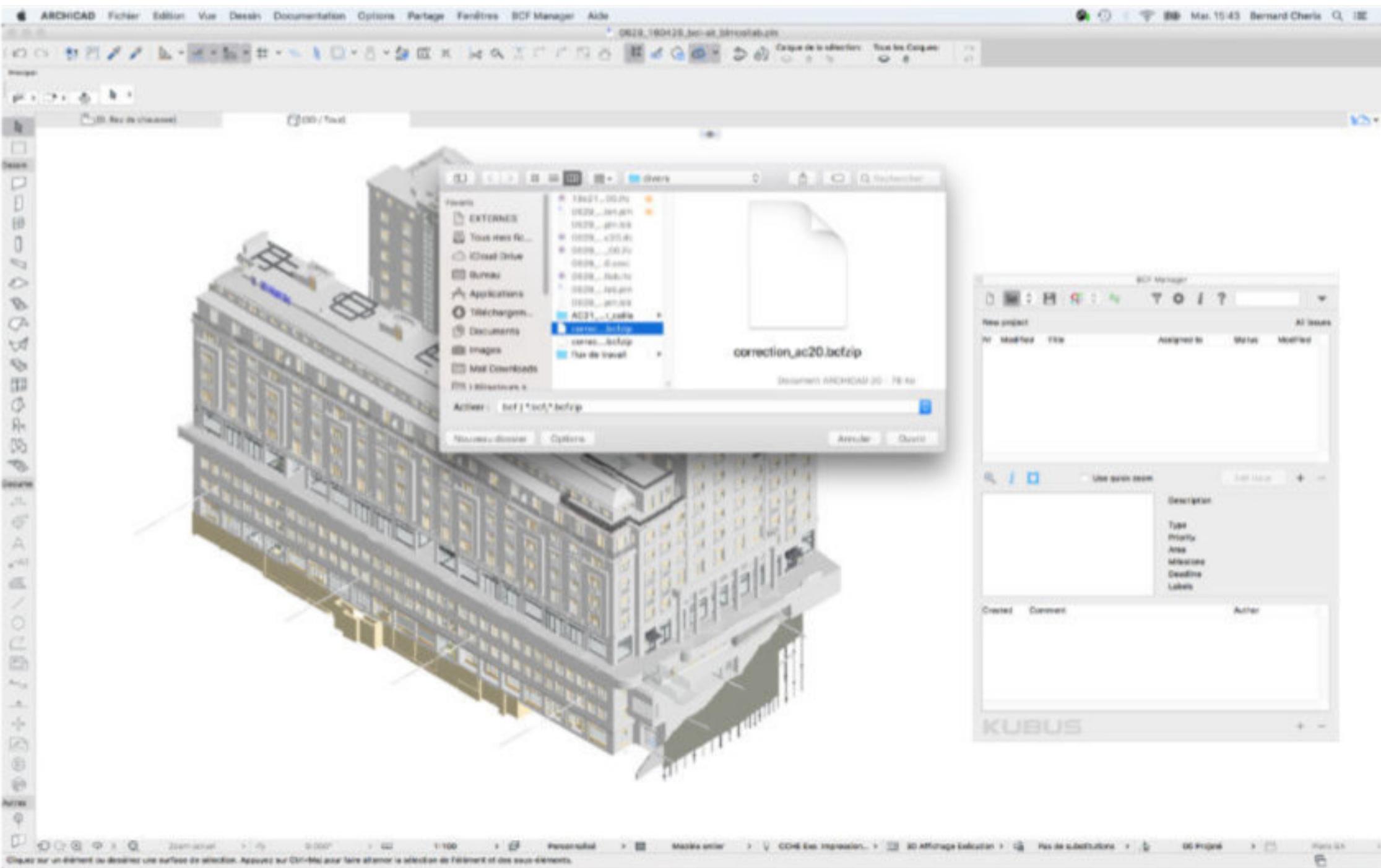
BIMcollab
Kubus



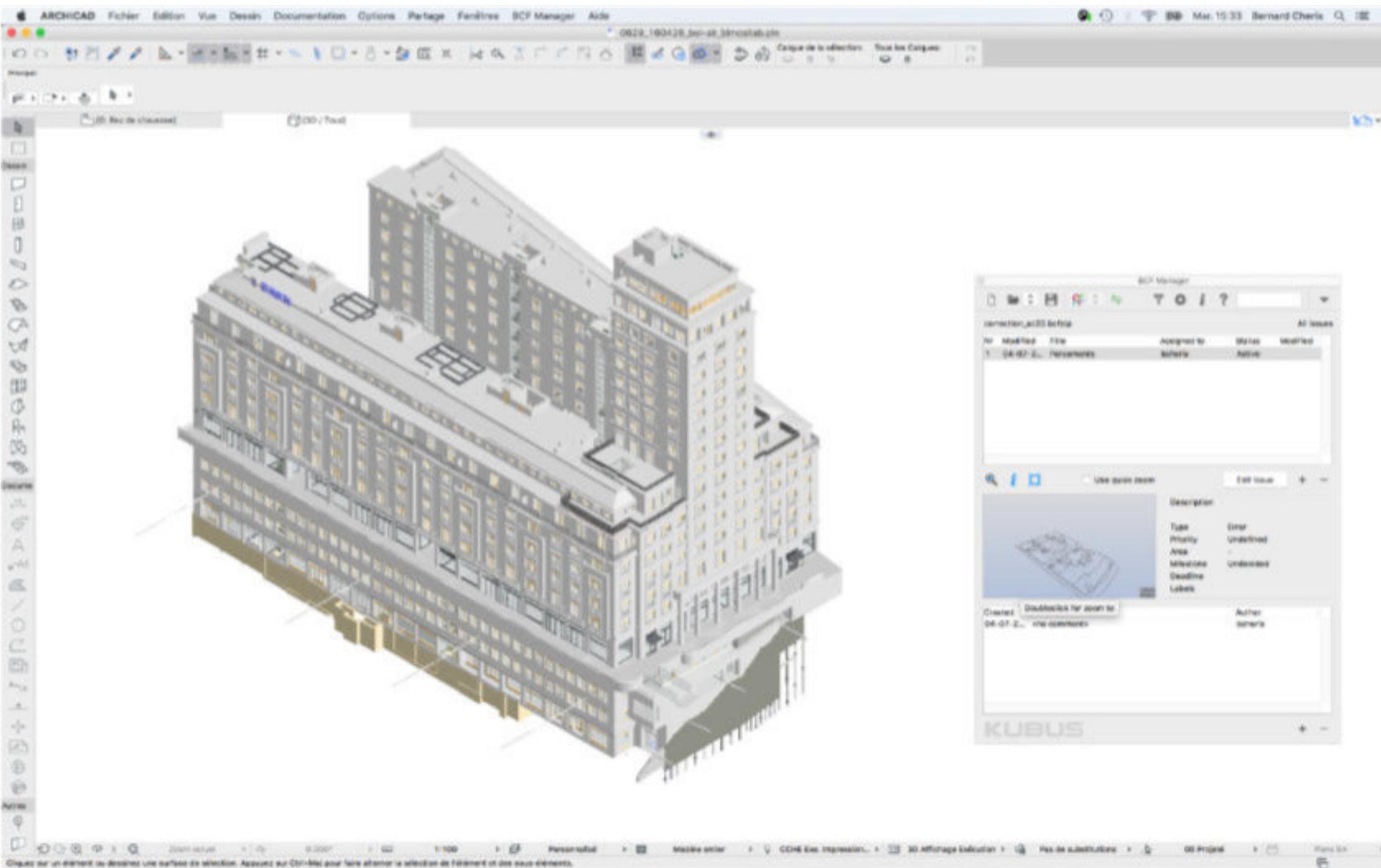
«MODÈLE EMBARQUÉ» > processus collaboratif en nuage



RÉCUPÉRATION DU BCF DANS CAD (add-on)



SÉLECTION DE LA COLLISION À RÉGLER



The screenshot shows the ARCHICAD software interface. The main window displays a 3D architectural model of a multi-story building. A yellow rectangular highlight is placed on a collision point between two elements. The 'BCP Manager' (Building Clash Prevention) window is open on the right side of the screen, showing a table of collision issues.

BCP Manager

No	Modified	File	Assigned to	Status	Marked
1	04-07-20...	Personnels	Benard	Active	

Description

Type	Error
Priority	Undefined
Area	Undefined
Milestone	Undefined
Deadline	
Labels	

Created 04-07-20... **Double-click for details** **Author** Benard

KUBUS

Clicker sur un élément ou décrivez une surface de sélection. Appuyez sur Ctrl-Maj pour faire alterner la sélection de l'élément et des yeux éléments.

LOCALISATION DANS MAQUETTE PROPRIÉTAIRE

The screenshot displays the ARCHICAD software interface. The main workspace shows a 3D architectural model of a building. A mouse cursor is positioned over a small blue rectangular element in the model. On the right side, the BCF Manager window is open, displaying a table of issues.

BCF Manager

ID	Created	Title	Assigned to	Status	Modified
1	04-07-21	Personne	Schets	Active	

Description

Type	Site
Priority	Low/High
Area	-
Master	Unlinked
Outline	
Layer	

Created | **Comment** | **Author**

04-07-21	no comment	Schets
----------	------------	--------

KUBUS

Click sur un élément ou doublez une surface de sélection. Appuyez sur Ctrl-Maj pour faire glisser la sélection de l'élément et des sous-éléments.

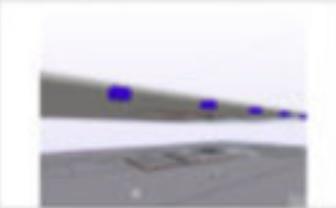
CLASSIFICATION DES TÂCHES...

BCF Manager

BITAostab Example project All issues

No	Modified	Title	Assigned to	Status	Actor
1	18-03-2016	Intersections check: sea...	Fred Leopold	Closed	
2	14-03-2016	Intersections check: colo...	Project Leader Kubus	Closed	
3	14-03-2016	Intersections check: wall L...	Fred Leopold	Active	
4	14-03-2016	Intersections check: walls...	Fred Leopold	Active	
5	18-03-2016	Duplicate components etc...	Fred Leopold	Resolved	
6	14-03-2016	Duplicate components etc...	Christian Dehuyzen	Active	
7	28-02-2016	Ducts are designed in etc...	Project Leader Kubus	Active	
8	14-03-2016	Hollow core slab and sea...	Christian Dehuyzen	Resolved	
9	14-03-2016	Intersections of slab	Christian Dehuyzen	Active	
10	14-03-2016	Intersections of column	Project Leader Kubus	Closed	
11	14-03-2016	Intersection verification an...	Project Leader Kubus	Resolved	
12	14-03-2016	Pipe low closer to window ...	Peter Bult	Active	
13	14-03-2016	Ventilation duct too close...	Christian Dehuyzen	Active	
14	13-04-2016	Sever and hollowcore etc...	Christian Dehuyzen	Resolved	
15	14-03-2016	Manifactor and profile con...	Christian Dehuyzen	Active	
16	14-03-2016	ductwork is interrupted by ...	Christian Dehuyzen	Active	

Use quick zoom Edit issue + -



Description -

Type	Issue
Priority	Normal
Area	BIM Model protocol
Milestone	02. Engineering Phase
Deadline	13-02-2016
Labels	Architecture, Structure

Created	Comment	Author
16-10-2014	This will cause some problems, need to have a me...	Deayne Parsons
16-10-2014	Air outlets MEP are clashing with slab.	Fred Leopold

KUBUS + -

QUESTIONS ?

vers le BIM niveau de maturité 3
8. PLATEFORMES COLLABORATIVES

SERVEUR CHEZ VOUS «pour magiciens»...



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YOU CAN BUILD ON US

We believe software tools should be built on a robust base. We believe that, in a fragmented industry like the AEC, there is no one tool or platform that can do everything. We believe in focused applications that do one or two things very good. That is why we created a robust platform that provides developers a solid foundation for their tools. This is how we lower the threshold for developers to build stable applications fast and reliable.

Mission critical AEC software tools rely on our platform

Lots of developers and many famous AEC software tools use the BIMserver platform as the reliable stable base to build their tools on. You might already be using BIMserver without noticing it...

[Download now](#)



FOR USERS

Find out what the BIMserver.org platform is and get inspired by what it did for others.



FOR MAGICIANS

Learn how to use BIMserver to build an application, or how to connect your software to a BIMserver-based tool.



GET INVOLVED

Join the community of developers and innovate the industry!



BUILD FOR DEVELOPERS

Lots of interface protocols and libraries



OPENNESS IN MIND

Only open standards for data. No lock-in.



PLUGIN FRAMEWORK

Lots of plugins for flexibility



ENTERPRISE STABILITY

About BIMserver.org

The Building Information Model server (BIMserver.org) platform enables you to create your own 'BIM Operating System'. The software core is based on the open standard IFC and therefore knows how to handle IFC data.

IFC data are interpreted by a smart core and stored as objects in an underlying database. On top of the database core features like merging, modelchecking, fusion, authorisation/authentication, comparing, etc. are available. Everything is based on plugins in an open framework and easy to fine-tune.

The BIMserver software is free and open source (GNU Affero GPL) so it can be

TRIMBLE CONNECT



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INTEGRATE WITH US

We help you to place everyone using people, technology & information together in one place.

LET'S WORK TOGETHER
INTEGRATE WITH TRIMBLE CONNECT

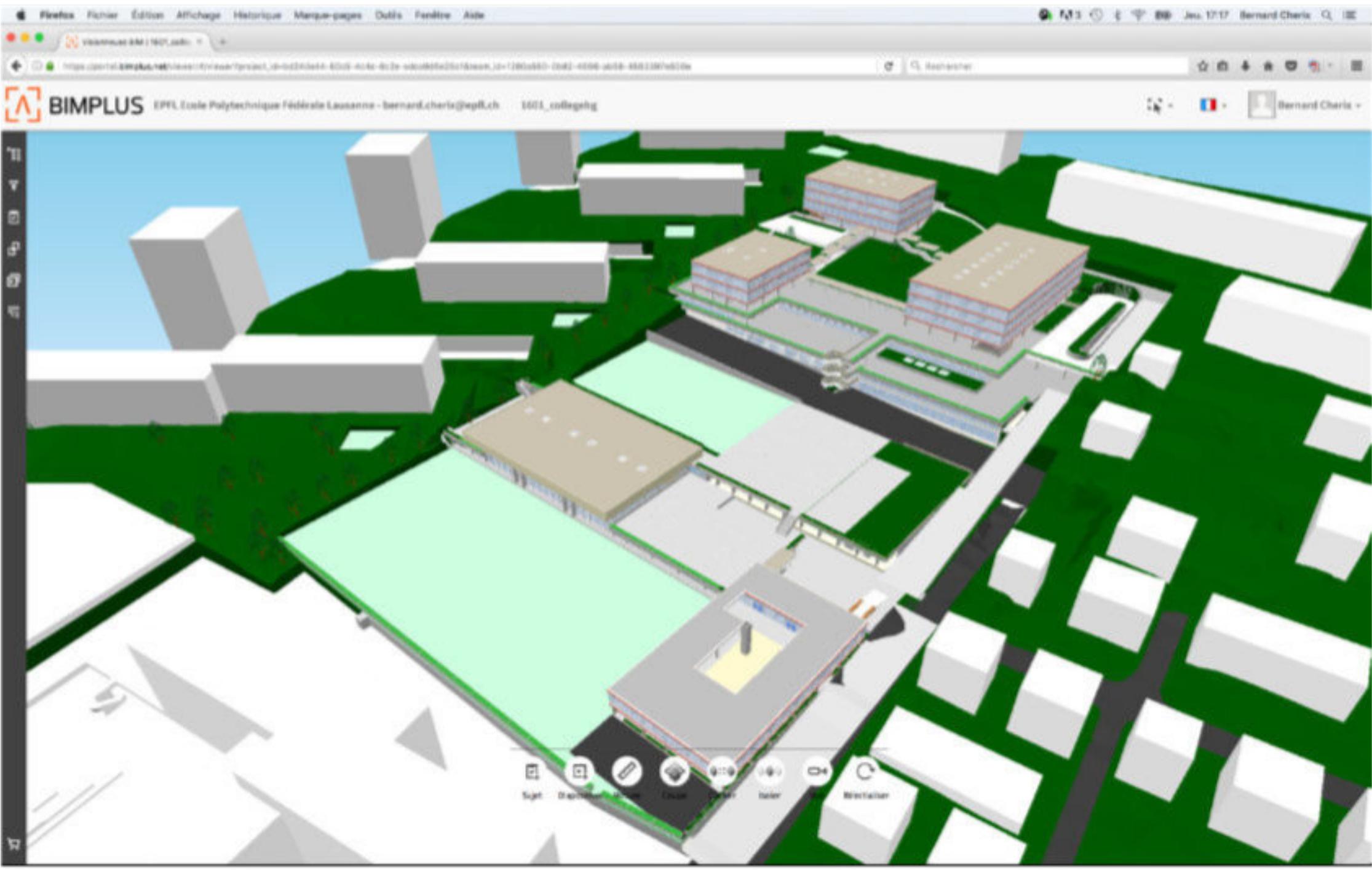
[See how well we play with others.](#)

BRINGING PEOPLE, TECHNOLOGY & INFORMATION
TOGETHER TO DELIVER EVERYTHING YOU NEED

[Integrate with us.](#)

ALLPLAN BIM+

NOUVELLE INTERFACE



TEST AVEC GROUPES CG : RESSLab Pr.Nussbaumer



EPFL, Ecole Polytechnique Fédérale de Lausanne - Bernard Charis/EPFL/CG > 3DR, collégiale > Visionneuse BIM



VISUALISATION PAR MAQUETTE

The image shows a web browser window displaying a BIM visualization application. The browser's address bar shows the URL `portal.bimplus.net`. The page header includes the **bim+** logo and the text "EPFL, Ecole Polytechnique Fédérale de Lausanne". The user's name "Bernard Charria" is visible in the top right corner.

The main content area features a 3D visualization of a building model on a green terrain. The building is a multi-story structure with a flat roof and several wings. The terrain is represented by a green surface with dark lines indicating building footprints and site boundaries.

On the left side, there is a sidebar with the following sections:

- Détails du projet**: Includes a thumbnail image of the building model and a "gestion du projet" link.
- Maquettes**: A list of model versions with status indicators (blue circles and checkmarks):
 - Projet simulation verticale 1
 - 2011_4_collegepq
 - 2011_4_collegepq_bevue
 - 2011_4_collegepq_01
- Structure de bâtiment**: A list of building structure elements:
 - 2011_collegepq

At the bottom of the main visualization area, there is a toolbar with several icons for navigation and interaction, including a home icon, a camera icon, a zoom icon, a pan icon, a rotate icon, a delete icon, a search icon, and a refresh icon.

VISUALISATION PAR ÉLÉMENT : ici MEP



bim+

EPT, Ecole Polytechnique Fédérale de Lausanne - Bernard Charria - 1001_college - Visionneuse BIM

Bernard Charria



Détails du projet

1001_college



gestion du projet

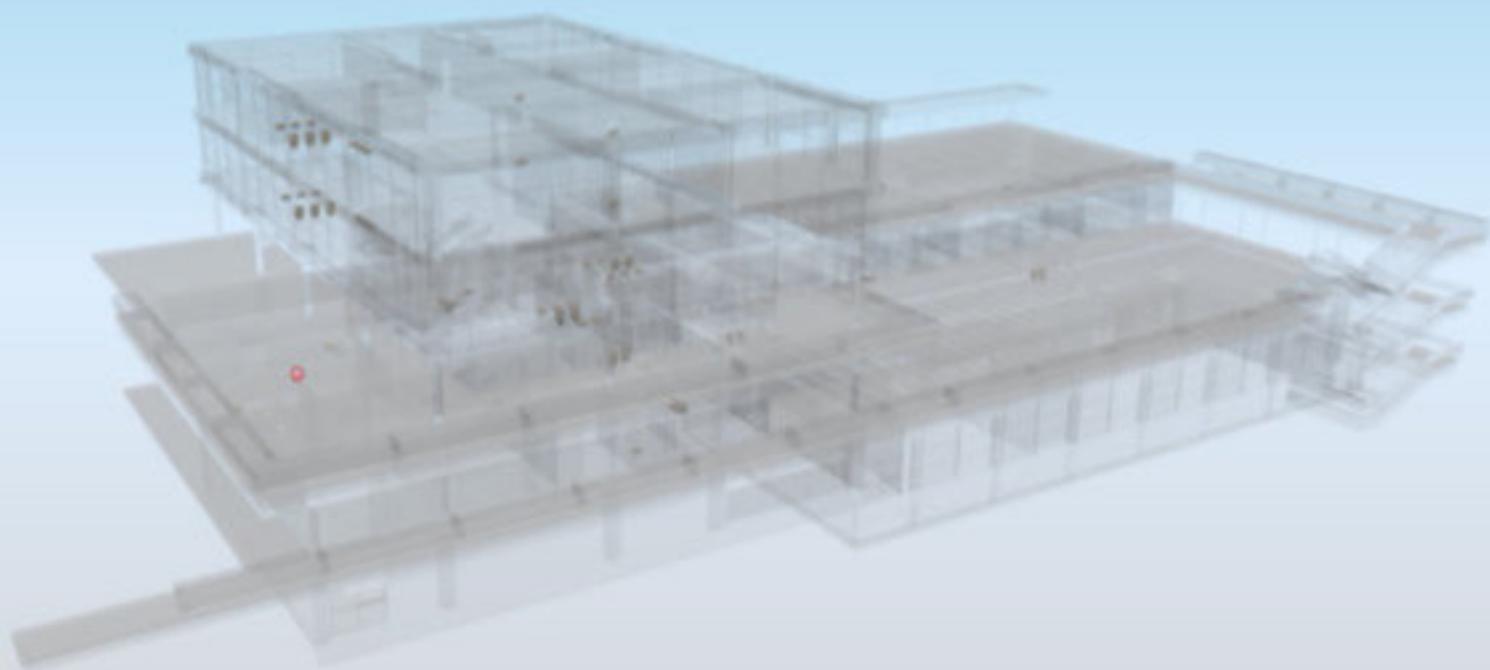
Collège des Bâtiments, Lausanne - Spécies ORES 2015

Maquettes

- Projet construction verticale 1001
- 1001_x_college
- 1001_x_college_bevier
- 1001_x_college_01
- Bâtiment
- MEP
- Clapet grilles
- Placards

Structure de bâtiment

- 1001_college
- 1001_x_college
- Projet construction verticale 1001
- 1001_x_college_01
- Site
- Bâtiment
- Étage 1
- Étage 2
- Étage 3
- Escalier
- Étage 01
- Étage 02
- Soluce 01
- 1001_x_college_bevier



Split Dispositif Mesure Cacher Couper Isolé Vue Réinitialiser

COMMUNICATION ENTRE ACTEURS : EXPORT BCF

Safari Fichier Édition Présentation Historique Signets Fenêtre Aide

ii portal.bimplus.net

bim+
EPPF, Ecole Polytechnique Fédérale Lausanne - bernard.cherib@epfl.ch > 1991_colvegibg > Visionneuse BIM

Sujets (1)

Nr	Type	Titre	Auteur	Personne responsable	Modifié	Date D'échéance	Priorité	Statut
1	Problème	Changer fenêtre	Bernard Cherib	Bernard Cherib	24/10/2018		Moyen	Couvert

Changer fenêtre

Propriété de la tâche

1 objets sélectionnés

Description:

Trouver produit équivalent avec vitrage et cadre isolant U6,7.

Priorité: Moyen Statut: Couvert

Personne responsable: Bernard Cherib (Ecole polytechnique Nr: ...)

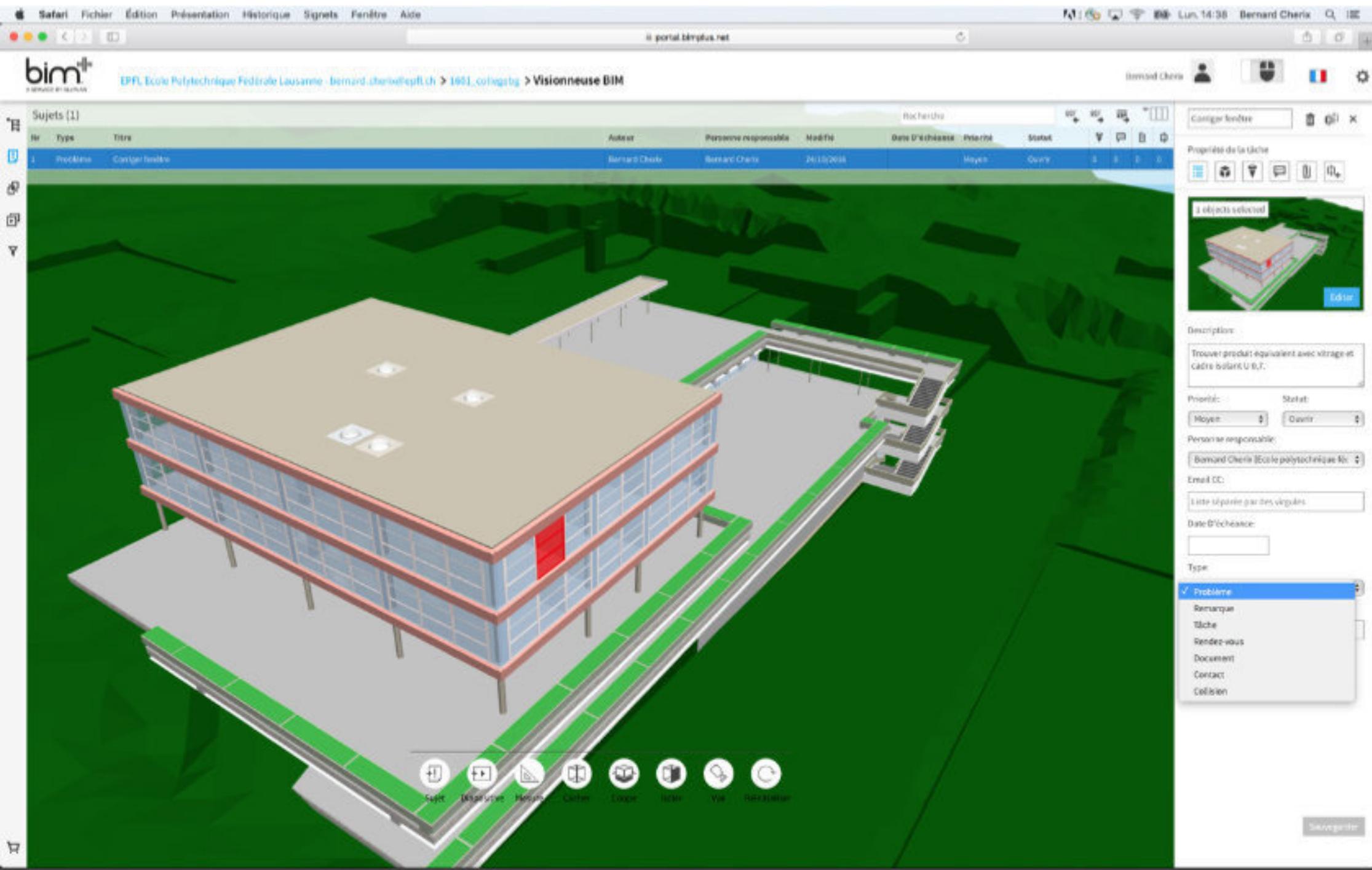
Email CC: Liste séparée par des virgules

Date D'échéance:

Type: **Problème**

- Remarque
- Tâche
- Rendez-vous
- Document
- Contact
- Collision

Savegarder



LISTE DES TÂCHES, EXPORT EN XLSX

The image shows a Microsoft Excel spreadsheet titled "W01_0146269g-tasks-1". The spreadsheet is a task list with the following columns: No., Type, Title, Description, Author, Assignee, Tag, Created, Modified, Due Date, Priority, Status, Attachments, Pts, Comments, Hyperlinks, and URL. The first row (row 2) contains the following data:

No.	Type	Title	Description	Author	Assignee	Tag	Created	Modified	Due Date	Priority	Status	Attachments	Pts	Comments	Hyperlinks	URL
1	Brouillon	Design Interface	Trouver pourquoi les boutons sont alignés et cachés selon l'OS ?	bernard.charlier@univ-st-etienne.fr	bernard.charlier@univ-st-etienne.fr		24.10.2019	24.10.2019		Medium	Open		1			https://portal.univ-st-etienne.fr/...

RECEPTION PAR COURRIEL DE BCF



bimplus@systems.allplan.com

M. Arsh Bernard Cherié

Bernard Cherié sent file "1801_collegatg-Corriger fenetre.bcfzip" to you

signature text



Hello,

Bernard Cherié shared a file "1801_collegatg-Corriger fenetre.bcfzip" of project 1801_collegatg with you.

[Click here](#) to download the file from bim+

Yours sincerely,
Allplan bim+ team

At Allplan bim+ we value your feedback! Let us know about your experience, ideas for improvement, or just say hello via support@bimplus.net to help us improve Allplan bim+.

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BCF REPÈRE SUR MAQUETTE

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bim+ EPFL Ecole Polytechnique Fédérale de Lausanne - bernard.cherix@epfl.ch > 1011_cafegbg > Visionneuse BIM

Sujets [1]

Nr	Type	Titre	Auteur	Personne responsable	Statut	Date d'échéance	Partie	Statut
1	Problème	Changer fenêtre	Bernard Cherix	Bernard Cherix	24/10/2018	Moyen	Courir	



Propriétés de la tâche

1 objets sélectionnés

Description:

Trouver produit équivalent avec vitrage et cadre isolant U < 0,7.

Priority: Moyen Status: Courir

Personne responsable: Bernard Cherix (Ecole polytechnique féd)

Email CC:

Date d'échéance:

Type: **Problème**

- Remarque
- Tâche
- Rendez-vous
- Document
- Contact
- Collision

Navigation: Pan, Rotation, Sélection, Zoom, Ligne, Aide, Réinitialiser

Savegarder