

# TRAINING FOR COMPANIES

*Use BIM models*



## **D4.5 – Annex 2.1- training content for Carrousel Project**

**DAY 1 : Understand the BIM process  
and the interest of BIM tools available to all stakeholders**



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DIJON  
03/09/2018, PP

# Training session: October 22, 2018

## BIM objectives of the Client, Dijon Métropole

- 1) Reminder of the objectives of the BIMplement "pilot" projects
- 2) BIM process
  - Understand the stakes for all stakeholders in the BIM process
  - Use the BIM process during the construction phase to better collaborate
  - In the framework of the future E+C- buildings :
    - Better control the "airtightness" issue and its impact on the work of all batches
    - Virtualize the impacts of the ventilation system on the entire project



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# Training session: October 22, 2018

## Site work organisation : BIM and training sessions for building companies

1. Consider all **the possibilities of BIM models** for the construction site
2. Bring out the **needs of each company** for a better use of the BIM models
3. Propose a **training schedule**
  - Training site actors in the use of tablets and get a feedback on the needs of the construction site
  - Show the interest of using the models during meetings of site operators.
4. Select **future employees to be trained**

This set of training courses should make it possible to :

  - Verify the interest of using BIM models for the realization of an operation
  - Specify what the site needs to make the most of the BIM process



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# Training session: previous questionnaire

- Your company has already participated in other projects with BIM requirements.
- You have the internal capacity to create a 3D model of your business
- You used the architect's model to answer the call for tenders...
- You use the model to make your 2D plans
- For your batch, you have checked the consistency between technical specifications and model
- The synthesis model has allowed you to better understand the issues to be solved
- You used the model to organize the construction site
- You are using digital tools on the construction site (tablets ..)
- The foreman uses the 3D model during the construction site.
- All the worksite operators have seen the 3D model.



# The project stakeholders and their stakes for BIM



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# TRAINING FOR COMPANIES

Use BIM models

In the BIM process, each stakeholder has its own interests :

## 1. Client's team :

- what are the uses of BIM?
  - focus on DOE
  - what is asked to the companies??
- the BIM specifications
  - role of BIM Assistant to the Client
  - the control office

## 2. Project management :

- respond to the BIM specifications
- develop a BEP to better manage its interoperability
  - BIM manager role
- design model for the project
  - several models ??
- Integrate the BIM process into the Tender offer file
  - draft a BIM BEP for companies

## 3. Building companies :

- At the call for tenders :
  - BIM document analysis
  - how to use BIM models ?  
(viewers ? Collaborative Plateform ?)
- when selected:
  - make a model for his own batch??
  - What for use of models :
    - to manage interoperability
    - to communicate
- During the execution phase
  - what uses of BIM models on the construction site?
- For the as-built model
  - what internal skills to manage a model-related as-built file ?

The BIM process stakeholders



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# TRAINING FOR COMPANIES

*Use BIM models*

## The Client's team



### 1.1 Client's team : -what are the uses of BIM?

#### 1. most frequent uses of BIM

Communication on project  
Design BIM model and BIM objects  
Deliverable production  
Exchange on project  
Manage conflict from BIM models

#### 2. Complementary BIM uses

Programme definition, analysis & verification  
Check compliance with regulatory requirements on the basis of the BIM model  
Modelling the constructibility of structures  
Creation of as-built models  
Quantities and significant data extract

#### 3. Uses not yet widely considered

Site analysis  
Site model / existing data  
Specific studies ; light, structure, energy efficiency, environment life cycle  
4D & 5D scheduling  
Organisation and coordination of all batches during execution  
Constructive systems and prefabrication  
Analysis of effective performance of the building

Client's  
team



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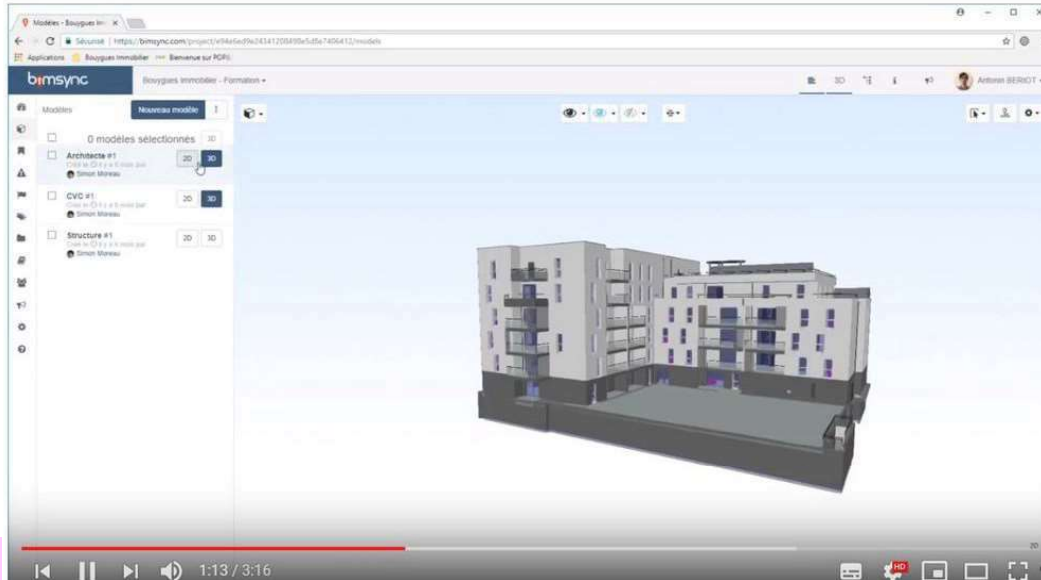


# TRAINING FOR COMPANIES

Use BIM models

In the BIM process, each stakeholder has its own interests :

## 1.1 Client's team : -what are the uses of BIM?



Client's  
team



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In the BIM process, each stakeholder has its own interests :

- 1.1 Client's team :
- the BIM assistant to Owner

Example of a call for bid / Request for Quotation

ARTICLE 7 - DESCRIPTION OF THE MISSION  
The contract is divided into five technical parts, referred here below :

Client's team

MISSION	Designation
Technical part 1	Assistance in the elaboration of the project owner's needs
Technical part 2	Preparation for the consultation of the project managers

- 1.1 Client's team :  
-the BIM specifications

Example of the BIM specification for Habitat 76 :

### 3.5 Content of BIM-EXE

The digital BIM model, resulting from the Final design model, will be fed and updated during the construction phase.

It will be enriched with the following related documents:

- the "product sheets " from electronic catalogues (DAT BIM or equivalent), in order to provide data of industrial products with all their characteristics;
- the points of detail and vigilance required in the contract, such as: guardrail linkage / balcony and drainage, waterproofing details for built-in shower or not, windows, waterproofing for terraces,...

The cluster is encouraged to use the model to make the formwork plans.



1.1 Client's team :  
-the BIM specifications  
role of **BIM Assistant to client**

Example of the BIM specification for Habitat 76 :

## 3.6 Content of the BIM digital as-built model

The digital BIM model delivered to the commissioning phase will be updated to match the as-built model of the building.

From these models will be produced the digital BIM model known as the management model, and intended to be imported into the Abyla CMMS - Computerized Maintenance Management System. Its content is detailed in §4.1.

Client's  
team



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- 1.1 Client's team :  
-the BIM specifications  
role of **BIM Assistant to client**

## BIM Execution Plan Logement

The “BIM Execution Plan Logement” presents the methodology for working around digital models offered by Bouygues Immobilier for all its operations. BIM Execution Plan Logement enables the project team to implement the BIM objectives of the project :

*The prescriptions in this document are indicative and do not take away from the provider the responsibility to adapt them to the context of the project and the software used.*

→ This guide can be downloaded in PDF format.

## What is this guide for?

Bouygues Immobilier, on the basis of the procedures put in place to enhance the value of its property assets through the use of the BIM, identified several general objectives that has been translated into in use cases.

→ internet access to the BIM use cases

- 1.1 Client's team :
- the BIM specifications
- role of **BIM Assistant to client**

## Bouygues-Immobilier' BIM use cases

Bouygues Immobilier, on the basis of the procedures put in place to enhance the value of its projects through the use of BIM, has identified several general objectives which are reflected in the following BIM use cases:

- View the design in 3D
- Exchange around models
- Extract surfaces and model indicators

This definition of these use cases is not blocked over time and it may evolve according to the specific constraints and opportunities of each operation.

To address these use cases, a set of modelling recommendations are attached.

Client's  
team



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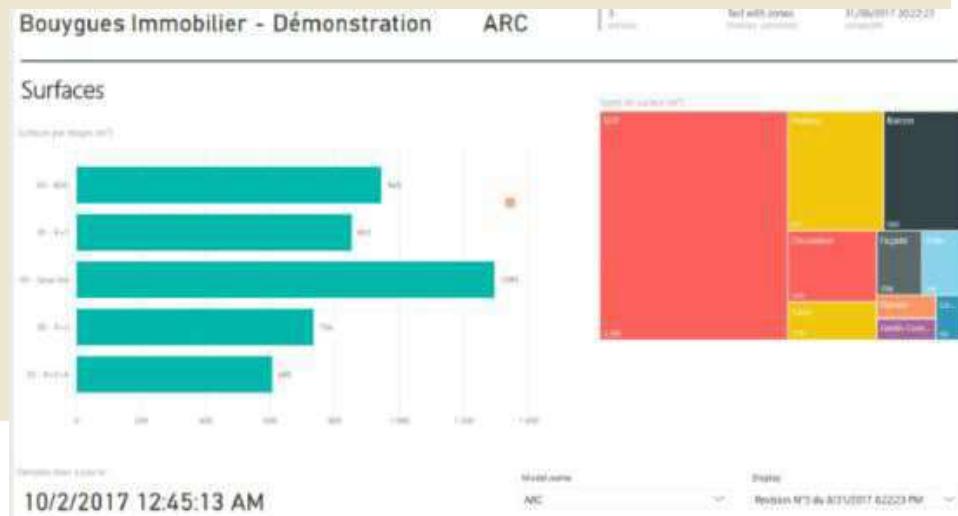
In the BIM process, each stakeholder has its own interests :

- 1.1 Client's team :
- the BIM specifications
- role of **BIM Assistant to client**

## Bouygues-Immobilier' BIM use cases

Architectural models are used for the automatic extraction of regulatory surfaces (SHOB, SDP, SUBL, SUBB, SUN, SNB) and of several model indicators. The monitoring of the evolution of these indicators makes it possible to control the respect of the operation program.

Precise modelling guidance is provided to stakeholders so that this information can be extracted automatically from the models → Modeling Recommendations



Client's team



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# TRAINING FOR COMPANIES

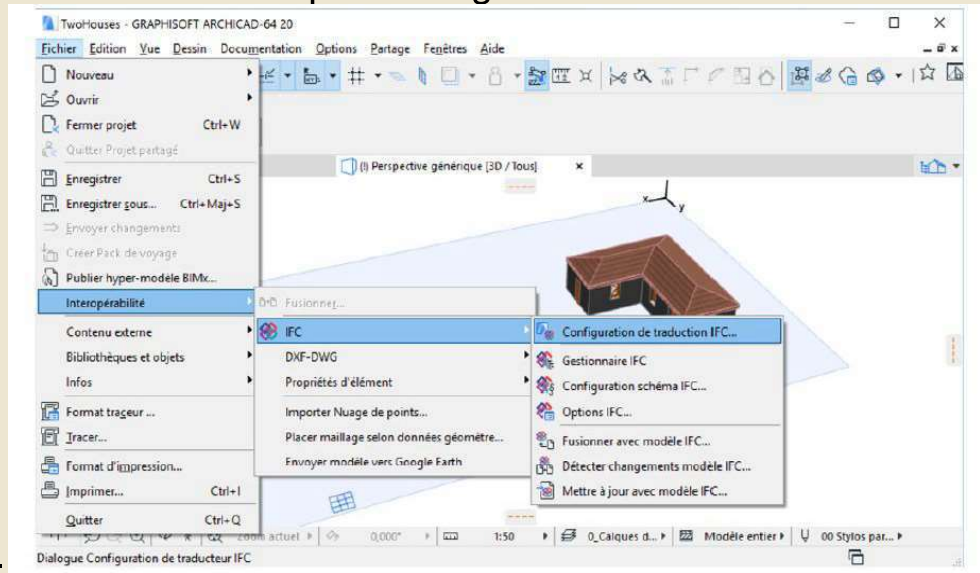
Use BIM models

In the BIM process, each stakeholder has its own interests :

- 1.1 Client's team :
  - the BIM specifications
  - role of **BIM Assistant to client**

## Export configuration

Open " Configuration to create a new IFC export configuration to IFC.



Duplicate the general translator to create a new translator. You can then rename this new translator.

Client's  
team



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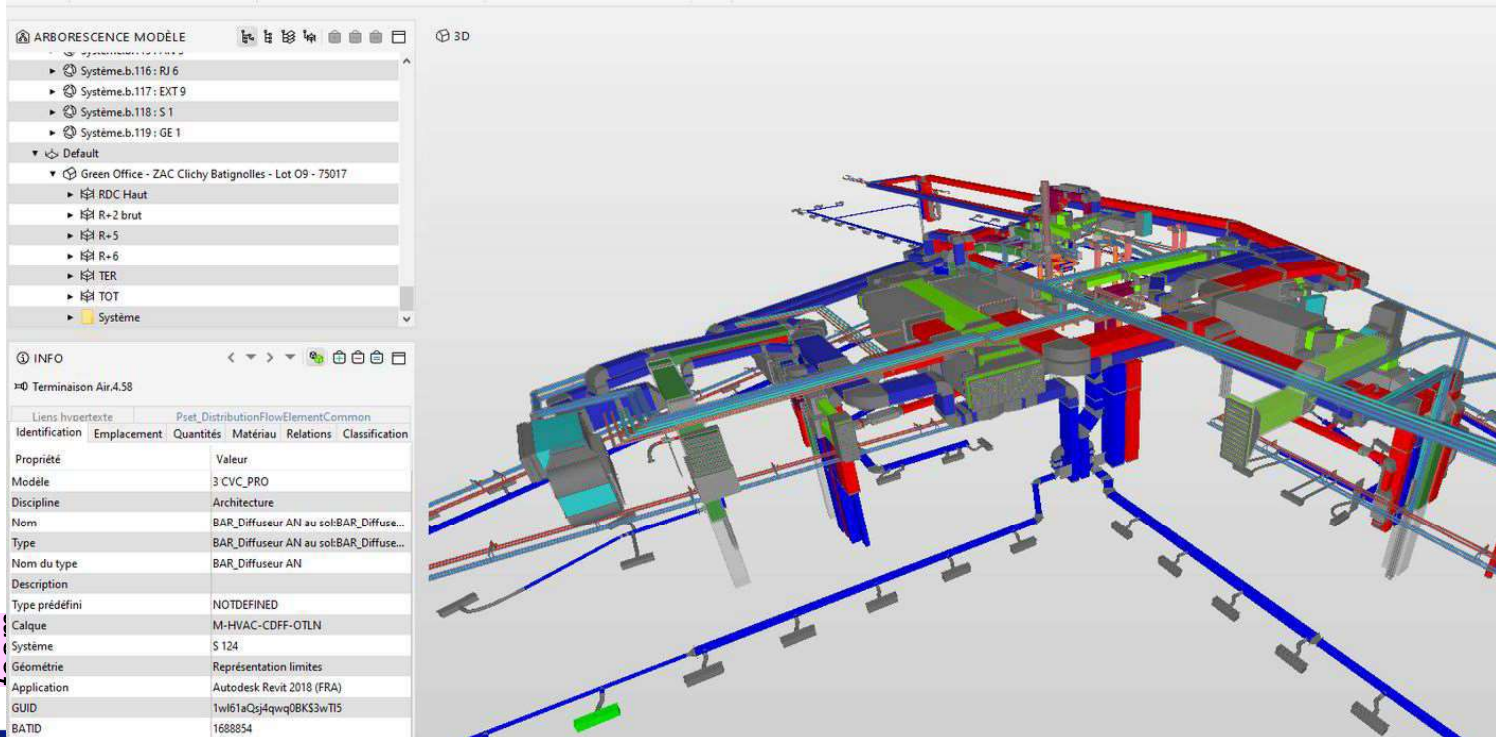


# TRAINING FOR COMPANIES

Use BIM models

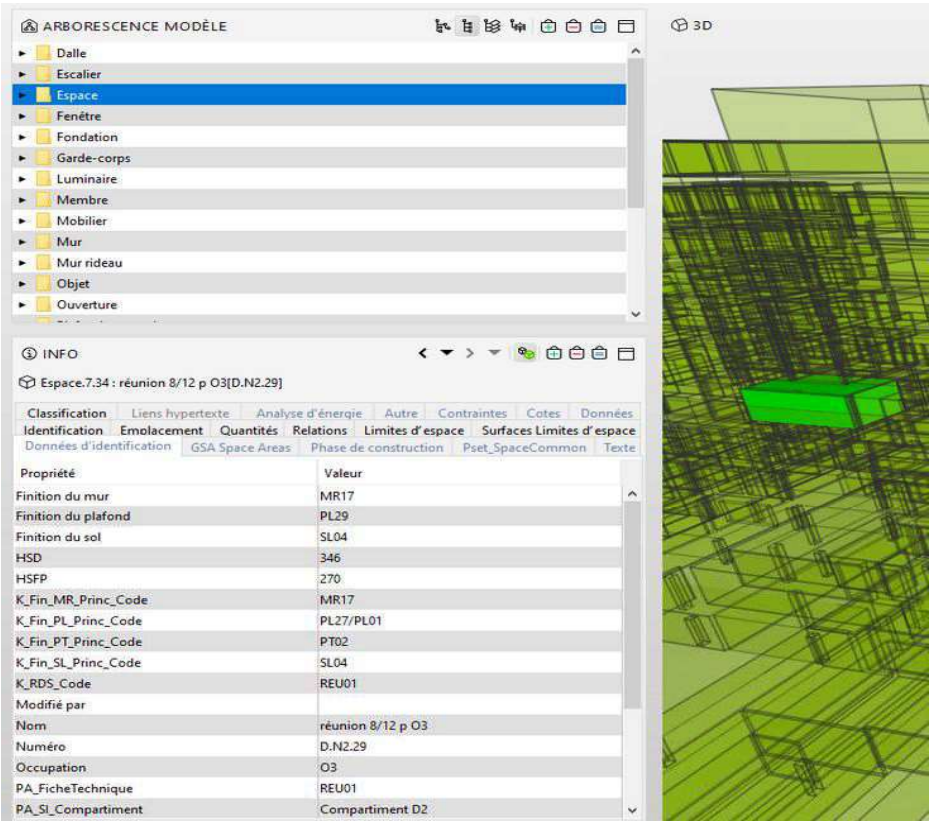
In the BIM process, each stakeholder has its own interests :

## 1.1 Client's team : -the BIM specifications role of **BIM Assistant to client**



In the BIM process, each stakeholder has its own interests :

- 1.1 Client's team :
- the BIM specifications
- role of **BIM Assistant to client**



Client's team



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- 1.2 Client's team :
  - the BIM specifications
- role of **BIM Assistant to client**

2/ OBJECTIVES OF THE GUIDE ...

3/ REMINDER ABOUT IFC

4/ AUTOMATIC CONTROLS

4.1 General information

4.1.1 Check Solution : integration in the BIM process and deliverables

4.1.1.1 integration into the BIM process .

4.1.1.2 Deliverables

4.1.2 Minimum quality requirements for the model

4.1.2.1 File and format

4.1.2.2 Accuracies and units

4.1.2.3 Spatial tree structure

4.1.2.4 Levels/Storey

4.1.3 Content of digital model

4.1.3.1 Main constitutive elements of the BIM model

4.1.3.2 Project documents

4.1.3.3 Naming of spaces

4.1.3.4 Zones or Groups of Spaces

- 1.2 Client's team :  
-the BIM specifications  
role of **Control Office**

## MODULE 1 : ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

### 4.2 Information to be entered in the model to automate control

- 4.2.1 Components of the work
- 4.2.2 Project documents
- 4.2.3 Naming of elements
- 4.2.4 Equipment and furniture

## MODULE 2: FIRE SAFETY

### 4.3 Information to be filled in the model to automate the control

- 4.3.1 Components of the work
- 4.3.2 Project documents
- 4.3.3 Naming and/or properties of elements
- 4.3.4 Equipment and furniture

## ANNEXES

### APPENDIX 1.1: Example of a parts list

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Use BIM models

In the BIM process, each stakeholder has its own interests :

## 1.2 Client's team : -the BIM specifications role of **Control Office**

A guide about IFC extraction developed by BTP Consultants can also be sent on request to facilitate the IFC extraction from the model.

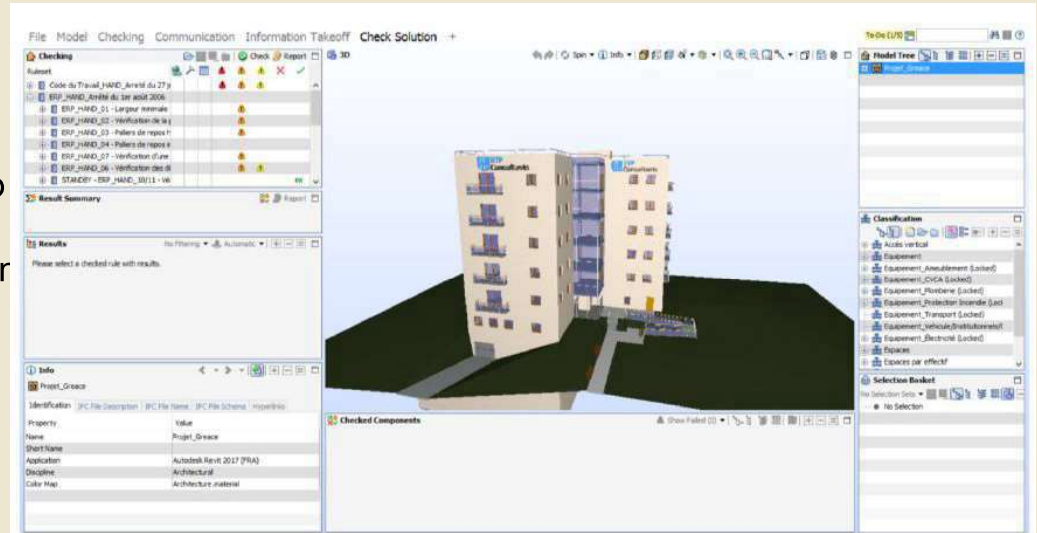


Figure 2 : Interface de Check Solution by BTP Consultants



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## The Project manager's team

### 2. project management :

-Responding to the client's BIM specifications : the BEP

#### 2.6 Objectives of the Client

2.6.1 HALPADES BIM objectives and hierarchy

2.6.2 PRIMALP BIM objectives and hierarchy

#### 3. BIM uses

3.1 Software used by the contracting authority

3.2 Principles for promoting the use of digital mock-ups

3.3 Valued uses

#### 4. BIM Team

4.1 BIM team members

4.2 Roles of the BIM Team

4.3 Distribution of tasks in the BIM team

4.4 BIM maturity level of contributors

4.5 BIM Management

#### 5 Standards and good practice guide

5.1 Standards and Documentary References

5.2 Template management

5.3 Exchange Formats

5.4 Organization of Volumes, Zones, Spaces

5.5 File naming convention

5.6 Project File Structure

5.7 Georeferencing and location

5.8 Levels of Detail and Information

#### 6. BIM process

6.1 Principles for Collaboration

6.2 BIM coordination meetings

6.2 Collaborative platform for sharing data and documents

6.4 Data publication process

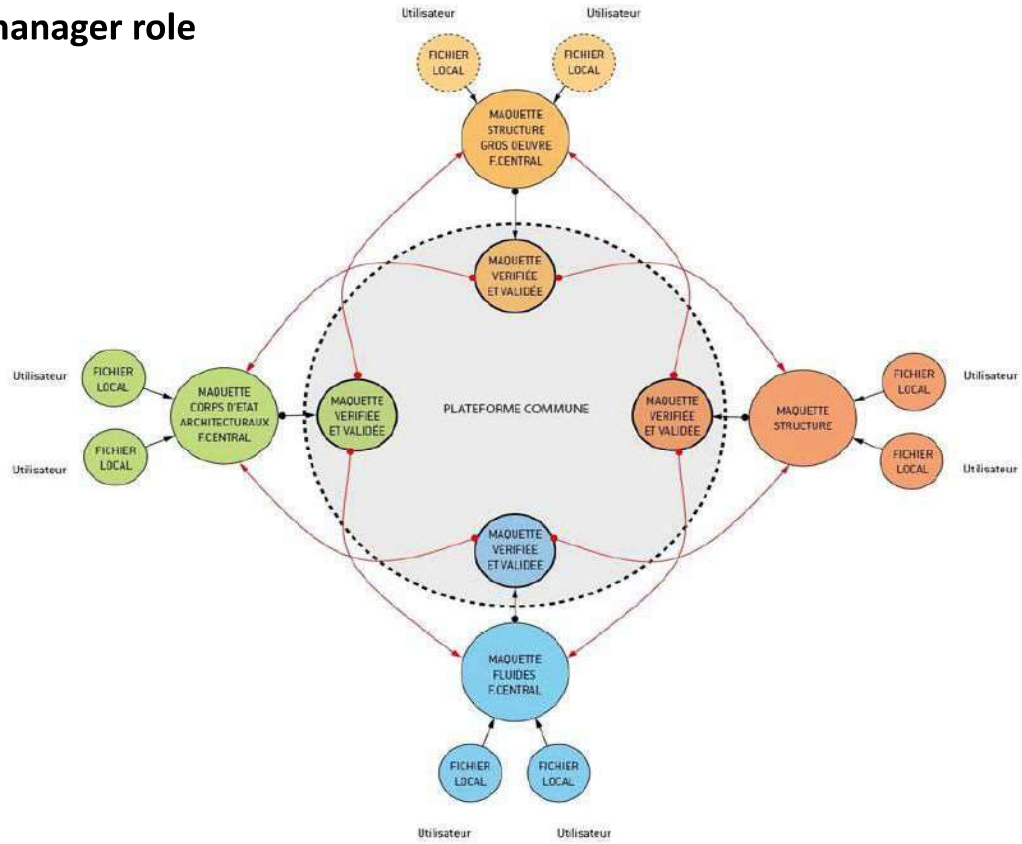
6.5 Technical synthesis and clash detection process

In the BIM process, each stakeholder has its own interests :

2. project management :

-develop a protocol to better manage its interoperability

**BIM manager role**





In the BIM process, each stakeholder has its own interests :

**Each player in the BIM process has its own interests**

2. project management :

-develop a protocol to better manage its interoperability

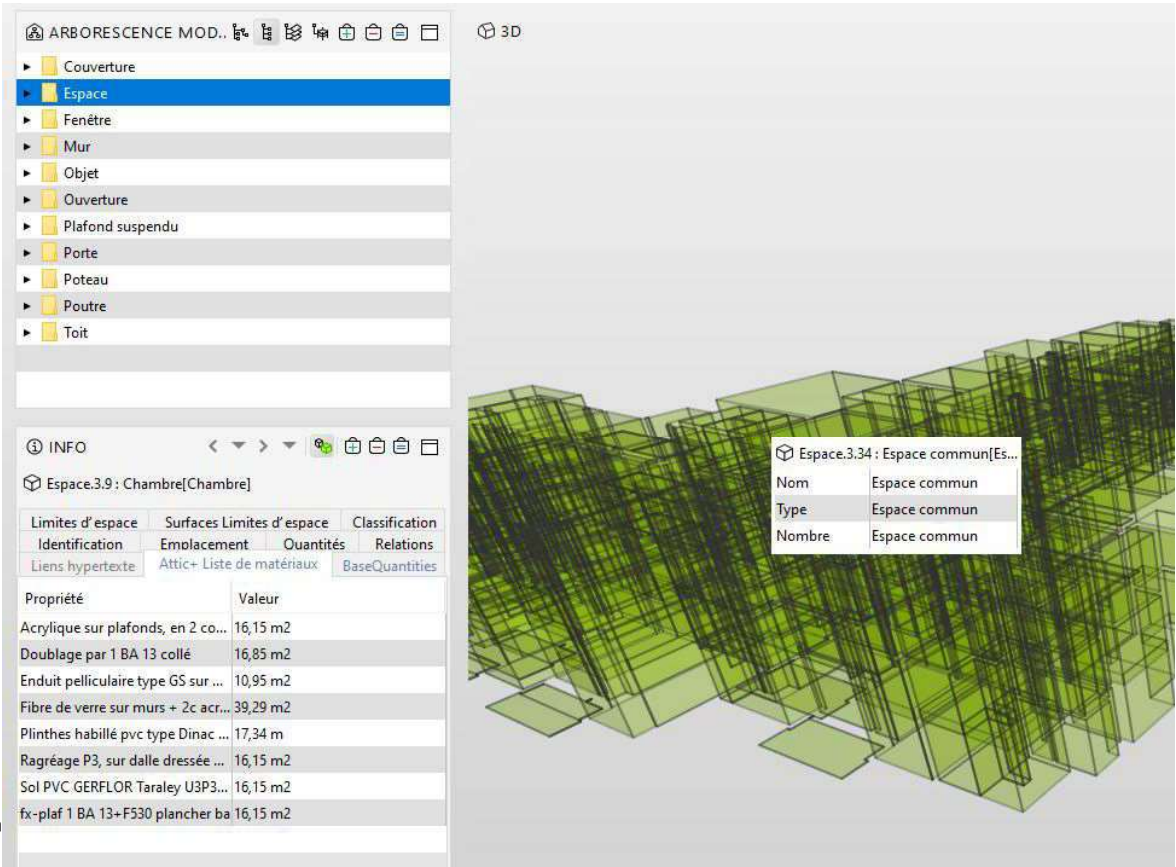
**BIM manager role**

## 6.2 Description of roles : BIM Manager

- Establish the BIM Implementation Plan or BIM protocol (BEP)
- Ensure the quality of the model's information and its compliance with the BIM charter and guidelines
- Inform the BIM coordinators of the evolution of the charter and procedures
- Thoughts and tests on Procedure improvements and Problem Solving
- Check the agreed level of detail of the information in the model itself for each phase of the process
- Updating of models (and other project documents) within the common project information management system of the "project team"
- Ensure a technological watch on BIM
- Management of the tools used (Revit version, additional tools) ;
- Inform the BIM coordinators of the problems encountered.
- Acting in return on the problems encountered or commenting on them, internally with the employees and externally with the "project team"
- Review with BIM and BIM coordinators Designers, interface definition and report editing
- Participate in BIM coordination sessions (project control and BIM) ;
- Participate in the Steering Committee of the various project stakeholders
- Manage the plan lists and validate with the project manager the dates of intermediate and client deliverables

In the BIM process, each stakeholder has its own interests :

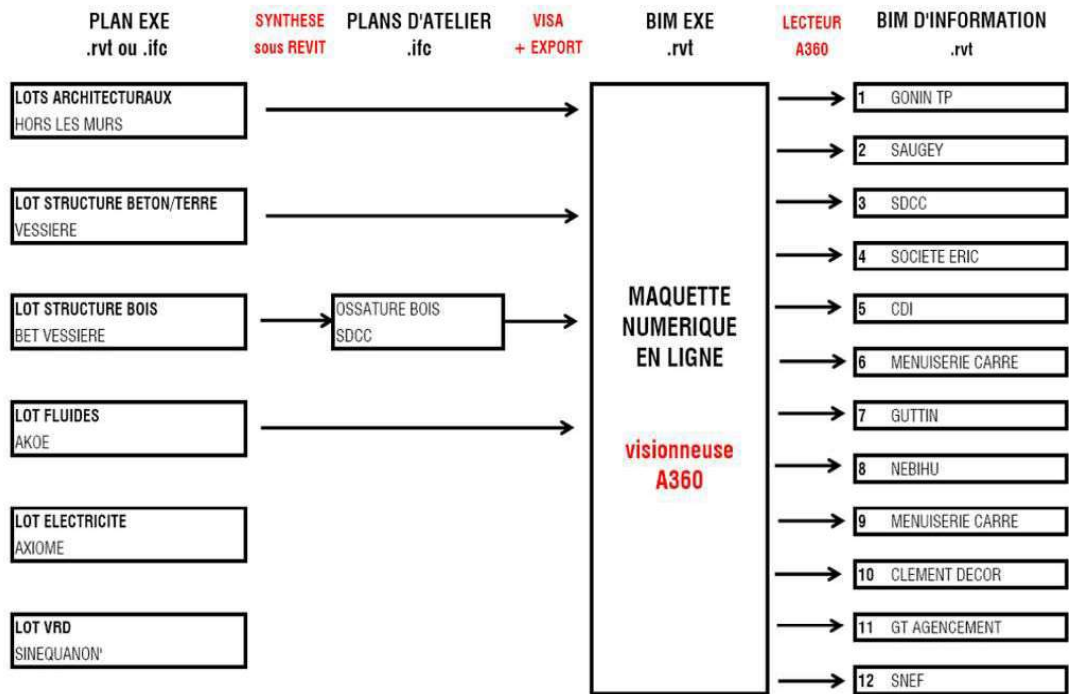
- 2. project management :
- modeling the project : several models ??



In the BIM process, each stakeholder has its own interests :

2. project management:
- integrating the BIM process into the call for bid, write a BIM BEP for companies

PROCESSUS BIM EN PHASE CHANTIER :



Project Manager's  
 team

# TRAINING FOR COMPANIES

*Use BIM models*

## The building companies



### 3. The company :

#### 1- At the time of the call for tenders :

BIM document analysis

model use

#### 2- Once held:

modeling for his own batch??

What use of models :

- to manage interoperability
- to communicate

#### 3- During the execution

what uses of BIM models on the construction site?

#### 4- For the asbuilt model

internal skills to manage a model-related as-built file

## 3. The company:

1- At the phase of the invitation to tender : BIM document analysis

### 1 Preamble

#### 1.1 Preliminary Definitions

#### 1.2 Expectations for the integration of the BIM process by the client

#### 1.3 Neutrality and interoperability.

#### 1.4 Intervention and role of the BIM Manager within the client's team

### 2 General specifications 3D digital Ifc model

#### 2.1 File Formats

#### 2.2 Object modelling

#### 2.3 Geometric modelling

#### 2.4 Model calibration, geo referencing

#### 2.5 Space Organization

### 3 BIM Deliverables requested from companies

#### 3.1 Content specifications of the companies digital models

#### 3.2 Reference model provided by the project manager



### 3. The company:

#### 1- At the phase of the invitation to tender : BIM document analysis

The objective is to deliver to the owner a single IFC file of the entire project in end of execution phase. To achieve this goal it is imperative to reduce the size of this "final" file. A level of detail is thus imposed and the level of the LOD retained is 300.

From the EXE to the commissioning phase, it is therefore imperative that the 3D software used to generate the Ifc files keep, at a minimum, a double geometric representation of the 3D objects implanted in the storeys.

- The LOD 300 must therefore be kept for the geometry of all the 3D objects throughout the construction phase.

- A higher definition will be made using links within the final digital model itself in order to avoid override the size of the as-built model in IFC format.

Any additional missions, of reverse engineering or data recovery, to adapt 3D objects of a too high level of detail (type LOD 500 manufacturer) to the level of detail requested (LOD 300), will be entirely at the expense of the company that has been awarded the works contract.

### 3. The company:

- At the phase of the invitation to tender : BIM document analysis

#### 3 BIM Deliverables requested from companies

The contractual documents due under the (French) public authorities owners law, for the phases synthesis, visa, execution, will be filed by the companies on the collaborative platform set up by Coste Architectures Agency and the BET TUAL, in prepared files.

In addition, companies are asked to deliver :

- A digital model of the batch or batches they implement, in IFC 2x3 (iso 10303-21) format, stripped of the reference model, in LOD 300 .

It will be deposited in the folder "depot Exe and If"c.

- A file in native format which generated these IFC 2 x 3



### 3. The company:

#### 1- At the phase of the invitation to tender : BIM document analysis

##### 3.1 Content specifications of the digital mock-ups undertaken

In the visa synthesis phase, the granulometry of the geometries (LOD) contained in the digital model of each discipline must be double.

It must not be less than that required for the production of traditional documents ( > LOD 300 ).

Whatever the phase, the companies commit themselves in their services to always be able to provide an IFC file in LOD 300

In addition, the digital model will have to check the following constraints:

1) Every object is associated to a type object indicated in the ObjectType attribute. The label of the objects types will be perfectly explicit. It will make it possible to establish the link with the information provided by the companies on the solutions implemented (brand, manufacturer, etc.) and with the documentation including the "product" sheets.

2) The composition of the elements will be explicitly defined by reference to a material (IfcMaterial), a material list (IfcMaterialList), a layer (IfcMaterialLayer) or a list of layers (IfcMaterialLayerSet)

3) The groupings of rooms (dwellings, common areas) will be explicitly defined (IfcZone) or will be deductible from the attributes of the parts.

The referent digital model is part of the call for tender files transmitted to companies. It was provided to them as information and companies will be solely responsible for the digital models and documents delivered in their batch.

Companies are expected to complete the reference digital models produced by the architect by providing and submitting by themselves the digital models corresponding to their respective work contracts.

**Extract of BIM Mission Charter - Carrousel Aquatic Center in Dijon**



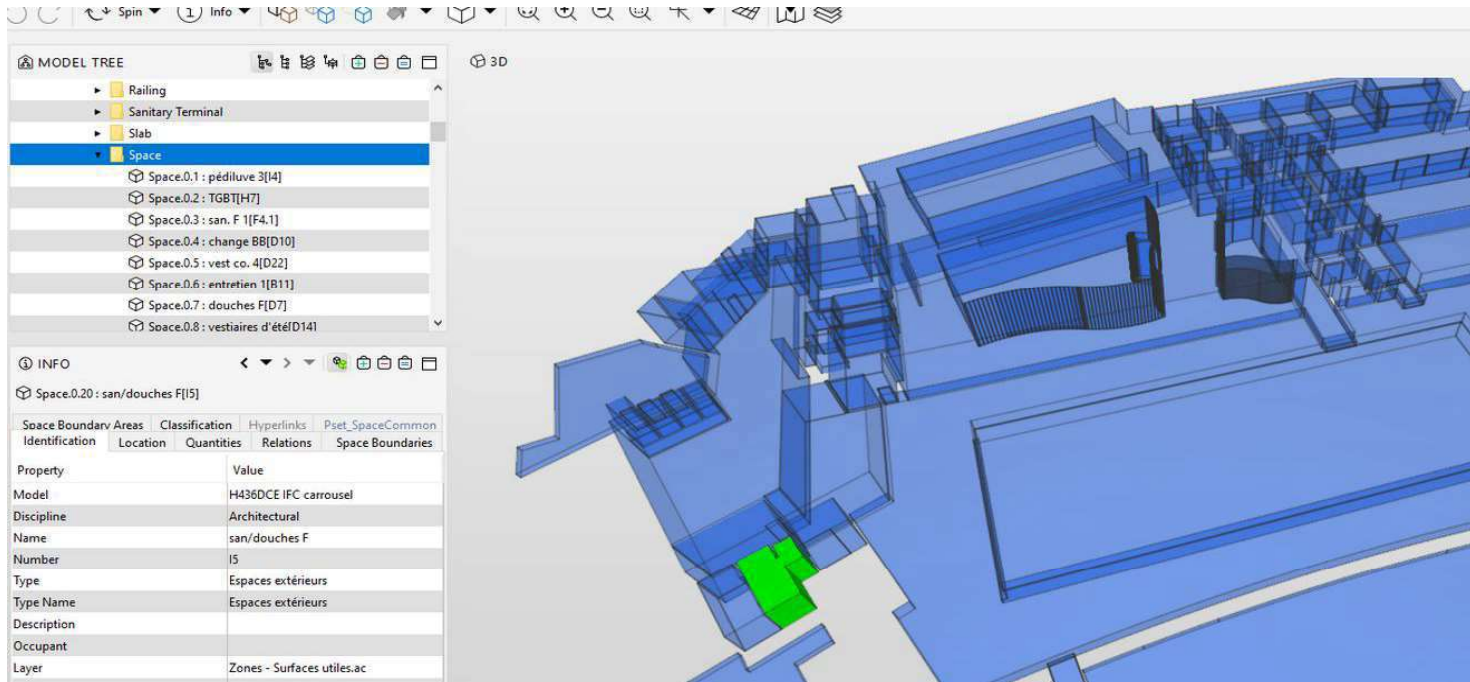
# TRAINING FOR COMPANIES

Use BIM models

In the BIM process, each stakeholder has its own interests :

3. The company:

1- At the time of the invitation to tender : **Using the Viewers tools**



The building companies



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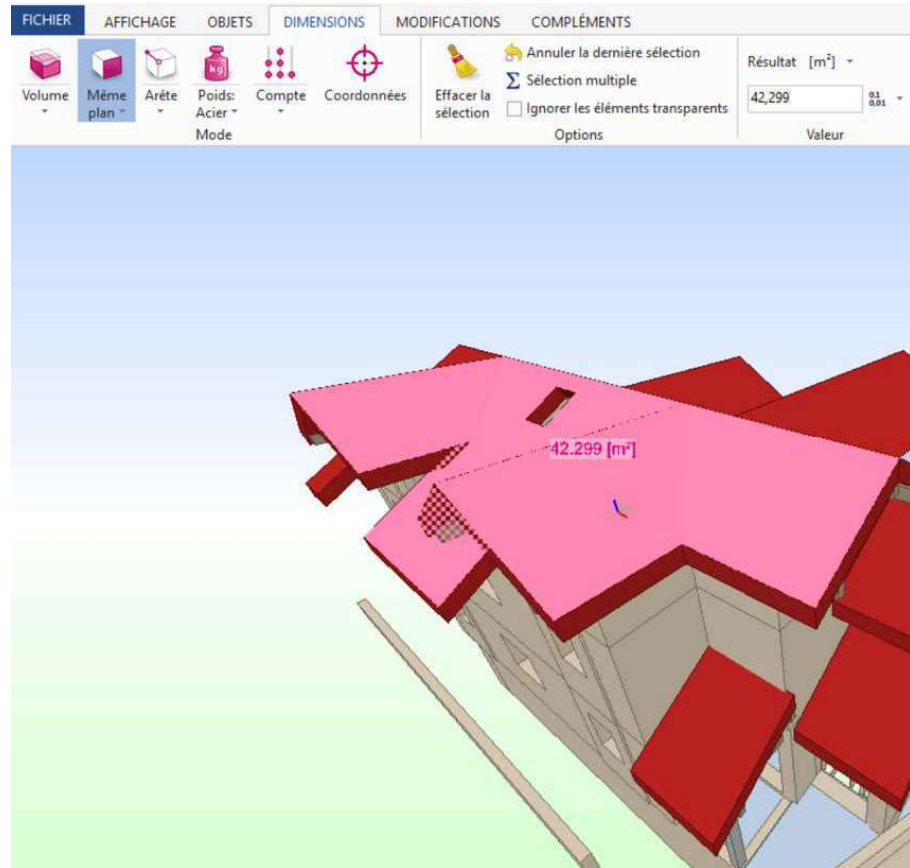
# TRAINING FOR COMPANIES

Use BIM models

In the BIM process, each stakeholder has its own interests :

3. The company:

1- At the time of the invitation to tender : **Use the Viewer tools to quantify**



The BIM process  
stakeholders

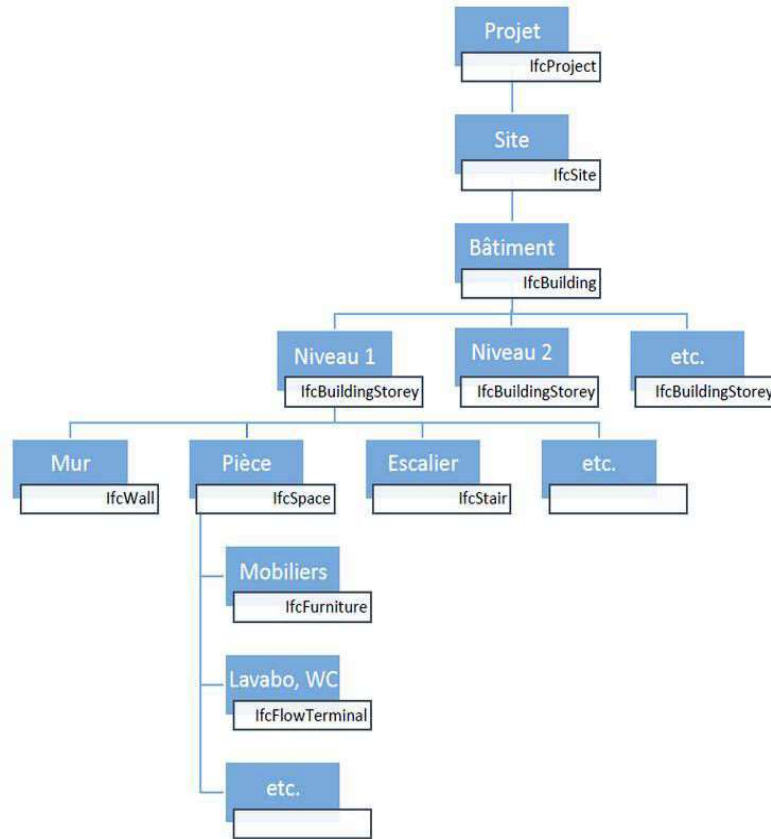


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In the BIM process, each stakeholder has its own interests :

3. The company :

1- At the time of the call for tenders: **verification of the models**



In the BIM process, each stakeholder has its own interests :

- 3. The company :
  - 1- At the time of the tender: **Verification of model data**

To summarize, the IFC properties necessary for the proper functioning of the fire safety module are :

The building companies

item category	Classe d'IFC	Propriétés IFC nécessaires
Wall	IfcWall	Pset_WallCommon.FireRating
		Pset_WallCommon.LoadBearing <sup>1</sup>
Slab	IfcSlab	Pset_SlabCommon.FireRating
		Pset_SlabCommon.LoadBearing <sup>1</sup>
Column	IfcColumn	Pset_ColumnCommon.FireRating
		Pset_ColumnCommon.LoadBearing <sup>1</sup>
Beam	IfcBeam	Pset_BeamCommon.FireRating
		Pset_BeamCommon.LoadBearing <sup>1</sup>
Door	IfcDoor	Pset_DoorCommon.FireRating
		Pset_DoorCommon.LoadBearing <sup>1</sup>
Room	IfcSpace	Pset_DoorCommon.FireExit
		Pset_SpaceOccupancyRequirements.OccupancyNumber



*Use BIM models*

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# TRAINING FOR COMPANIES

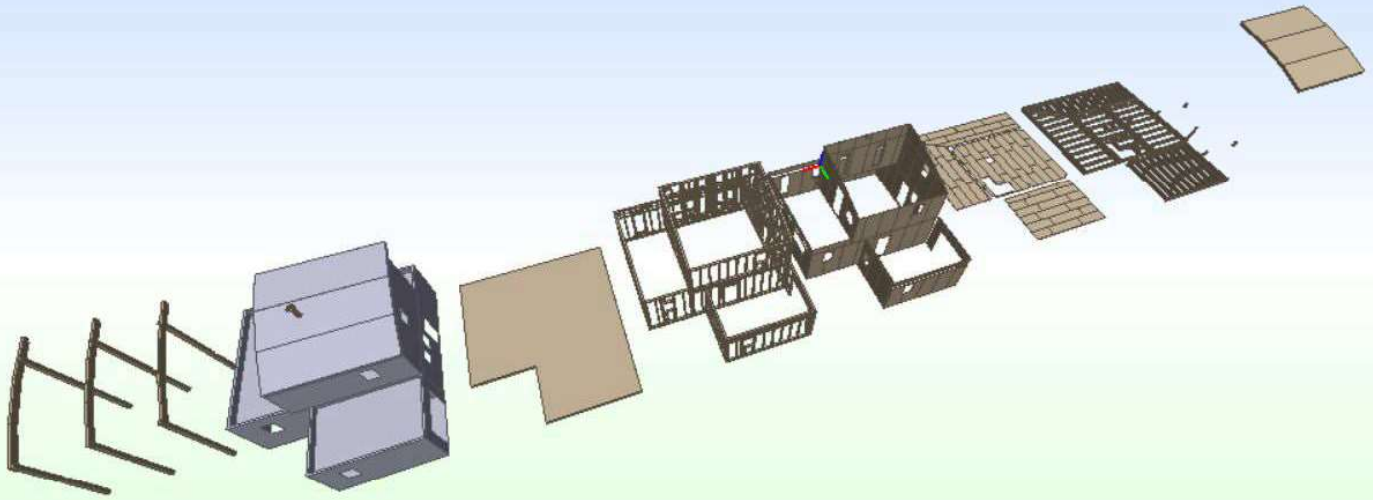
*Use BIM models*

In the BIM process, each stakeholder has its own interests :

**Each player in the BIM process has its own interests**

3 The company :

2-Once selected: modeling for his batch ??



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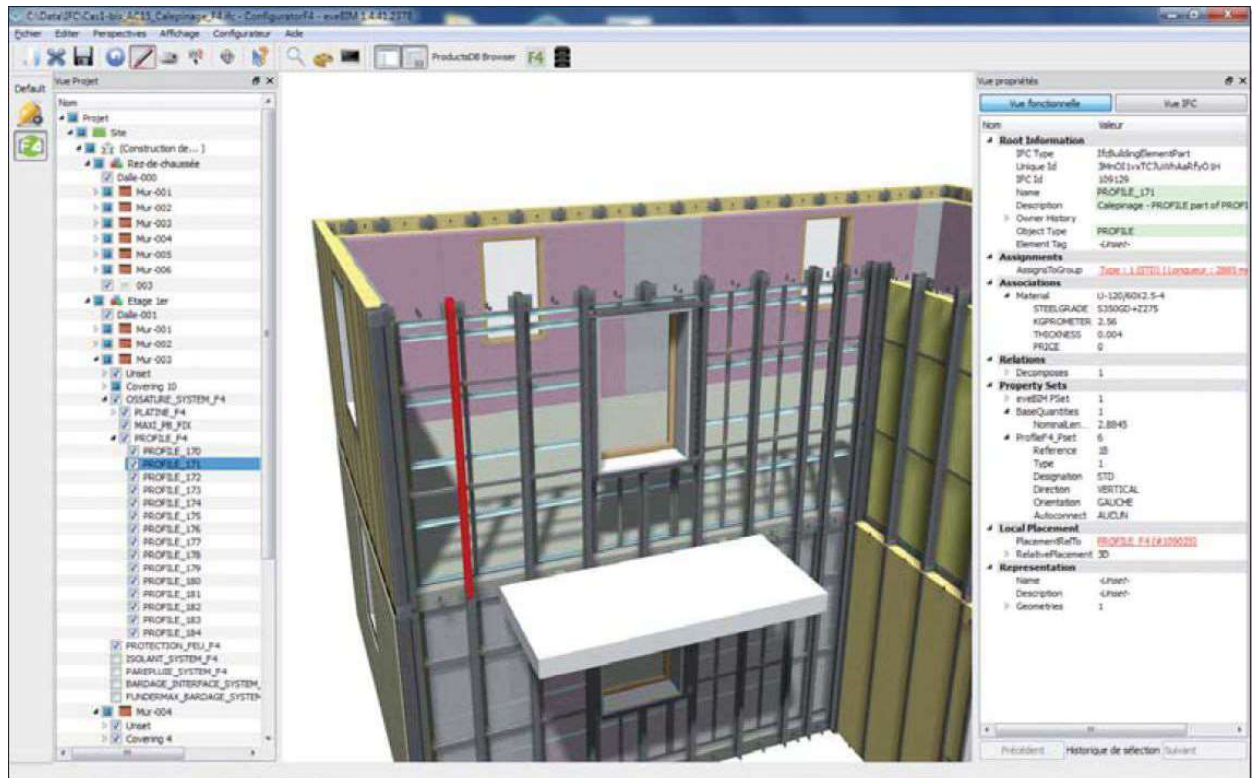
# TRAINING FOR COMPANIES

Use BIM models

In the BIM process, each stakeholder has its own interests :

3. The company :

2- Once selected : modeling for its batch ? What level of detail???



The BIM process stakeholders



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# TRAINING FOR COMPANIES

Use BIM models

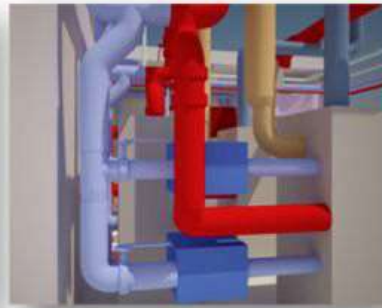
In the BIM process, each stakeholder has its own interests :

3. The company :

2- Once selected :modelling for its batch ? What level of detail???



LOD 200



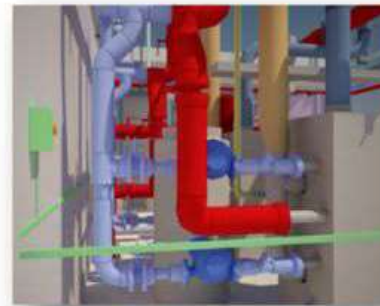
LOD 300



LOD 350



LOD 400



LOD 500

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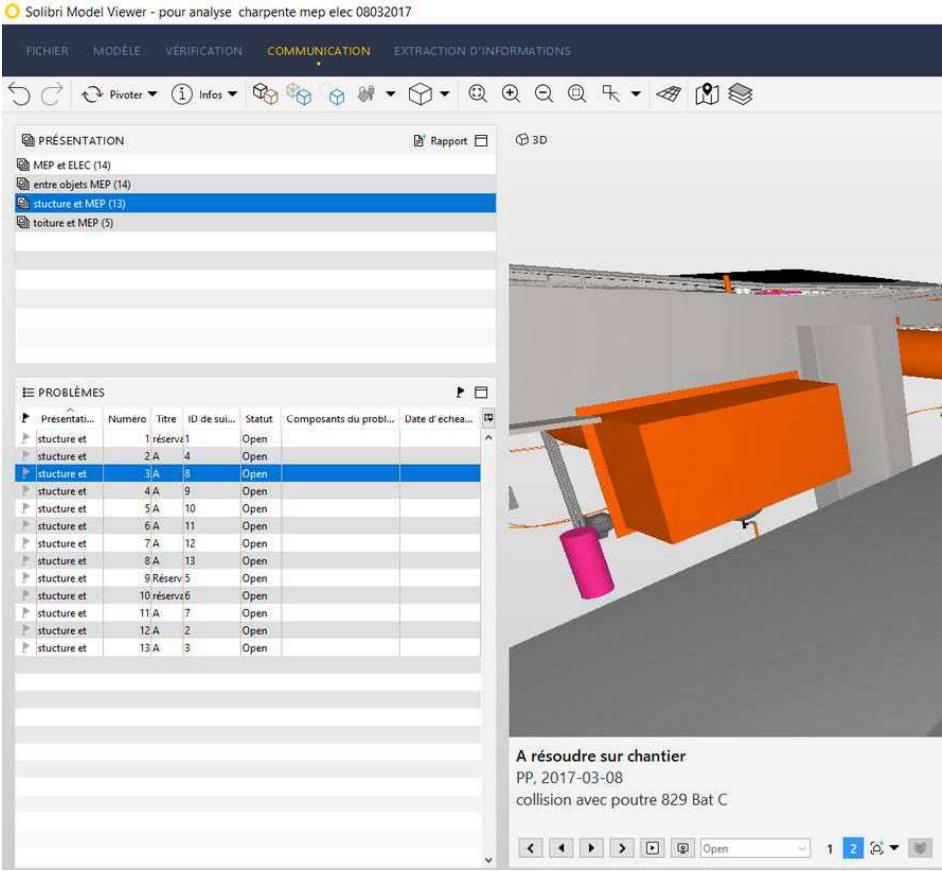
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# TRAINING FOR COMPANIES

Use BIM models

In the BIM process, each stakeholder has its own interests :

- 3. The company :
- 3- during execution : use of the models to manage interoperability/to communicate



The building companies



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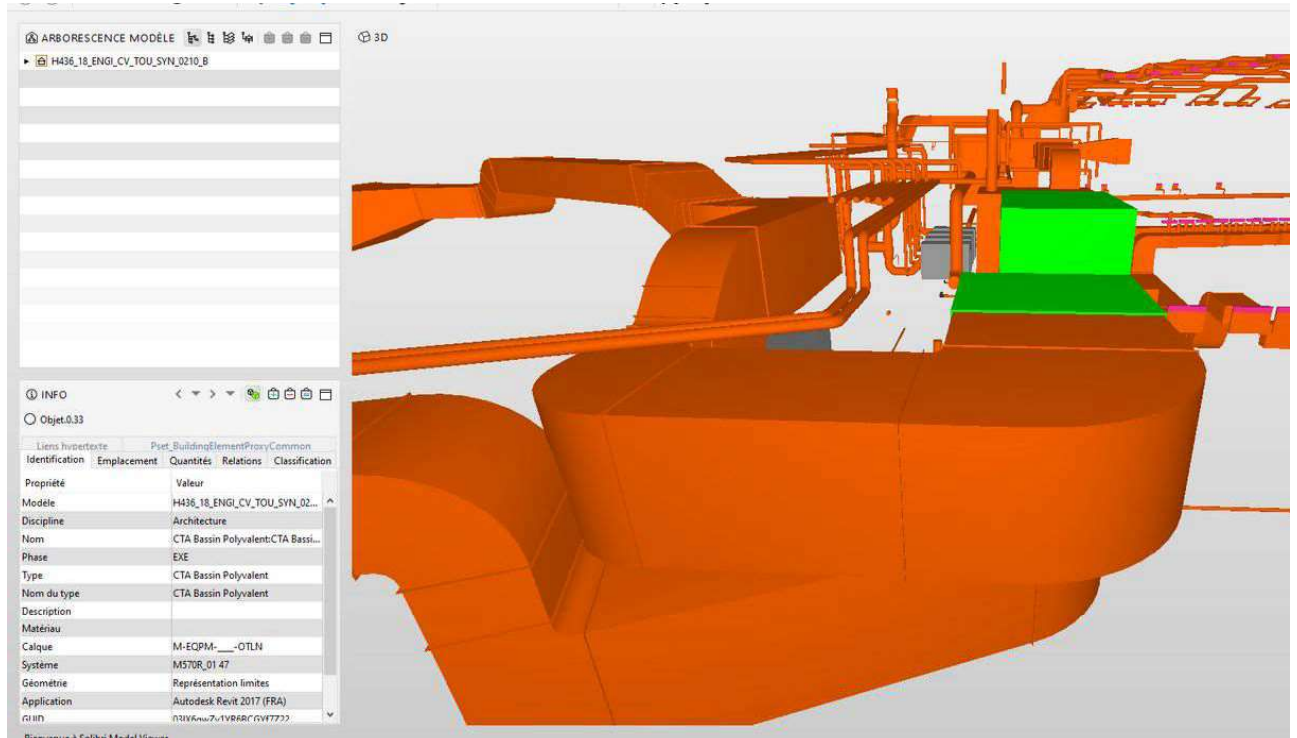
# TRAINING FOR COMPANIES

Use BIM models

In the BIM process, each stakeholder has its own interests :

3. The company :

3- During the realisation of the project : what uses of BIM models on the construction site?



The building companies



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# TRAINING FOR COMPANIES

Use BIM models

In the BIM process, each stakeholder has its own interests :

3. The company :

3- During the realisation of the project : **Communicate with BIM Models**

The BIM process stakeholders



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# TRAINING FOR COMPANIES

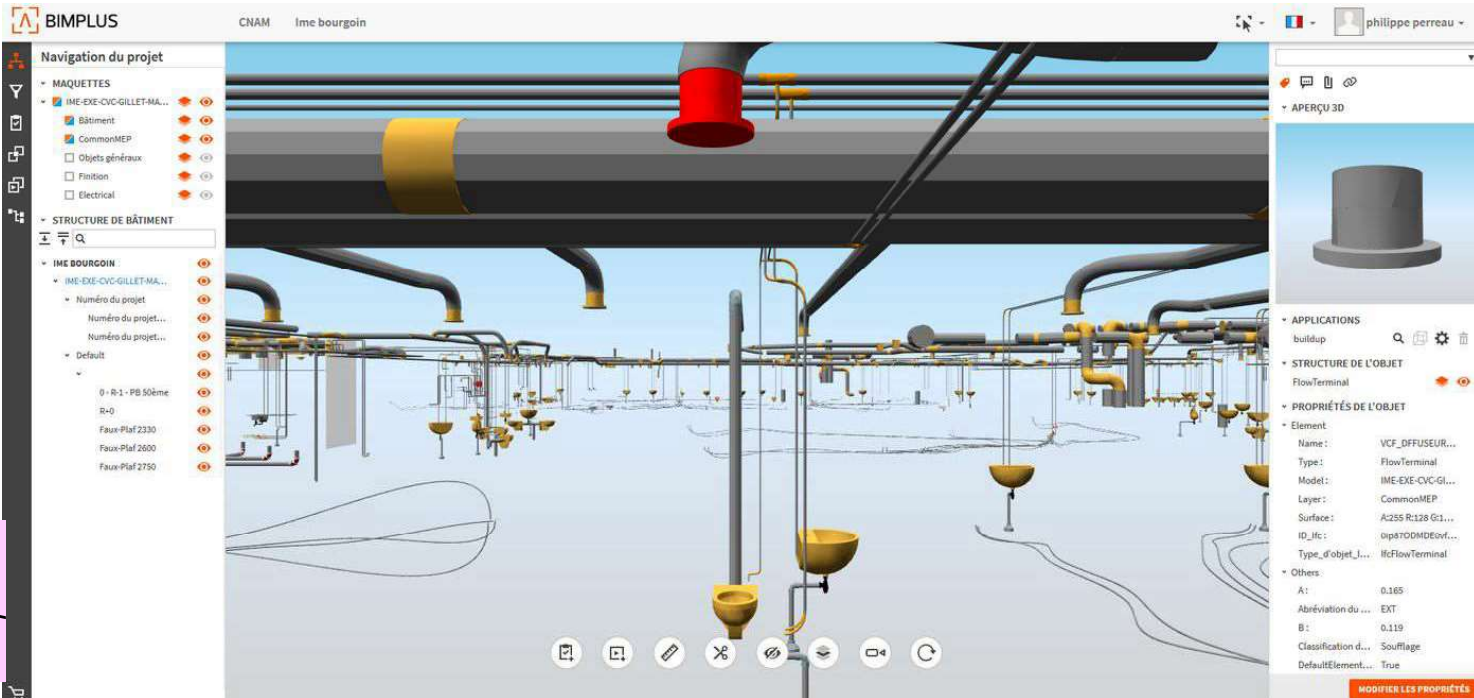
Use BIM models

In the BIM process, each stakeholder has its own interests :

3. The company :

3- During the realisation of the project : **Using a collaborative platform for the construction site**

The building companies



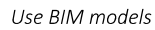
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*Use BIM models*

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*Use BIM models*



*Use BIM models*



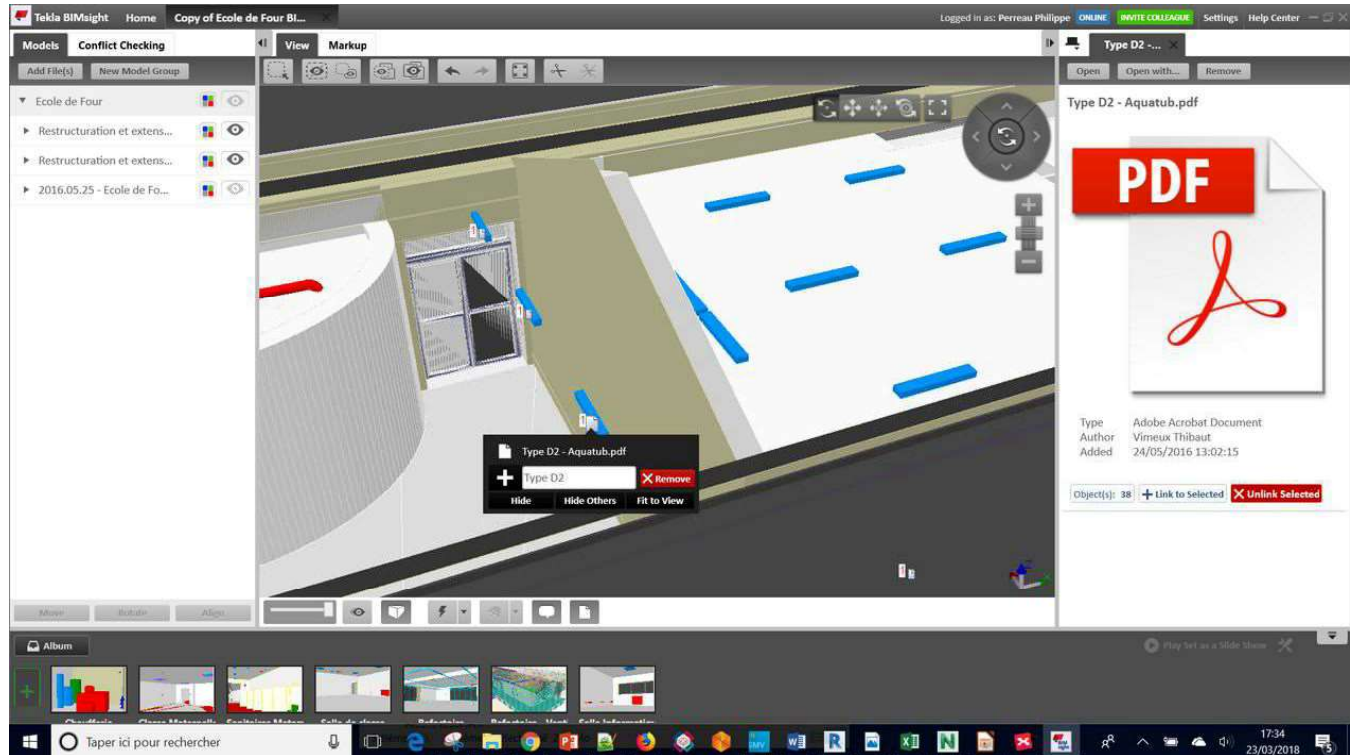
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Use BIM models

In the BIM process, each stakeholder has its own interests :

3. The company :

4-For the as-built model : internal skills to manage a model-related as-built file



The building companies



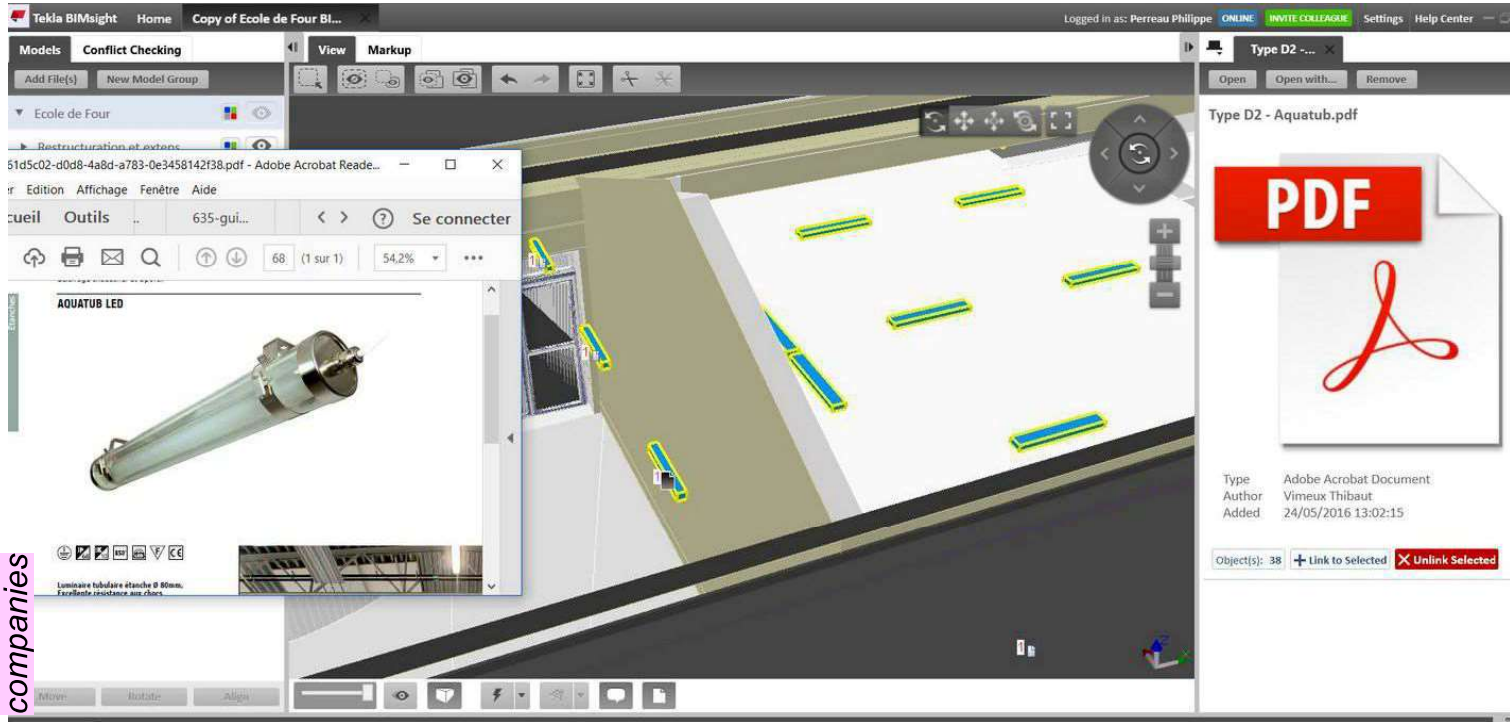
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The building companies



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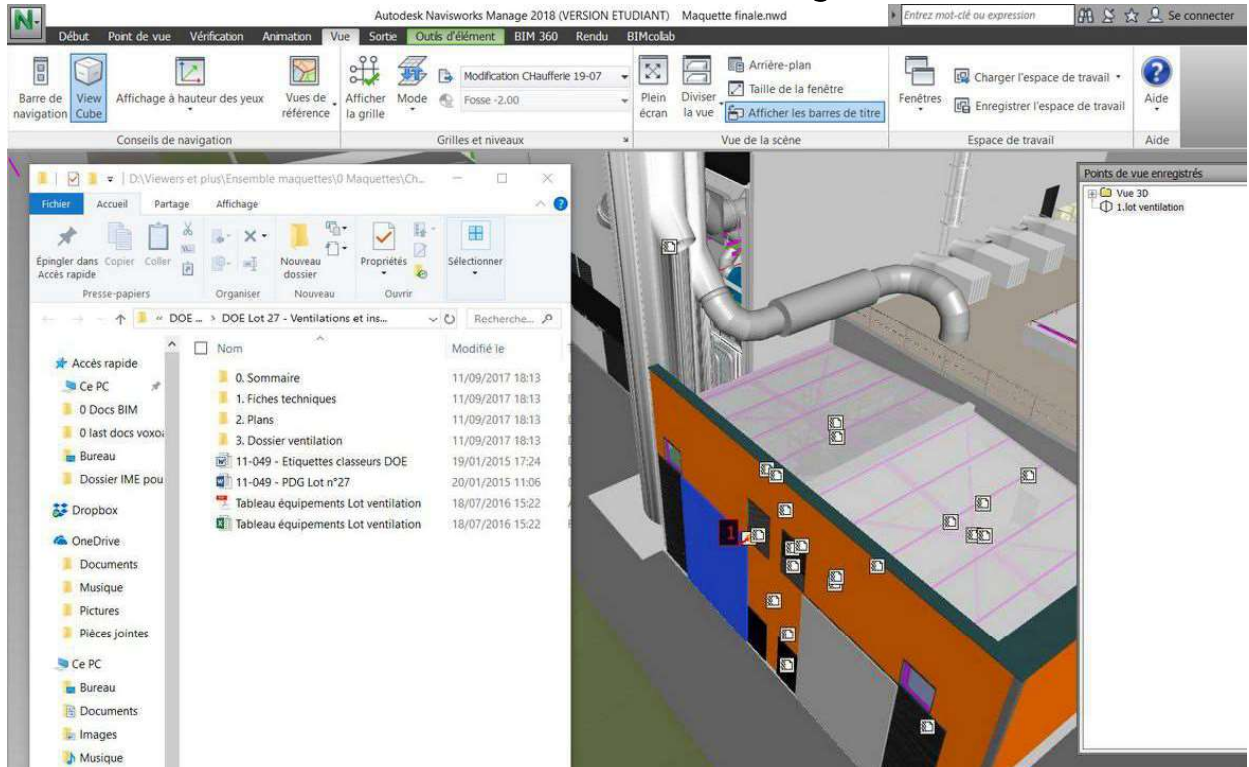
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In the BIM process, each stakeholder has its own interests :

3. The company :

4-For the as-built model : internal skills to manage a model-related as-built file



The building companies



BIMplement

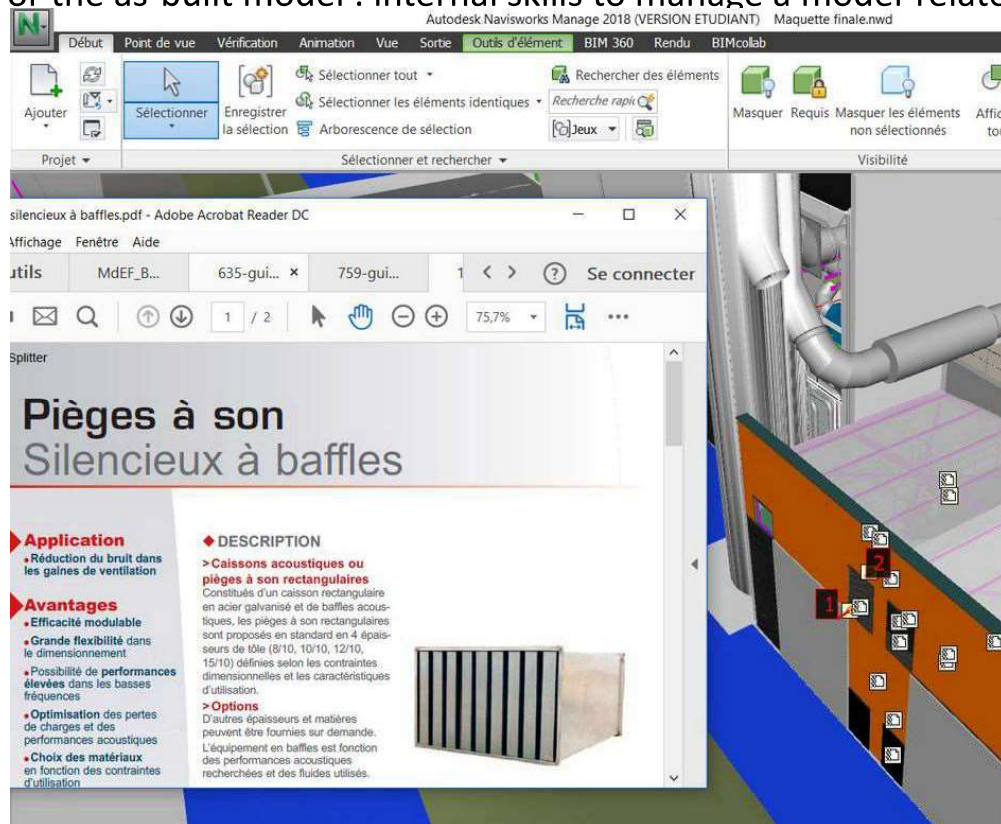
# TRAINING FOR COMPANIES

Use BIM models

In the BIM process, each stakeholder has its own interests :

3. The company :

4-For the as-built model : internal skills to manage a model-related as-built file



The building companies



BIMplement

In the BIM process, each stakeholder has its own interests :

Illustration en anglais ??

- 3. The company :
- 4-For the as-built model : internal skills to manage a model-related as-built file

For each model, designed by a company, it must be checked whether the data for the objects for which one is responsible have been entered in accordance with the object table:

DONNEE ALPHA NUMERIQUE									
Dimensions	Matériaux par couche	Données structurelles	Coefficients thermiques	Coefficients acoustiques	Coûts (U)	Résistance Feu	Etanchéité	Phase de création	
Dimensions	Matériaux par couche	Données structurelle	Coefficients acoustique	Coûts (U)	Phase de création				
Dimensions	Matériaux	Coûts (par unité)	Fabricant	Phase de création					
Dimensions	Matériaux par couche	Données structurelles	Coûts (U)	Résistance feu	Phase de création				
Dimensions	Matériaux par couche	Données structurelles	Coefficients thermiques	Coûts (U)	Résistance Feu	Phase de création			
Dimensions	Matériaux par couche	Données structurelles	Coefficients thermiques	Coefficients acoustique	Coûts (U)	Résistance Feu	Etanchéité	Phase de création	
Electricité hors VDI	Electricité VDI	CFARéseaux VDI	PLBMurs	Mobilier	Divers (étanchéité, éléments de sécurité)				
Dimensions	Matériaux	Données	Coefficients thermiques	Coefficients acoustiques	Coûts (U)	Résistance Feu	Fabricant	Phase de pose	
Dimensions	Matériaux par couche	Coefficients thermiques	Coûts (U)	Résistance Feu	Etanchéité	Fabricant	Phase de pose		
Dimensions	Matériaux par couche	Données structurelle	Coefficients thermiques	Coefficients acoustiques	Coûts (U)	Résistance Feu	Etanchéité	Phase de création	
Dimensions	Matériaux	Capacité/débit énergétique	Coefficients thermiques	Coefficients Acoustique	Coûts (U)	Fabricant	Phase de création		
Dimensions	Matériaux	Capacité/débit énergétique	Coefficients thermiques	Coefficients acoustiques	Coûts (U)	Fabricant	Phase de création		
Dimensions	Matériaux	Coûts (U)	Emission (en lumen)	Consommation	Fabricant				
Dimensions	Matériaux	Capacité/débit énergétique	Coefficients thermiques	Coefficients acoustiques	Coûts (U)	Fabricant	Phase de création		
Dimensions	Matériaux	Capacité/débit énergétique	Coefficients thermiques	Coefficients acoustiques	Coûts (U)	Fabricant	Phase de création		
Dimensions	Matériaux	Coûts (U)	Fabricant	Phase de création					
Dimensions									

The building companies



# TRAINING FOR COMPANIES

Use BIM models

In the BIM process, each stakeholder has its own interests :

Illustration en anglais ??

Liste des attributs					
Designation de l'équipement :			Niveau de modélisation LOD :		
Photo/Illustration	Catégorie de l'équipement :		Codification Uniformat II :		
	Description :		Documents à associer à l'équipement :		
Catégorie de l'attribut (Type d'information)	Attribut requis (Description)	Unité (M, Pa, L/Min)	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 réseaux				
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/finition				
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				

For the as-built model

The building companies



BIM

## What BIM strategy for the building companies ?



**BIMplement**



**In order to best implement a BIM process, building companies have to consider they draft their own BIM BEP/protocol, that answers their needs**

- **whether they have to design their own trade BIM model**
- **or if they have just to use the project manager's models :**

**To that end, they need to ask themselves the following questions :**

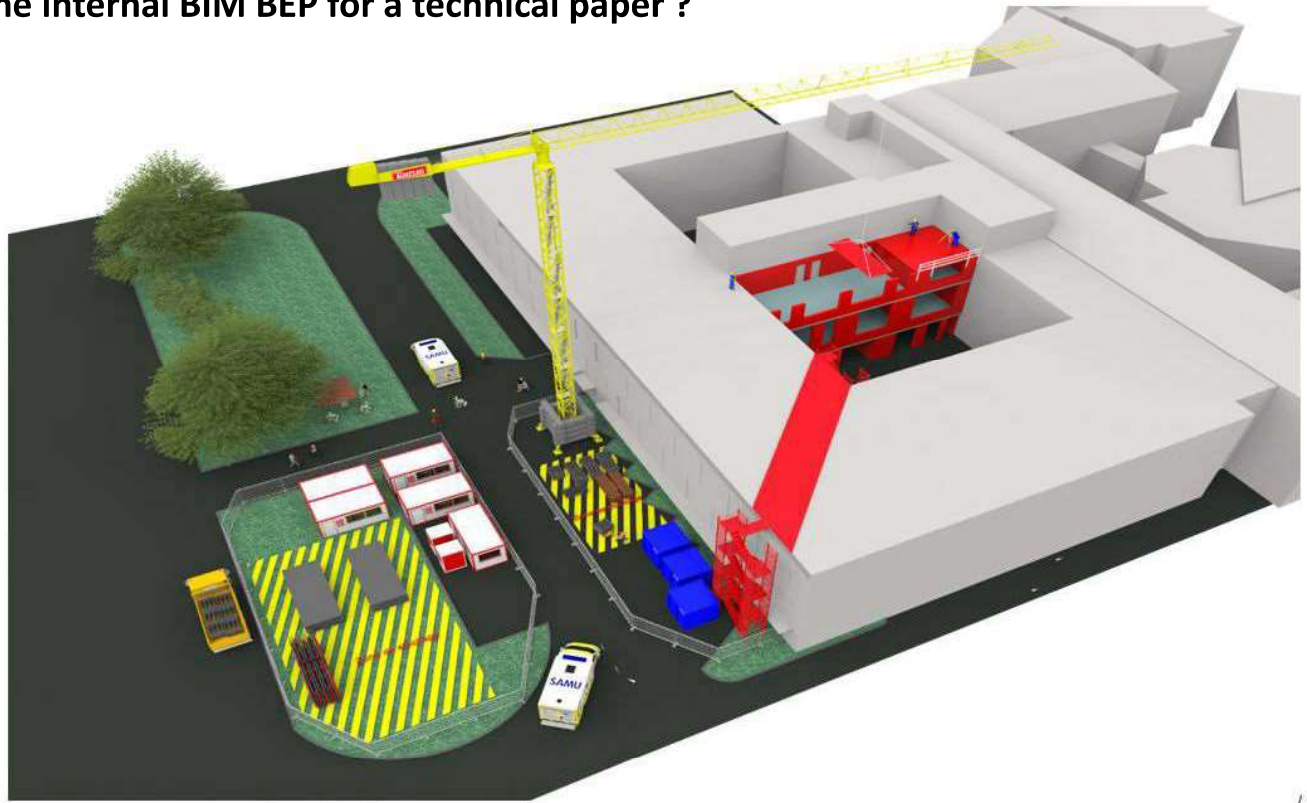
- What contents for a company's BIM BEP
- Can it be used for the technical brief ??
- What are my requirements when I receive the project management model (s) ?  
(analysis of the model)
- What complementary elements to better benefit from a BIM process?
- How do I demonstrate my use of my internal BIM process with other players  
example: methodology for digital as-built files
- My use of BIM on the construction site

### Consider drafting the company's BIM BEP

*In order to help building companies to imagine their own BIM BEP, the trainer has to prepare a document with the questions propose in the former slide. Each participant has to answer these questions, And then, the trainer organise exchanges with them.*

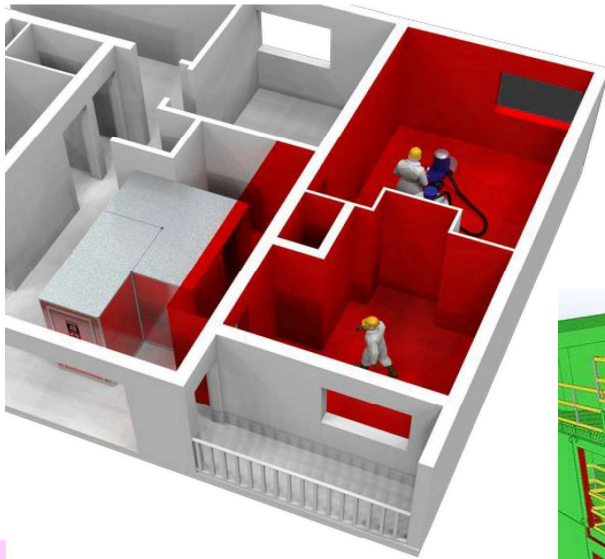
*The filled up documents are a working base for the trainer.*

Use the internal BIM BEP for a technical paper ?

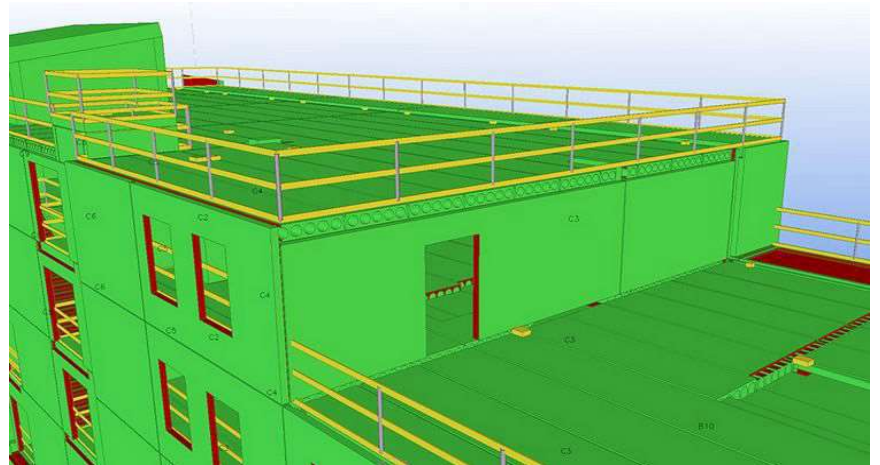




Use the internal BIM BEP for a technical brief ?



← fire safety



Site sécurité →

What are my requirements when I receive the project management models?  
→ analysis of the model

*Use the answers of the questionnaire*

*The comments attached to this slide show some basic answers from  
“BuildingSmart Basic Information Delivery Manual”*

**What complementary elements to better benefit from a BIM process?**

*Use the answers of the questionnaire and exchanges to identify what are the needs of participants*

### My use of BIM on the construction site

*Use the answers of the questionnaire and exchanges to identify what are the needs of participants*

Use BIM models

My use of BIM on the construction site  
→ Add documents related to the models for the construction site

The building companies



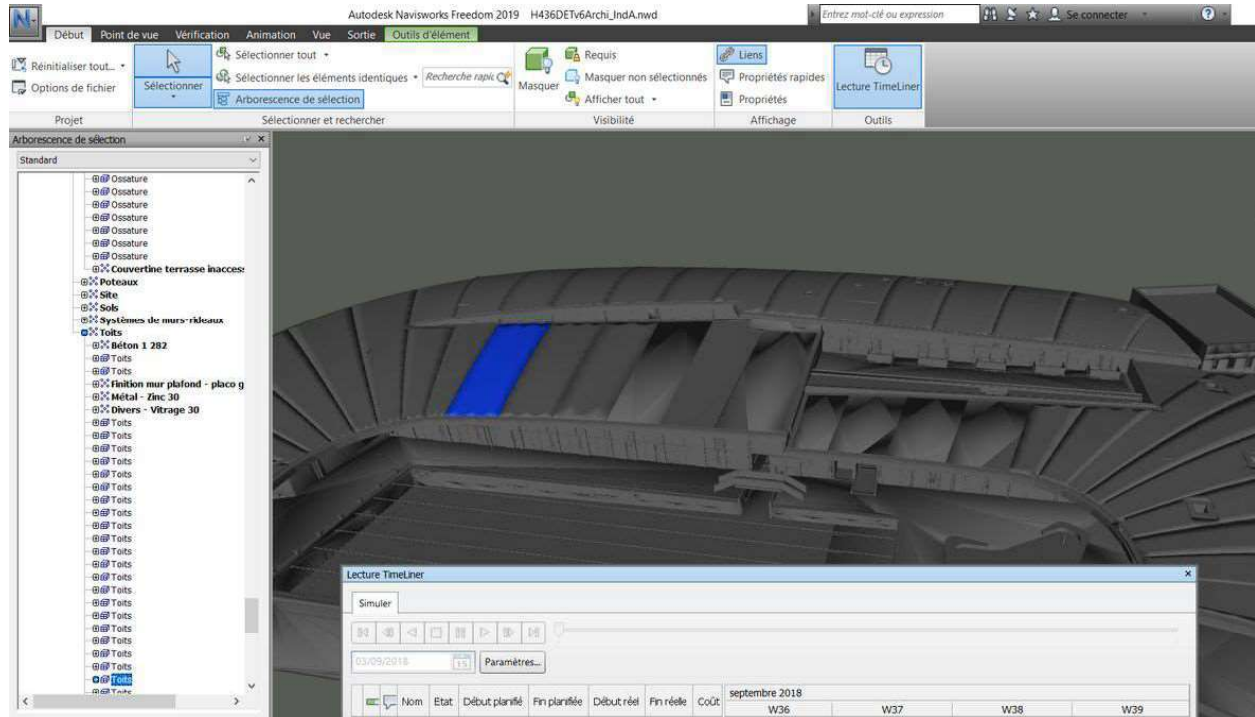
My use of BIM on the construction site

→ Prepare specific models for the construction site



### My use of BIM on the construction site

→ Use a 4D planning for the organisation of the site

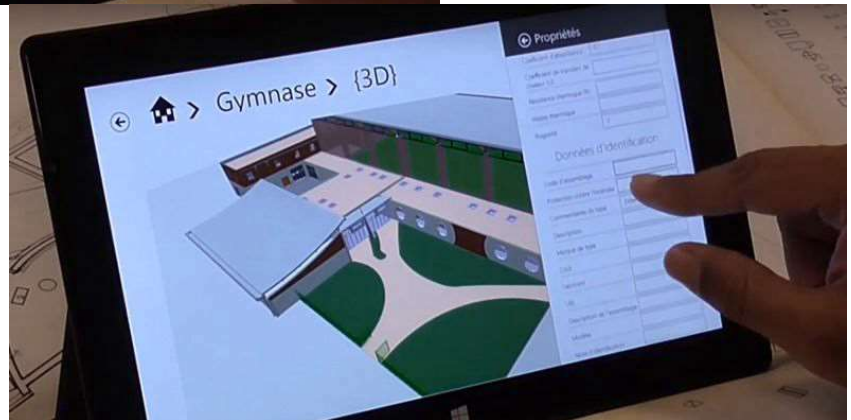
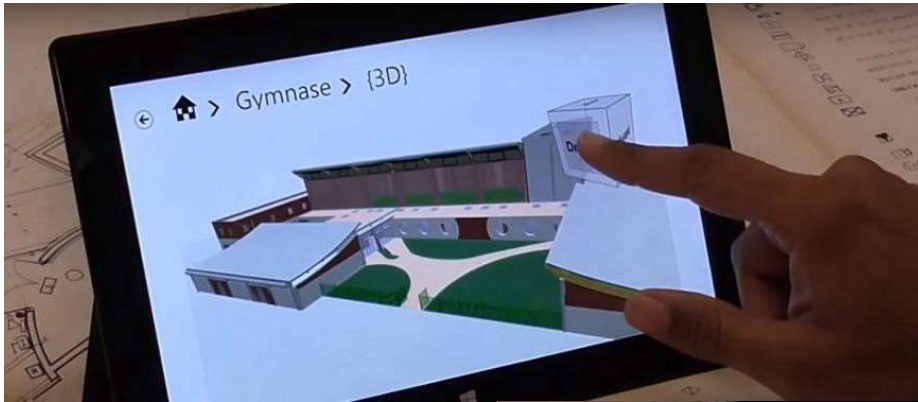


The building companies



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**My use of BIM on the construction site**  
**→ implement the use of tablets on the building site**





Use BIM models

My use of BIM on the construction site  
→ construction site layout from a BIM model



The building  
companies

My use of BIM on the construction site

→ install a construction shack to facilitate the use BIM models on site



# COLOFON

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