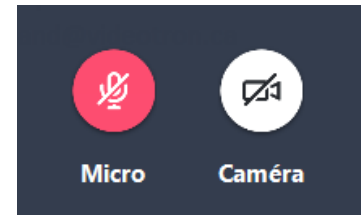


Modalités de la visio-conférence

Début des conférences à 12h

- Merci d'inscrire vos **noms et prénoms** en tant que participant afin de valider que vous êtes bien inscrit
- Merci de garder vos **micros en mute** et vos **caméras éteintes** tout le long de la conférence
- Si vous avez des **questions à poser aux conférenciers**, veuillez les inscrire dans l'espace réservé aux conversations, en cliquant sur
- En cas de problèmes, veuillez envoyer un mail à info@bimquebec.org



Transformation numérique et **compétitivité** des entreprises



Rencontre du
9 décembre 2020

Inscrivez-vous
pour la saison 2021

building Smart Canada Affilié



Programme de la conférence

12h10 – 12h40

Automatiser l'interopérabilité en OpenBIM (Luxembourg)

- Charlie Boon-Bellinaso, Chargé de mission stratégie nationale et normalisation du BIM au Luxembourg, CRTI-B

12h45 – 13h15

API BIM 360 : nouveautés et feuille de route.

- Cyrille Fauvel, Forge Partner Development, Worldwide Sr. Manager, Autodesk

PARTENAIRES
OR



PARTENAIRES
RÉGULIERS





Partenaires académiques
Encourageons la relève vers la transition numérique

*Société québécoise
des infrastructures*

Québec



Partenaire public



POUR UN
ENVIRONNEMENT
BÂTI NUMÉRIQUE
AU QUÉBEC

Nouvelles du Groupe BIM du Québec

Il reste encore
quelques places!

Constructionnumerique.ca

**J'ACCÉLÈRE
MON VIRAGE
NUMÉRIQUE!**

Inscris ton
entreprise:
constructionnumerique.ca

I Q C
4.0 INITIATIVE
QUÉBÉCOISE POUR
LA CONSTRUCTION 4.0

BIM
Québec

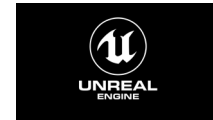
Institut
de gouvernance
numérique

Avec le soutien de :
Québec

PARTENAIRE
PUBLIC



PARTENAIRES
OR



PARTENAIRES
ACADÉMIQUES



PARTENAIRES
RÉGULIERS



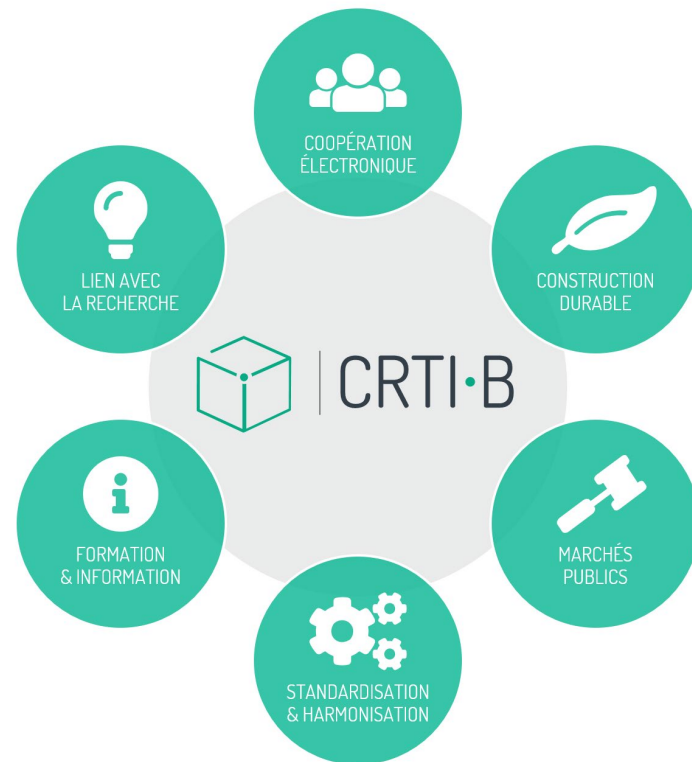
Automatiser l'interopérabilité en OpenBIM (Luxembourg)

Charlie Boon-Bellinaso

Chargé de mission stratégie nationale et
normalisation du BIM au Luxembourg,
CRTI-B

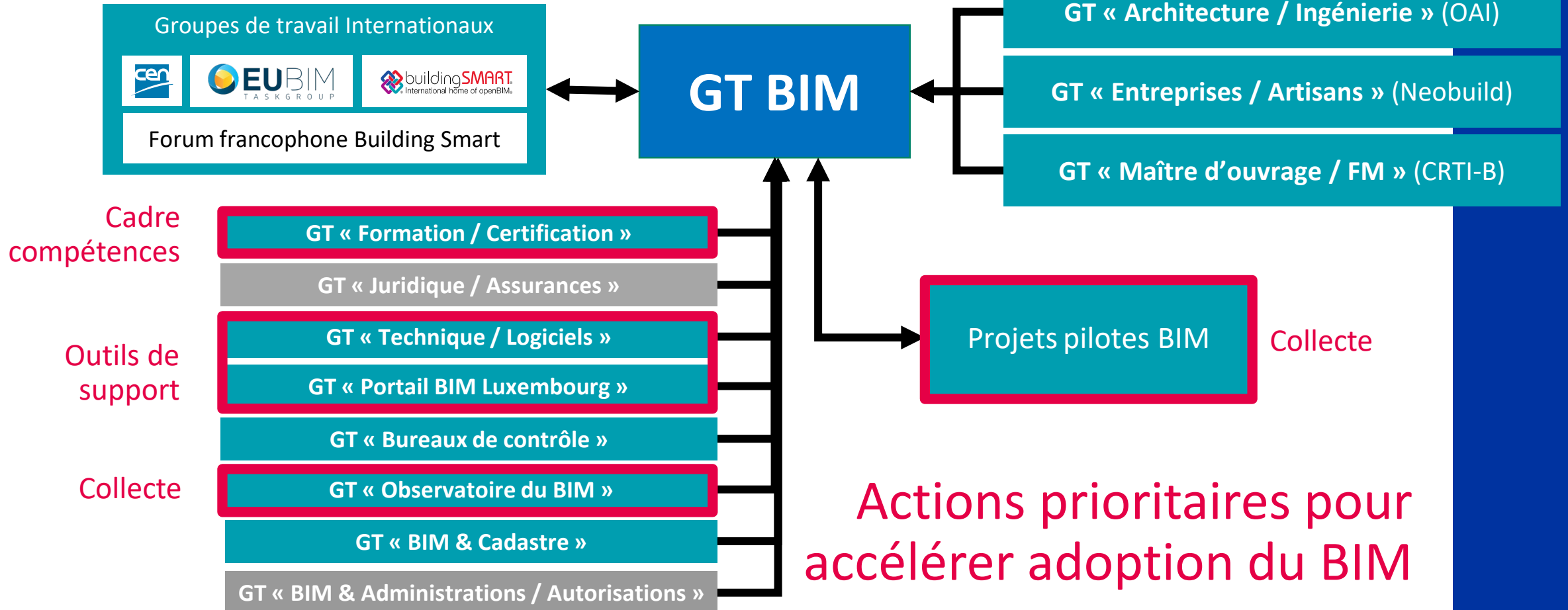
Présentation du CRTI-B

Plateforme du secteur construction au Luxembourg



Présentation du CRTI-B

Travail collaboratif BIM du secteur construction



Actions CRTI-B pour accélérer l'adoption du BIM

Travail collaboratif BIM du secteur construction

Collecte

→ Observation des freins à l'adoption du BIM

Cadre
compétences

→ Formation et certifications

Outils de
support

→ Ajustement en fonction des observations

Actions prioritaires pour
accélérer adoption du BIM

Actions CRTI-B pour accélérer l'adoption du BIM

Observation des freins à l'adoption du BIM

Collecte



1. A priori négatif sur le BIM → séance information, BIMLUX, MOA 11/2020
 2. Investissement logiciel/matériel → nouvelle aide gouvernementale au 30/06/2020
 3. Investissement formation → cycle formation certifiant CRTI-B tarif compétitif
 4. Investissement (temps et €) configuration et bibliothèques
 5. Problèmes et difficulté interopérabilité, en OpenBIM
- fichiers configurations / bibliothèque objets génériques / guides interopérabilité et bonne pratique modélisation

Actions CRTI-B pour accélérer l'adoption du BIM

Formations et certifications

Cadre
compétences

GT « Formation / Certification »

1. Cycle formation complet BIM FR/DE trans-sectoriel
2. Tarif compétitif des formations
3. Offre BIM centralisée pour le pays avec certification + équivalence

		BIM Bases (1j)	Outil modélisation (3+2j) Prise en main / Echanges & méthodes BIM	BIM Modeleur (2j)	BIM Référent (2j)	BIM Coordinateur (4j)	Outils pour BIM Manager
Entreprise de construction qui modélise							
Dirigeant / chef de projet qui ne modélise pas	3j						
Chef de projet modeleur/ BIM coordinateur	14j Minimum 1 par société						
Architecte / ingénieur / technicien qui ne modélise pas	3j						
Architecte / ingénieur / technicien qui modélise	8j novice 5j si maîtrise outil 3D						
Mètreur / deviseur	3j + outil extraction quantités						
Ingénieur méthode / planificateur	10j + outil 4D/5D						
Conducteur de chantier	3j						
Chef d'équipe chantier	1j + utilisation plateforme						

Actions CRTI-B pour accélérer l'adoption du BIM

Solutions proposées sur base des observations

GT « Technique / Logiciels »

1. Fichiers de configuration par phase, par métier et par logiciel
2. Ajout éventuel de cas d'usages supplémentaires
3. Mise à disposition base de données pour BIM Manager

GT « Portail BIM Luxembourg »

1. Principes interopérabilité
2. Fiches GID
3. Règles de modélisation
4. Gestion du data
5. Echanges IFC
6. Ressources autres
7. Recherches par propriété/catégorie objet/logiciel...
8. Fil de discussion pour chaque bloc du portail

↑ Lien entre objet maquette et guide ↑

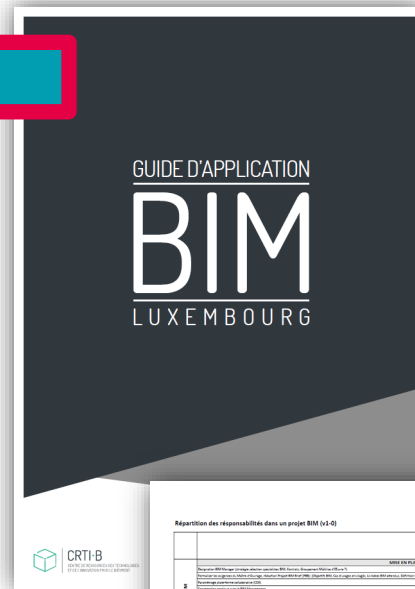
Actions CRTI-B pour accélérer l'adoption du BIM

Solutions proposées sur base des observations

GT « Technique / Logiciels »

Documents référentiels existants

digital
building.lu



Fiche GID 62010 - Murs extérieurs

Classification uniformisée

Code	Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
62010	Murs extérieurs																				

Objets IFC associés:

Niveau GID:

Éléments à identifier	Niveau des données									
	GID	2D	3D	4D	5D	6D	7D	8D	9D	10D
Identification globale des éléments	X	X	X	X	X	X	X	X	X	X
Identification des données	X	X	X	X	X	X	X	X	X	X
Identification des liens	X	X	X	X	X	X	X	X	X	X
Identification des caractéristiques	X	X	X	X	X	X	X	X	X	X
Identification des associations	X	X	X	X	X	X	X	X	X	X
Méthodes	X	X	X	X	X	X	X	X	X	X
Modifications	X	X	X	X	X	X	X	X	X	X
Modifications globales	X	X	X	X	X	X	X	X	X	X
Modifications de structure	X	X	X	X	X	X	X	X	X	X
Modifications de propriétés	X	X	X	X	X	X	X	X	X	X
Modifications de données	X	X	X	X	X	X	X	X	X	X
Modifications de relations	X	X	X	X	X	X	X	X	X	X
Modifications de paramètres	X	X	X	X	X	X	X	X	X	X
Modifications de données	X	X	X	X	X	X	X	X	X	X
Modifications de relations	X	X	X	X	X	X	X	X	X	X
Modifications de paramètres	X	X	X	X	X	X	X	X	X	X

Répartition des responsabilités dans un projet BIM (v1.0)

Niveau de maturité	Description	Niveau des données									
		GID	2D	3D	4D	5D	6D	7D	8D	9D	10D
PROJET EN COURS	Identification globale des éléments	X	X	X	X	X	X	X	X	X	
	Identification des données	X	X	X	X	X	X	X	X	X	
	Identification des liens	X	X	X	X	X	X	X	X	X	
	Identification des caractéristiques	X	X	X	X	X	X	X	X	X	
	Identification des associations	X	X	X	X	X	X	X	X	X	
	Méthodes	X	X	X	X	X	X	X	X	X	
	Modifications	X	X	X	X	X	X	X	X	X	
	Modifications globales	X	X	X	X	X	X	X	X	X	
	Modifications de structure	X	X	X	X	X	X	X	X	X	
	Modifications de propriétés	X	X	X	X	X	X	X	X	X	
PROJET EN CONCEPTION	Identification globale des éléments	X	X	X	X	X	X	X	X	X	
	Identification des données	X	X	X	X	X	X	X	X	X	
	Identification des liens	X	X	X	X	X	X	X	X	X	
	Identification des caractéristiques	X	X	X	X	X	X	X	X	X	
	Identification des associations	X	X	X	X	X	X	X	X	X	
	Méthodes	X	X	X	X	X	X	X	X	X	
	Modifications	X	X	X	X	X	X	X	X	X	
	Modifications globales	X	X	X	X	X	X	X	X	X	
	Modifications de structure	X	X	X	X	X	X	X	X	X	
	Modifications de propriétés	X	X	X	X	X	X	X	X	X	



Actions CRTI-B pour accélérer l'adoption du BIM

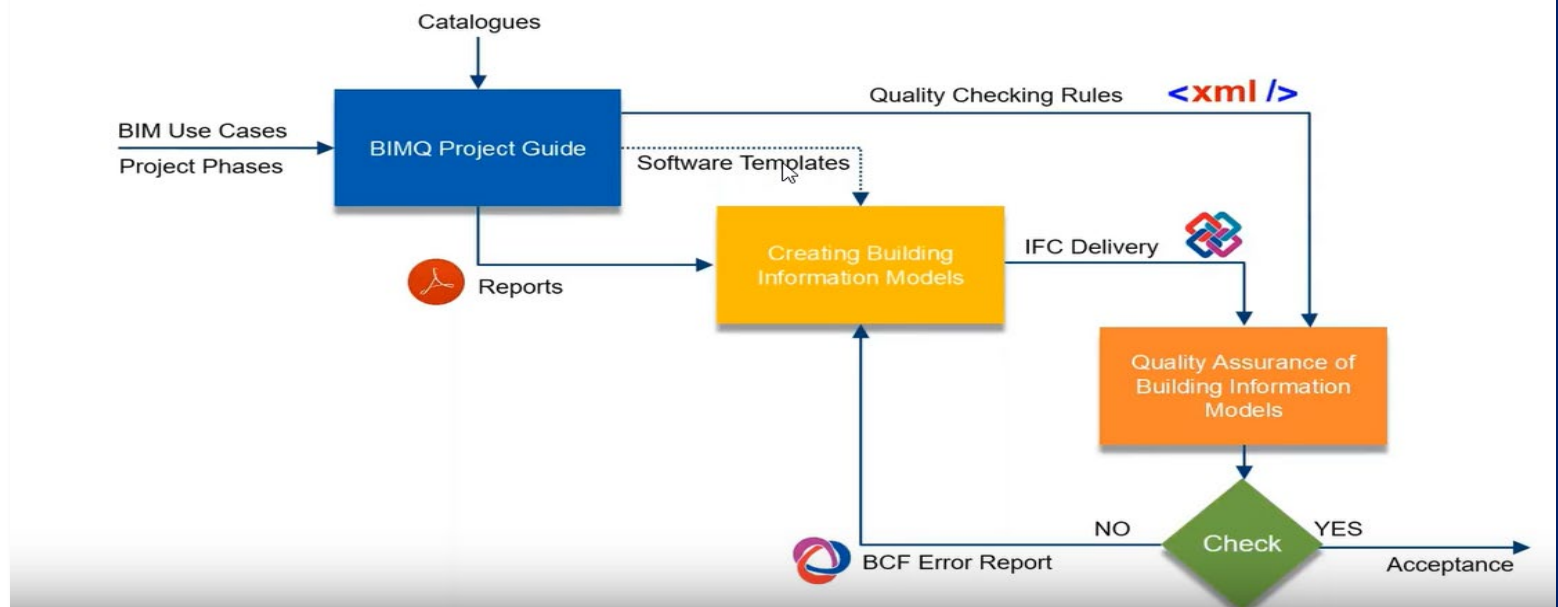
Solutions proposées sur base des observations

GT « Technique / Logiciels »

Principe fonctionnement plateforme BIMQ utilisée pour générer les fichiers

1. Rapports et fiche EIR
2. Template de variables
3. Template mapping IFC
4. Template check IFC

BIMQ Workflow



Actions CRTI-B pour accélérer l'adoption du BIM

Solutions proposées sur base des observations

GT « Technique / Logiciels »

Principe fonctionnement plateforme BIMQ utilisée pour générer les fichiers

Objets

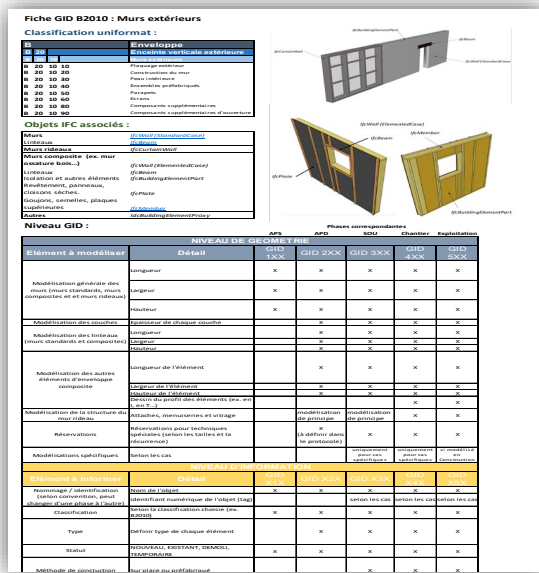
Discipline Model	Mapping logiciel			Mapping IFC	maquette	exigences				
	Allplan	ArchiCAD 23	Revit	IFC 4 Add2	Owner	P01	P02	P03	P04	P05
Architectural Model					Architect					
Structural Model					Structural Engineer					
Fondation										
General properties										
Nom objet	Name	fiche GID	Structural Foundations	IfcFooting		x	x	x	x	x
Identifiant numérique	Ifc ID	-	IfcName	-		x	x	x	x	x
Classe.type IFC	-	-	-	IfcIdentifier		-	-	x	x	x
Common properties										
Statut de rénovation	Status	fiche GID	Common properties	Pset_FootingCommon		x	x	x	x	x
Matériau	-	Statut de rénovation	Phase Created	#.Status		x	x	x	x	x
Méthode de construction	ConstructionMethod	-	Material	IfcMaterialLayer/Material		-	x	x	x	x
Préfabriqué	Préfabriqué	Méthode de construction	Methode de construction	Pset_ConcreteElementGeneral.ConstructionMethod		-	-	x	x	x
Sur place	Sur place	Préfabriqué	Prefabrique	-						
Ferrailage	ReinforcementVolumeRatio	Sur place	Sur place	Pset_ConcreteElementGeneral.ReinforcementVolumeRatio		-	-	x	x	x
Element Porteur	-	Ferrailage	Ferrailage	#.LoadBearing		x	x	x	x	x
Interieur/exterieur revit	-	-	Structural Usage	#.IsExternal		x	x	x	x	x
Classification										
Dalle	Slab	Classification	Data	IfcSlab		x	x	x	x	x
General properties										
Nom objet	-	fiche GID	General properties	-		x	x	x	x	x
Identifiant numérique	-	-	IfcName	-		x	x	x	x	x
Classe.type IFC	-	-	-	-		x	x	x	x	x
Statut de rénovation	Status	fiche GID	Common properties	Pset_SlabCommon		x	x	x	x	x
Matériau	-	Statut de rénovation	Phase Created	#.Status		x	x	x	x	x
Méthode de construction	ConstructionMethod	-	Material	IfcMaterialLayer/Material		-	x	x	x	x
Préfabriqué	Préfabriqué	Méthode de construction	Methode de construction	Pset_ConcreteElementGeneral.ConstructionMethod		-	-	x	x	x
Sur place	Sur place	Préfabriqué	Prefabrique	-						
Ferrailage	ReinforcementVolumeRatio	Sur place	Sur place	Pset_ConcreteElementGeneral.ReinforcementVolumeRatio		-	-	x	x	x
Element Porteur	-	Ferrailage	Ferrailage	#.LoadBearing		x	x	x	x	x
Interieur/exterieur revit	-	-	Structural Usage	#.IsExternal		x	x	x	x	x
Mur	Wall	Classification	Data	IfcWall		x	x	x	x	x
HVAC Model					MEP Engineer					
Electricity Model					-					
Plumbing Model					-					

Actions CRTI-B pour accélérer l'adoption du BIM

Solutions proposées sur base des observations

GT « Technique / Logiciels »

Fichiers de configuration + mapping IFC



Maquette archi

Maquette structure

Maquette techniques

Cas d'usages 3 à 6

APS	APD	SOU	CHA	EXP
Revit Archicad Allplan Vectorworks	Revit Archicad Allplan Vectorworks	Revit Archicad Allplan Vectorworks	Revit Archicad Allplan Vectorworks	Revit Archicad Allplan Vectorworks
Revit Archicad Allplan Vectorworks	Revit Archicad Allplan Vectorworks	Revit Archicad Allplan Vectorworks	Revit Archicad Allplan Vectorworks	Revit Archicad Allplan Vectorworks
Revit Archicad Allplan Vectorworks	Revit Archicad Allplan Vectorworks	Revit Archicad Allplan Vectorworks	Revit Archicad Allplan Vectorworks	Revit Archicad Allplan Vectorworks

Actions CRTI-B pour accélérer l'adoption du BIM

Solutions proposées sur base des observations

GT « Technique / Logiciels »

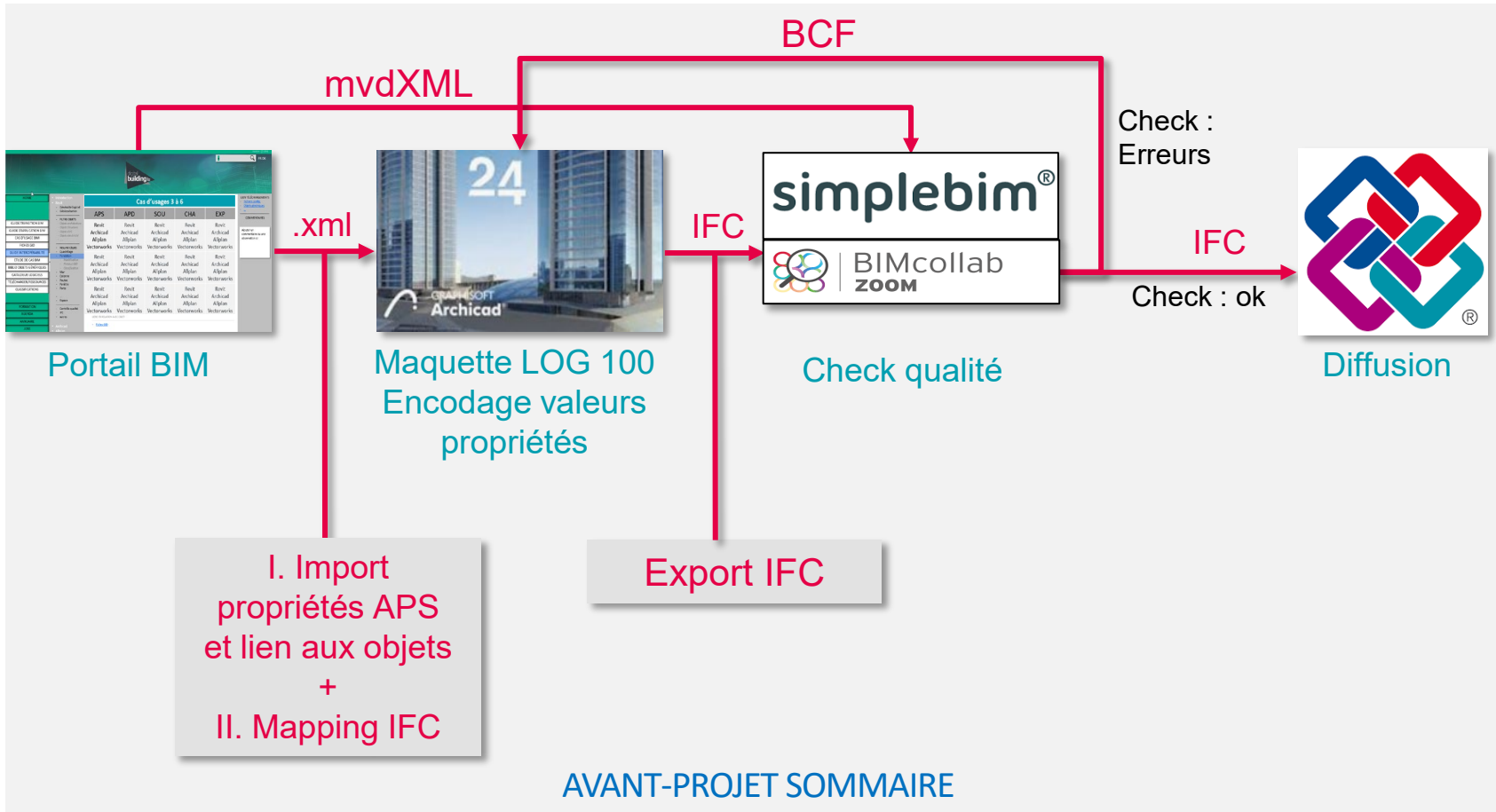
Template pour le BIM Management (sur base template CRTI-B)

1. Ajout/retrait :
 - a) Cas d'usage
 - b) Maquette
 - c) Objet
 - d) Paramètre
 - e) Exigence (coche)
2. Génération fichiers configurations requis

Discipline Model	Allplan	ArchiCAD 23	Revit	IFC 4 Add2	Owner	P01	P02	P03	P04	P05
<ul style="list-style-type: none"> ▸ Architectural Model ▸ Structural Model <ul style="list-style-type: none"> ▸ Fondation <ul style="list-style-type: none"> ▸ General properties <ul style="list-style-type: none"> Nom objet Identifiant numérique Classe.type IFC ▸ Common properties <ul style="list-style-type: none"> Statut de rénovation Matériau ▸ Méthode de construction <ul style="list-style-type: none"> Préfabriqué Sur place Ferrailage Element Porteur Interieur/exterieur revit ▸ Classification ▸ Dalle <ul style="list-style-type: none"> ▸ General properties ▸ Common properties ▸ Classification ▸ Mur ▸ HVAC Model ▸ Electricity Model ▸ Plumbing Model 	-	<i>Fondation</i>	<i>Structural Foundations</i>	<i>IfcFooting</i>	Architect Structural Engineer					
	-	fiche GID	General properties	-		x	x	x	x	x
	Name	-	IfcName	-		x	x	x	x	x
	Ifc ID	-	-	IfcIdentifier		-	-	x	x	x
	-	-	IFCExportAs	-		-	x	x	x	x
	-	fiche GID	Common properties	<i>Pset_FootingCommon</i>		x	x	x	x	x
	Status	Statut de rénovation	<i>Phase Created</i>	<i>#.Status</i>		x	x	x	x	x
	-	-	<i>Material</i>	<i>IfcMaterialLayer/Material</i>		-	x	x	x	x
	<i>ConstructionMethod</i>	Méthode de construction	Methode de construction	<i>Pset_ConcreteElementGeneral.ConstructionMethod</i>		-	-	x	x	x
	Préfabriqué	Préfabriqué	Prefabrique	-						
	Sur place	Sur place	Sur place	-						
	<i>ReinforcementVolumeRatio</i>	Ferrailage	Ferrailage	<i>Pset_ConcreteElementGeneral.ReinforcementVolumeRatio</i>		-	-	x	x	x
	-	-	<i>Structural Usage</i>	<i>#.LoadBearing</i>		x	x	x	x	x
	-	-	Function	<i>#.IsExternal</i>		x	x	x	x	x
	-	Classification	Data	-		x	x	x	x	x
	<i>Slab</i>	<i>Dalle</i>	<i>Floors</i>	<i>IfcSlab</i>		x	x	x	x	x
	-	fiche GID	General properties	-		x	x	x	x	x
	-	fiche GID	Common properties	<i>Pset_SlabCommon</i>		x	x	x	x	x
	-	Classification	Data	-		x	x	x	x	x
	<i>Wall</i>	<i>Mur</i>	<i>Walls</i>	<i>IfcWall</i>						
					MEP Engineer					

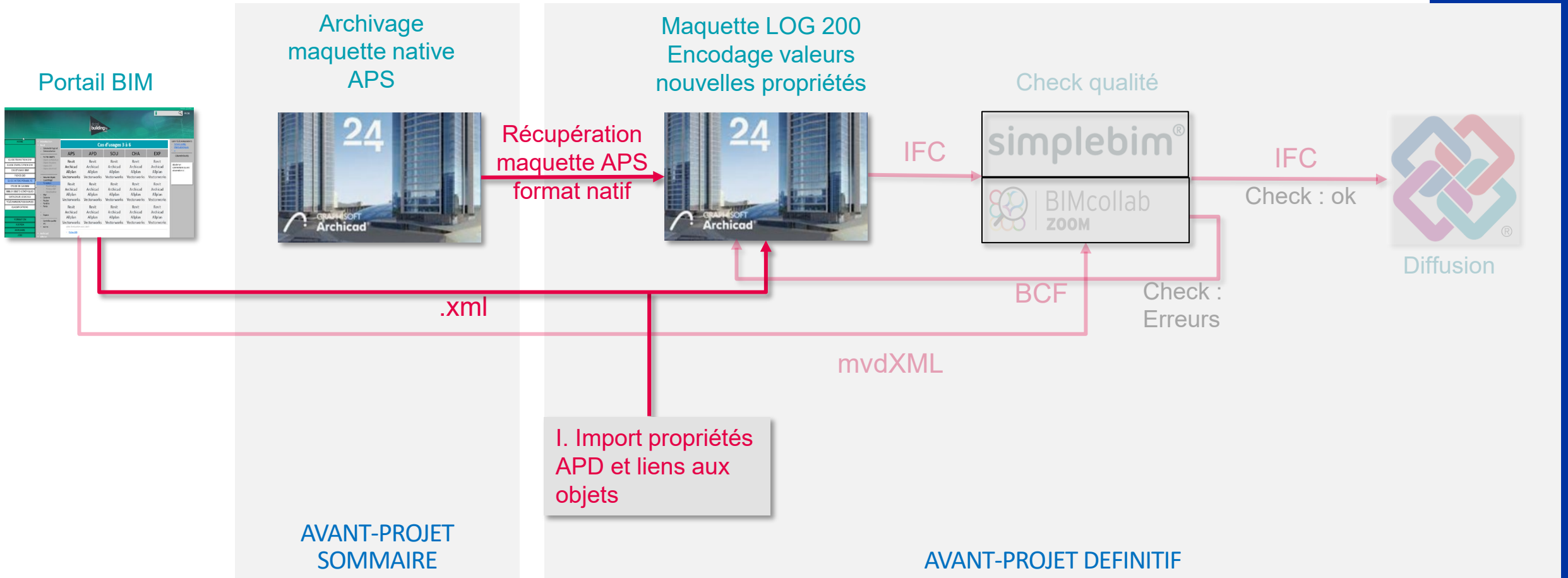
Actions CRTI-B pour accélérer l'adoption du BIM

Workflow d'utilisation des fichiers de configuration entre applications



Actions CRTI-B pour accélérer l'adoption du BIM

Workflow d'utilisation des fichiers de configuration entre applications



Actions CRTI-B pour accélérer l'adoption du BIM

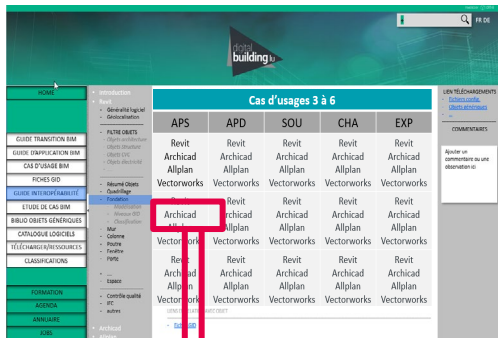
I. mapping propriétés

The diagram illustrates the process of mapping properties from an XML file to a BIM model. It consists of several key components:

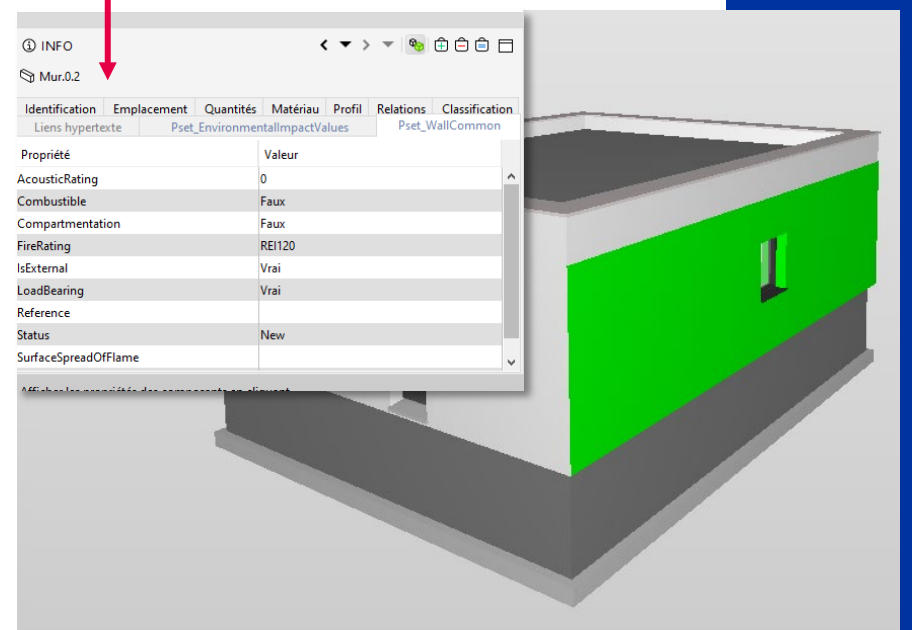
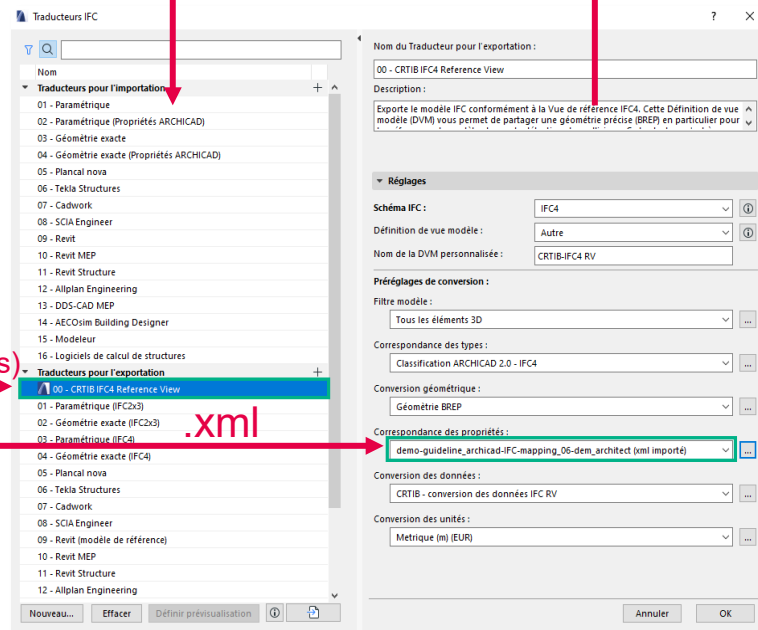
- XML File:** A screenshot of an XML file named 'Cas d'usages 3 a 6.xml' with a table of properties.
- Import Step:** A screenshot of Archicad software with the text 'Import propriétés + liens objets'.
- Property Manager:** A screenshot of the 'Gestionnaire de propriétés' dialog box. It shows a list of properties with columns for 'Nom', 'Type', and 'Défaut'. The 'Statut' property is highlighted, with a description: 'Status of the element, predominately used in renovation or retrofitting projects. The status can be assigned to as "New" - element designed as new addition, "Existing" - element exists and remains.' The 'Définition de valeur' section shows 'Uniclass - 2015 - EF_25_10 Walls' and 'Uniclass - 2015 - EF_30_20 Floors'.
- 3D Model:** A 3D model of a wall with a pink rectangular area highlighted. A dropdown menu for 'Résistance au feu' is shown, with 'REI60' selected. Other options include 'non REI', 'REI120', 'REI30', and 'REI90'.
- Software Interface:** A screenshot of the Archicad software interface showing the 'Plan et Coupe' and 'Modèle' panels. The 'Classification et Propriétés' section is visible, showing 'Classification ARCHICAD ... Mur' and 'Généralités' with values like 'Acoustic Rating: 0,00', 'Combustible: Faux', 'Is External: Faux', and 'Load Bearing: Faux'. The 'Référence' section shows 'Résistance au feu: REI60' and 'Statut de rénovation: <Formule>'. The 'PROPRIETES IFC' section shows 'Type IFC: IfcWall'.

Actions CRTI-B pour accélérer l'adoption du BIM

II. mapping IFC



Fichier IFC



.tpl (1x toutes phases)

.xml

Actions CRTI-B pour accélérer l'adoption du BIM

III. check IFC

Cas d'usages 3 à 6					
	AP	APD	SOU	CHA	EXP
GUIDE TRANSITION BIM	Revit	Revit	Revit	Revit	Revit
GUIDE APPLICATION BIM	Archicad	Archicad	Archicad	Archicad	Archicad
CAD P'USAGE BIM	Allplan	Allplan	Allplan	Allplan	Allplan
RICHES 3D	Vectorworks	Vectorworks	Vectorworks	Vectorworks	Vectorworks
GUIDE P'INTÉRIEURS					
ETIQUÉ DE CAS BIM	Archicad	Revit	Revit	Revit	Revit
BIBLIOTHÈQUES GÉNÉRIQUES	Archicad	Archicad	Archicad	Archicad	Archicad
CATALOGUES (OBSOÈLES)	Vectorworks	Vectorworks	Vectorworks	Vectorworks	Vectorworks
TELECHARGEMENTS/RESSOURCES					
CLASSIFICATIONS					
FORMATION	Revit	Revit	Revit	Revit	Revit
INDUSTRIE	Archicad	Archicad	Archicad	Archicad	Archicad
VERSUS	Vectorworks	Vectorworks	Vectorworks	Vectorworks	Vectorworks
AVIS					



Import +
lancement check

3D Plan View

Containment

Project	House of Training
Site	Site
Building	Bâtiment
Building Storey	Fondations
Building Storey	RDC
Building Storey	Etage 1

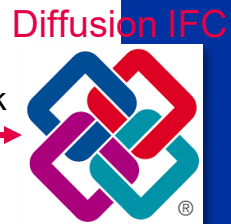
Objects

Building Storey	3
Project	1
Site	1
Slab	2 ✓
Wall	17 ✗
EG bloc béton 24cm PS 30cm 3/10	4
EG bloc béton 30-cimentage ...	4
EG bloc 'tong 17,5cm PS 30cm + PV + PVC...	4
EG C-cimentage 13,5cm 17,5cm 10,5cm	4

Properties: EG bloc béton 24cm PS 30cm 570 (4)

Property Set	Value
Direct Properties	
Description	<no values>
Name	<all different values>
Object type	<no values>
Predefined-type	NOTDEFINED
Tag	<all different values>
Material Properties	
Layer-set-name (material)	EG bloc béton 24cm...
Layer-thickness (material)	0,570m
Name (material)	FA crépi bi-couche...
Other Properties	
Building Element Construction...	EG bloc béton 24cm PS...
Building Element is External	Yes
Fire Rating	REI120
Layer-Assignment-Name	_Murs - Extérieurs
Load Bearing	Yes

Check : ok



Check :
Erreurs



Diffusion BCF
commentaires
modeleur

Actions CRTI-B pour accélérer l'adoption du BIM

Lien direct dans logiciel vers portail BIM Luxembourg via fichiers config.

The image shows a screenshot of Autodesk Revit 2020.2 software on the left, displaying a 3D model of a foundation structure. The Properties panel on the left shows the 'Wall Foundation' object with various parameters. A red arrow points from the 'GUIDE INTEROPÉRABILITÉ' menu item in the digital building.lu portal to the 'GUIDE INTEROPÉRABILITÉ CRTI-B' link in the Revit Properties panel.

The digital building.lu portal interface includes a navigation menu with the following items:

- HOME
- GUIDE TRANSITION BIM
- GUIDE D'APPLICATION BIM
- CAS D'USAGE BIM
- FICHES GID
- GUIDE INTEROPÉRABILITÉ
- ETUDE DE CAS BIM
- BIBLIOTHÈQUE D'OBJETS GÉNÉRIQUES
- CATALOGUE LOGICIELS
- TÉLÉCHARGER/RESSOURCES
- CLASSIFICATIONS
- FORMATION
- AGENDA
- ANNUAIRE
- JOBS

The main content area of the portal displays the title 'GUIDE MODÉLISATION ET INTEROPÉRABILITÉ – REVIT – FONDATION - MODÉLISATION' and a list of navigation options:

- Introduction
- Revit
 - Généralité logiciel
 - Géolocalisation
- FILTRE OBJETS
 - Objets architecture
 - Objets Structure
 - Objets CVC
 - Objets électricité
- Résumé Objets
- Quadrillage
- Fondation
 - Modélisation
 - Niveaux GID
 - Classification
- Mur
- Colonne
- Poutre
- Fenêtre
- Porte
- Espace
- Contrôle qualité
- IFC
- autres

Archicad
Allplan

LIENS EN RELATION AVEC OBJET

- Fiches GID

LIEN TÉLÉCHARGEMENTS

- Fichiers config.
- Objets génériques

COMMENTAIRES

Ajouter un commentaire ou une observation ici

Actions CRTI-B pour accélérer l'adoption du BIM

Centraliser l'information relative au BIM pour le Luxembourg

GT « Portail BIM »

The screenshot displays the homepage of digital building.lu. At the top right, there is a search bar and a language selector set to 'FR DE'. The main navigation menu on the left includes: HOME, GUIDE TRANSITION BIM, GUIDE D'APPLICATION BIM, CAS D'USAGE BIM, FICHES GID, GUIDE INTEROPÉRABILITÉ, ETUDE DE CAS BIM, BIBLIO OBJETS GÉNÉRIQUES, CATALOGUE LOGICIELS, TÉLÉCHARGER/RESSOURCES, CLASSIFICATIONS, FORMATION, AGENDA, ANNUAIRE, and JOBS. The main content area features a 'HOME - Présentation' section with introductory text and a 'HOME - News' section with three articles:

- 06/08/2020 Lancement du portail BIM Luxembourg**: Venez visiter et consulter les ressources disponibles. Partager votre avis via les fils de discussion intégrés, inscrivez vous dans l'annuaire des acteurs BIM, poster ou rechercher une offre d'emploi, essayer les outils gratuits pour vous faciliter le BIM, Suivre les conseils pour réussir votre transition [En savoir plus...](#)
- 30/06/2020 Sondage sur la qualité d'une maquette 3D dans un process BIM**: Dans le cadre de l'observatoire du BIM, le CRTI-B lance un sondage sur la qualité d'une maquette 3D dans le cadre d'un processus BIM collaboratif. Cette notion de qualité est subjective et relative d'un acteur à l'autre... [En savoir plus...](#)
- 20/06/2020 Save the date**: Cet événement incontournable, co-organisé par le CRTI-B, l'OAI - Ordre des Architectes et des Ingénieurs-Conseils, Neobuild et le Luxembourg Institute of Science and [En savoir plus...](#)

Actions CRTI-B pour accélérer l'adoption du BIM

Centraliser l'information relative au BIM pour le Luxembourg

GT « Portail BIM »

digital building.lu

POWERED BY CRTI-B

FR DE

HOME

- Introduction
- Revit
 - Généralité logiciel
 - Géolocalisation
- FILTRE OBJETS
 - Objets architecture
 - Objets Structure
 - Objets CVC
 - Objets électricité
- Résumé objets
- Quadrillage
- Fondation
 - Modélisation
 - Niveaux GID
 - Classification
- Mur
- Colonne
- Poutre
- Fenêtre
- Porte
-
- Espace
- Contrôle qualité
- IFC
- autres

Archicad

GUIDE MODÉLISATION ET INTEROPÉRABILITÉ – REVIT – FONDATION - MODÉLISATION

MODÉLISATION :

- 1) Utiliser de préférence l'outil fondation de mur, fondation isolée ou radier (onglet structure). Ces objets seront exportés par défaut comme Icfooting
- Avantage : géométrie pas liée au mur / à la colonne
- Inconvénient : monocouche - problème raccord aux angles si excentricité (pour semelle centrée sur couche porteuse d'un mur par exemple)

Select Structure Connection Foundation

2) Pour un radier, il est possible d'utiliser l'outil radier/slab dans l'onglet structure. La seule différence est que l'option 'Élément porteur' est la propriété d'occurrence "Structural". Il faudra modifier la classification IFC pour que l'export soit un Icfooting et non IcfSlab - voir propriété "type"

Select Structure Conne Structural Foundation: Slab

Properties Floor: Slab Edge

3) Il est possible d'utiliser l'outil Floor dans l'onglet architecture, la seule différence est que l'option 'Élément porteur' est la propriété d'occurrence "Structural". Il faudra modifier la classification IFC pour que l'export soit un Icfooting et non IcfSlab.

- Avantage : multicouche
- Inconvénient : géométrie pas liée au mur

Select Architecture Structure Steel Systems Insert Annotate Analyze Massing & Site Collar

Build

Pour les pieux et les faux-puits, il est préférable d'utiliser une famille chargeable comprenant le pieu et la tête du pieu, voir exemple dans objets génériques

LIENS EN RELATION AVEC OBJET

- Fiches GID

LIEN TÉLÉCHARGEMENTS

- Fichiers config
- Objets génériques

COMMENTAIRES

Il y a aussi un autre moyen de créer une fondation C.B.

Non, c'est pas vrai M.V.

La solution avec semelle filante pose problème lorsque l'on travaille en parois multicouches et que l'on doit excentrer pour être au milieu du porteur C.B.

Actions CRTI-B pour accélérer l'adoption du BIM

Guide interopérabilité – accès direct depuis les logiciels

GT « Portail BIM »

Cas d'usage standards

digital building.lu

Actions CRTI-B pour accélérer l'adoption du BIM

Planning de déploiement

1. Décembre 2020 :

- Fichiers de configuration Archicad/Allplan/Revit (mapping propriétés et IFC, check IFC)
- Portail basique aide interopérabilité

2. 1^e semestre 2021 :

- Ajouts de cas d'usages pour bureaux de contrôle
- Fichiers pour Vectorworks en fonction du volume d'utilisateur
- Portail BIM interopérabilité complet + poursuite développement autres modules portail
- Fichiers proposés en allemand en complément

Actions CRTI-B pour accélérer l'adoption du BIM

Perspectives d'évolution

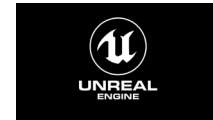
1. Décomposition des fiches EIR par cas d'usage, avantages :
 - Affiner exigences en fonctions des besoins, pas de travail inutile en encodage
 - Les fichiers de configuration seront alors construits par combinaisons de cas d'usages
2. Ajout d'autres logiciels suivant les demandes du secteur

Questions?

PARTENAIRE
PUBLIC



PARTENAIRES
OR



PARTENAIRES
ACADÉMIQUES



PARTENAIRES
RÉGULIERS



API BIM 360 : nouveau et feuille de route.

Cyrille Fauvel

Forge Partner Development,
Worldwide Sr. Manager,
Autodesk

Safe Harbor

During the course of this presentation, we may make statements regarding future events and/or statements regarding planned or future development efforts for our existing or new products and services. We wish to caution you that such statements reflect our current expectations, estimates and assumptions based on factors currently known to us and that actual events or results could differ materially. Also, these statements are not intended to be a promise or guarantee of future delivery of products, services or features but merely reflect our current plans, which may change. Purchasing decisions should not be made based upon reliance on these statements. The statements made in this presentation are being made as of the time and date when this presentation was recorded. We do not assume any obligation to update any statements we make to reflect events that occur or circumstances that exist after the date of this presentation.

October 6, 2020

Agenda

- Autodesk Construction Cloud Overview
- BIM 360 & API Status and Updates
- Assets API
- Relationship API
- In Pipeline

Autodesk Construction Cloud



AUTODESK CONSTRUCTION CLOUD™



Assemble



BIM 360



BuildingConnected



PlanGrid



AUTODESK CONSTRUCTION CLOUD™

**AUTODESK
BIM COLLABORATE**

**AUTODESK
QUANTIFY**

**AUTODESK
COORDINATE**

**AUTODESK
BUILD**

AUTODESK DOCS

Models · Drawings · Issues · Specifications · RFIs · Cost · Assets · As-Builts · Photos · Videos

INSIGHTS

Dashboards · Reports · Construction IQ · Data Connector

ADMINISTRATION

User Management · Autodesk ID · Project Administration



AUTODESK CONSTRUCTION CLOUD™

	AUTODESK BIM COLLABORATE	AUTODESK COORDINATE	AUTODESK QUANTIFY	AUTODESK BUILD				
Capabilities	Design Collaboration	Coordination	Quantification	Project Management	Cost Management	Quality	Safety	Project Closeout
Workflows	<ul style="list-style-type: none"> • Constructability Review • Change Visualization • Revit Collaboration 	<ul style="list-style-type: none"> • Model Coordination • Constructability Review • Quality Planning • Issue Management 	<ul style="list-style-type: none"> • Scope Analysis • 2D/3D Take Off 	<ul style="list-style-type: none"> • RFIs • Submittals • Meeting Minutes • Daily Reports • Progress Tracking 	<ul style="list-style-type: none"> • Contract Creation / Administration • Change Orders • Payment Applications • Forecasting 	<ul style="list-style-type: none"> • Quality Planning • Quality Checking • Punchlists • Issue/Task Management 	<ul style="list-style-type: none"> • Safety Planning • Safety Training • Safety Observations • Safety Inspections 	<ul style="list-style-type: none"> • Commissioning • Turnover Documentation • Warranty Mgmt. • Final Completion • As-Built Survey
	Document Management			Document Control · Document Versioning · Document Approvals				
Unified Data	Models · Drawings · Documents · Cost Items · Assets · As-Built · Photos · Videos							
Insights	Dashboards · Reports · Construction IQ · Data Connector							
Admin	Admin Console · Permissions · Project Setup · Templates · Notifications							


Product UI

Disclaimer: MAY NOT BE CURRENT UI

Project Directory

All Projects ACC Project Templates

Create Project

Project Name ^	Project Type v	Project Code v	Last Updated v
SF MoMa Museum Main St, Houston, Texas	ACC	XXXXXXXXXXXX	6 hours ago
15550 Banner Behavior Health Hospital (BBHH) Main St, Scottsdale, Arizona	ACC	XXXXXXXXXXXX	Feb 10, 2019
15592-SJHMC Absorption Chiller Replacement Main St, Scottsdale, Arizona	BIM360	XXXXXXXXXXXX	Nov 24, 2018
18600 - SOMC Vacuum Pump Replacement  Main St, Phoenix, Arizona	PlanGrid	XXXXXXXXXXXX	Sept 14, 2019
19628 - ADC Tiberius - Chiller Cooler Expansion	ACC	XXXXXXXXXXXX	Feb 10, 2019

AUTODESK CONSTRUCTION CLOUD

Build

Home

Sheets

Documents

Issues

Forms

Gallery

Asset Tracking

RFIs

Submittals

Meeting Minutes

Members

Settings

Home

Sheets

Documents

Issues

Forms

Gallery

Asset Tracking

RFIs

Submittals

Meeting Minutes

Members

Settings

Build

SF MoMa

RFIs

+ Create RFI

Export all

Search

ID	Status	Title	Assigned to	Company	Due Date	Location	Document	Cost Impact
#65	Open In Review	Clash between Hvac	John Green	Hvac America INC	02/28/2020	Main foyer	Level 6 001...	Yes
#66	Open Answered	Entrance door color	Julia Franco	United Constuction	06/30/2020	1st floor	A.101 Level ...	No
#67	Closed	Electrical sub main ent...	Jake Beyer	United Constuction	06/30/2020	-	-	-
#68	Open Answered	Fix main roof cieling	Brad Buckels	Autodesk Pro	01/30/2020	Main foyer	A.601 Level ...	Unkown
#69	Draft	Patch hole main hall	David Cooper	United Constuction	06/30/2020	1st floor lo...	-	Yes
#70	Draft	Panels cieling ER	Guru Khalsa	GGIM panels	06/30/2020	14th floor	A141 Level 1...	-
#68	Closed	Fix main roof cieling	Brad Buckels	Autodesk Pro	01/30/2020	Main foyer	A.601 Level ...	Unkown
#69	Closed	Patch hole main hall	David Cooper	United Constuction	06/30/2020	1st floor lo...	-	Yes
#70	Open Answered	Panels cieling ER	Guru Khalsa	GGIM panels	06/30/2020	14th floor	A141 Level 1...	-

Acco

project links

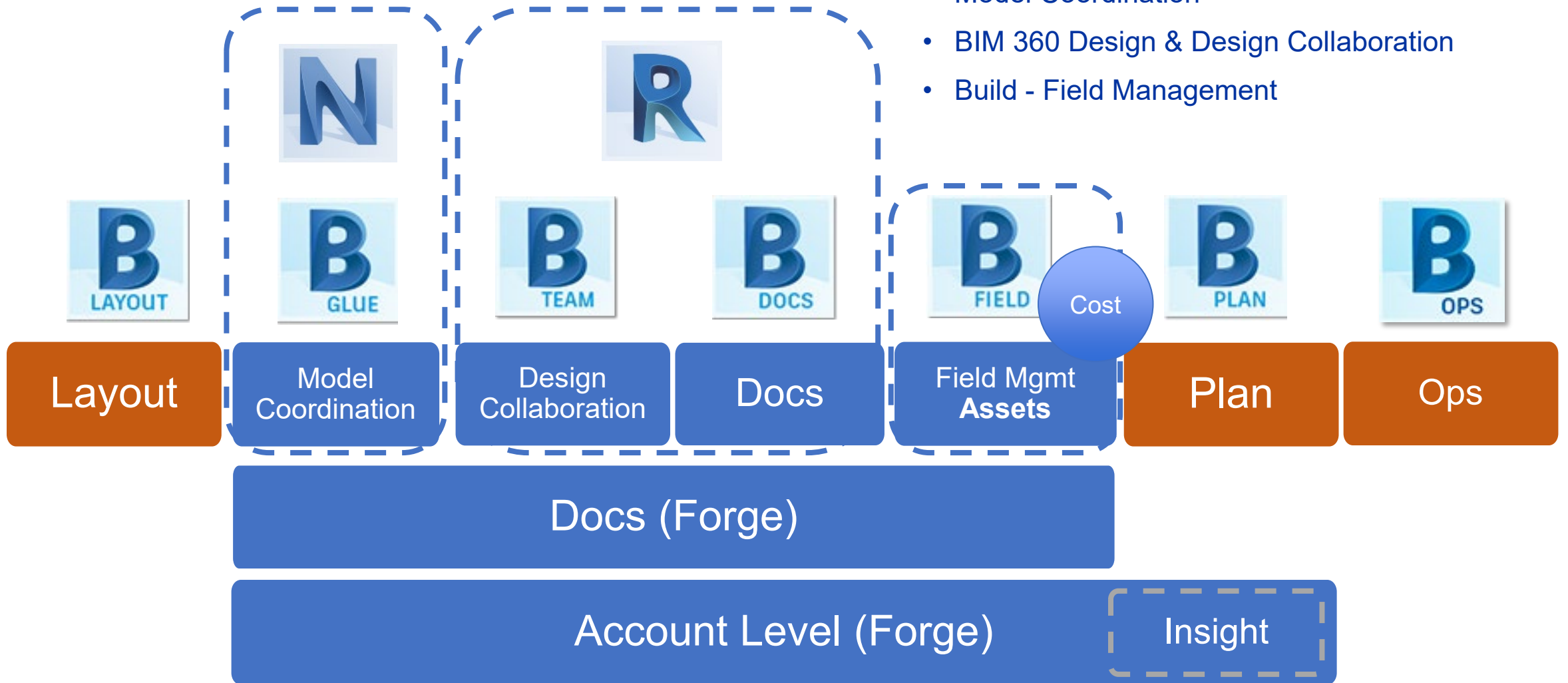
BIM 360 & API

Status and Updates

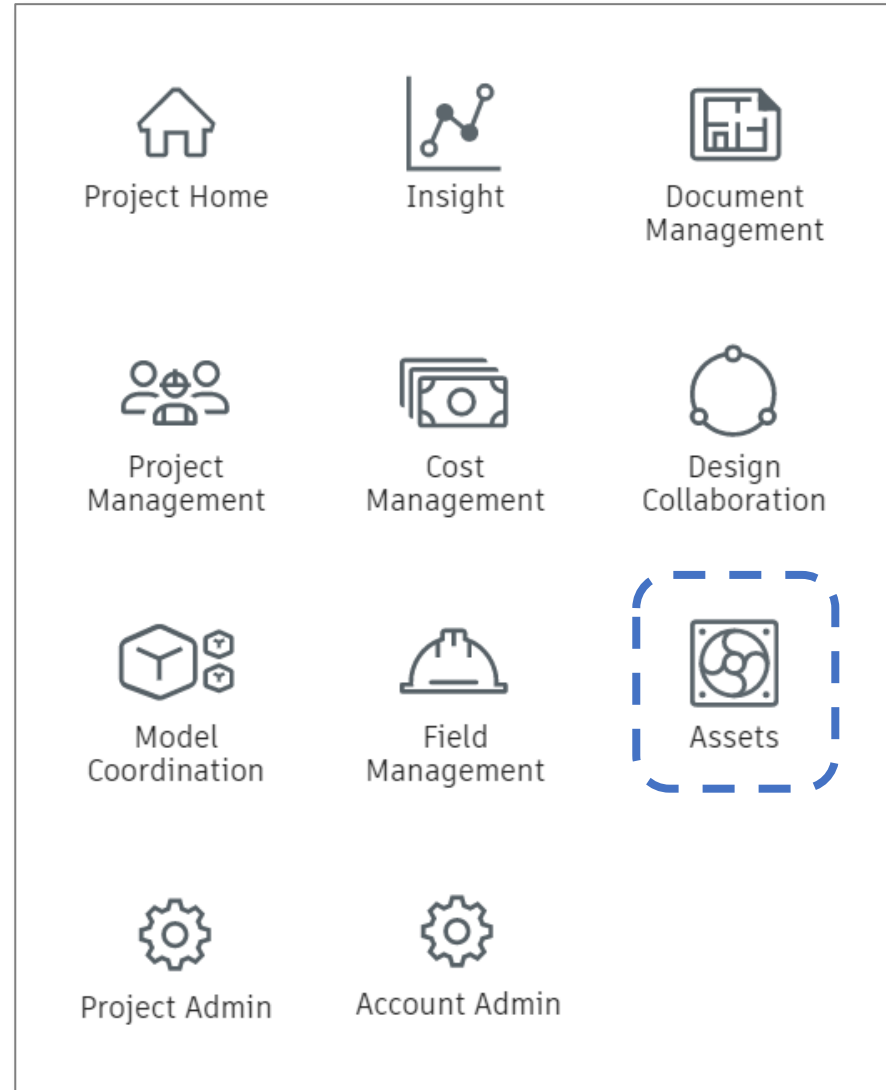
BIM 360 Family Products

Next generation modules

- Model Coordination
- BIM 360 Design & Design Collaboration
- Build - Field Management



BIM 360 Modules

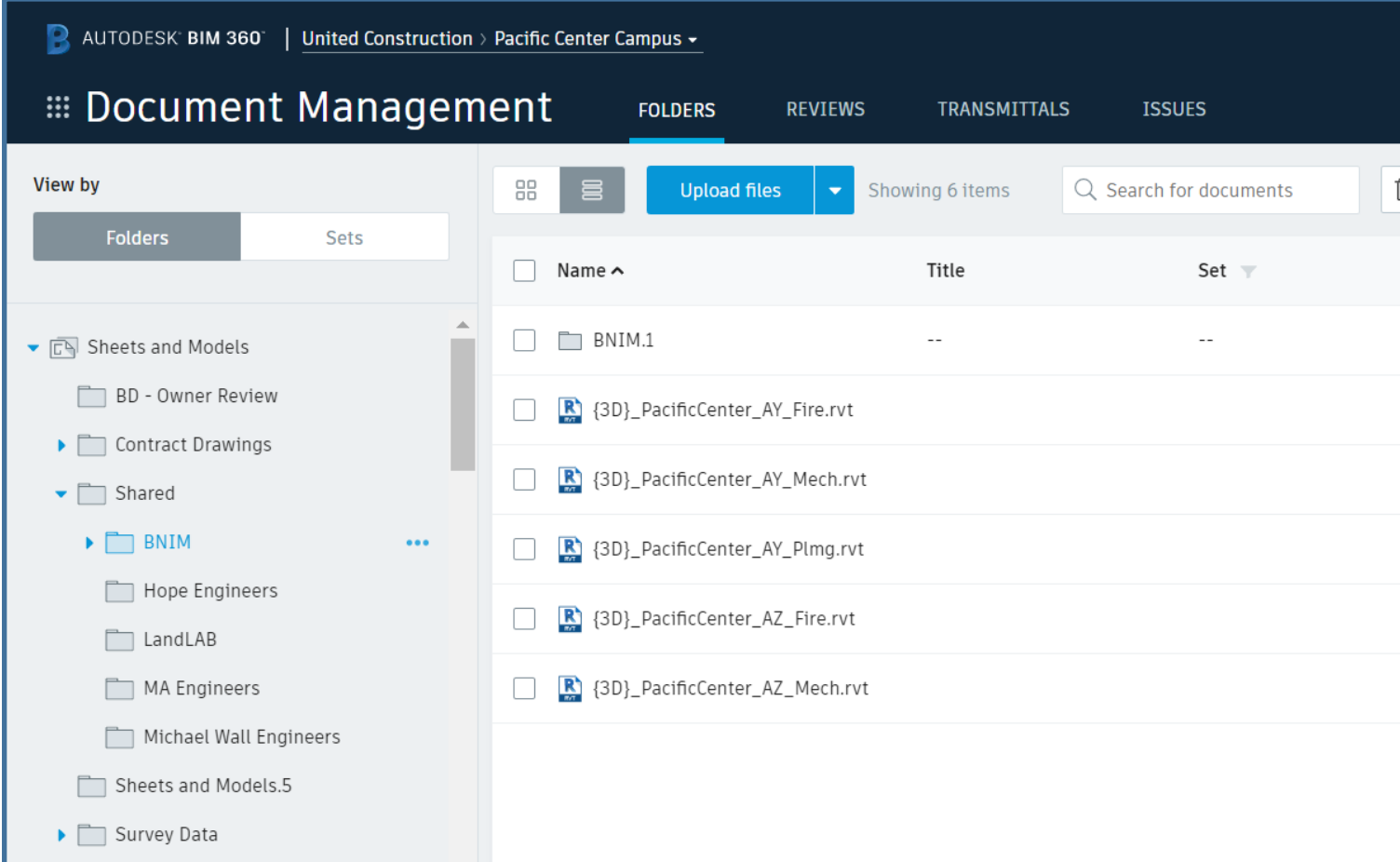


Document Management

- Data Management API
- API Enhancements:

- Folder permissions (r/w)
- Custom attribute values (r/w)*1

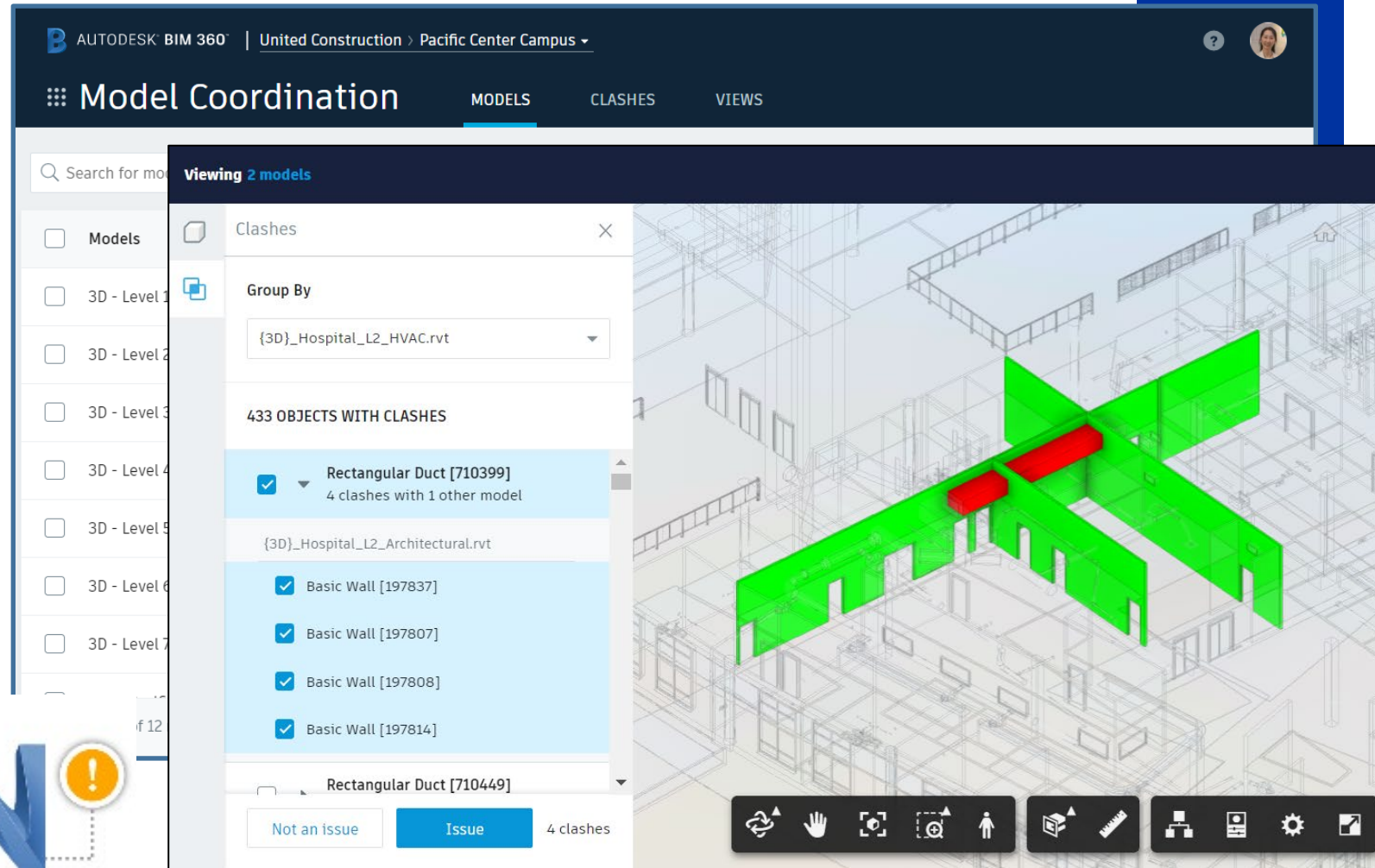
*1) Definition next



The screenshot shows the Autodesk BIM 360 Document Management interface for the 'United Construction > Pacific Center Campus' project. The main navigation bar includes 'Document Management', 'FOLDERS', 'REVIEWS', 'TRANSMITTALS', and 'ISSUES'. The 'FOLDERS' view is active, showing a tree structure on the left and a list of documents on the right. The left sidebar shows a hierarchy starting with 'Sheets and Models', followed by 'BD - Owner Review', 'Contract Drawings', 'Shared', and 'BNIM' (highlighted in blue). Below 'BNIM' are folders for 'Hope Engineers', 'LandLAB', 'MA Engineers', 'Michael Wall Engineers', 'Sheets and Models.5', and 'Survey Data'. The main list on the right shows 6 items with columns for 'Name', 'Title', and 'Set'. The items listed are: 'BNIM.1', '{3D}_PacificCenter_AY_Fire.rvt', '{3D}_PacificCenter_AY_Mech.rvt', '{3D}_PacificCenter_AY_PImg.rvt', '{3D}_PacificCenter_AZ_Fire.rvt', and '{3D}_PacificCenter_AZ_Mech.rvt'. Each item has a checkbox and a 'Set' dropdown menu.

Model Coordination

- Navisworks + Model Coordination integration
- **API Enhancements**
 - *Officially out of beta!*
 - Project Files folder support
 - Relationship API



Cost Management

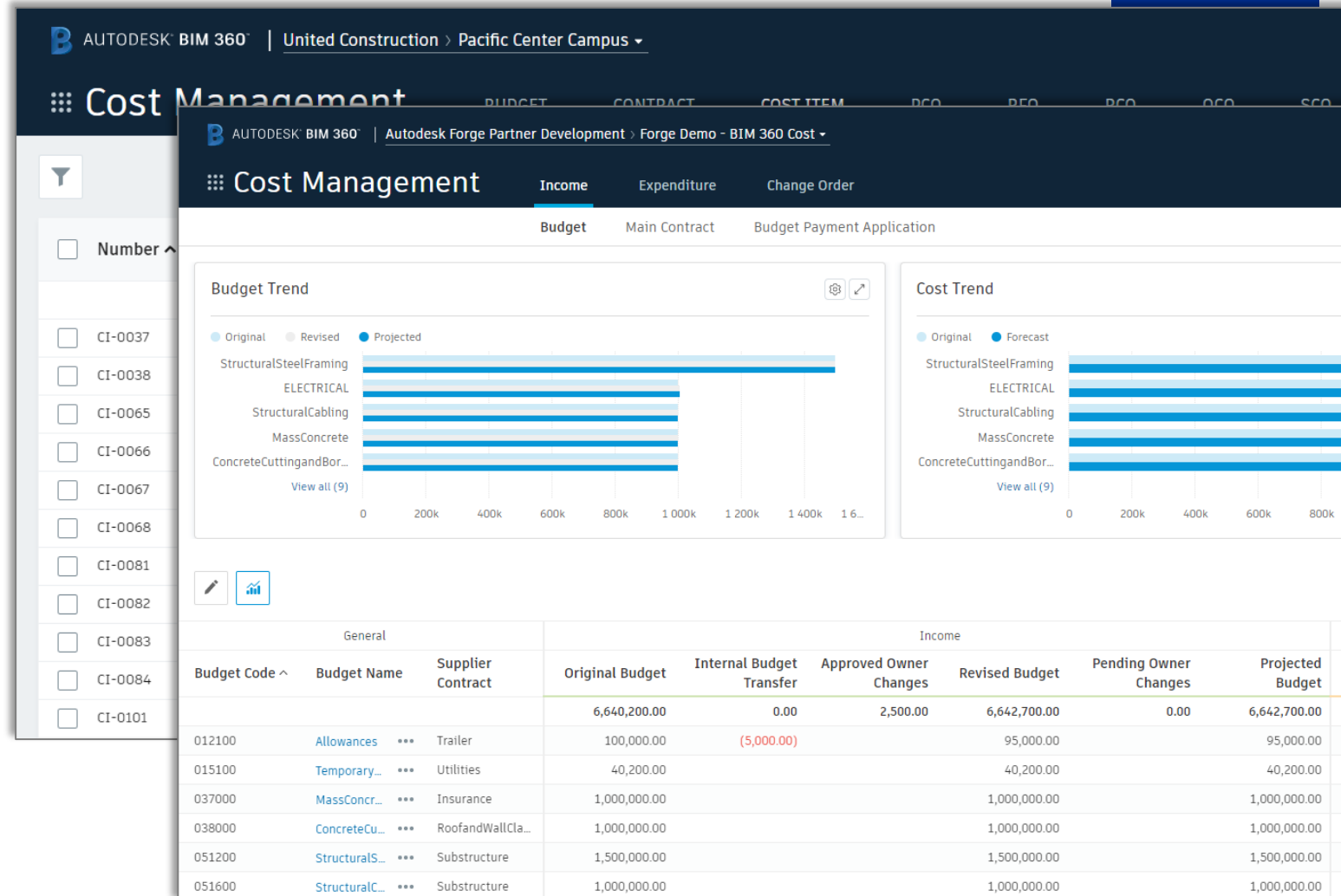
API Enhancement

- Budget code template
- Create/update/search external relationships*1



Both based on requests!

*1) waiting for documentation updated



The screenshot displays the Autodesk BIM 360 Cost Management interface. It features a navigation menu with options like 'Budget', 'Main Contract', and 'Budget Payment Application'. Two charts are visible: 'Budget Trend' and 'Cost Trend', both showing horizontal bar charts for categories like StructuralSteelFraming, ELECTRICAL, StructuralCabling, MassConcrete, and ConcreteCuttingandBor... The 'Budget Trend' chart includes 'Original', 'Revised', and 'Projected' data series, while the 'Cost Trend' chart includes 'Original' and 'Forecast' series. Below the charts is a table with columns for 'General' (Budget Code, Budget Name, Supplier Contract) and 'Income' (Original Budget, Internal Budget Transfer, Approved Owner Changes, Revised Budget, Pending Owner Changes, Projected Budget).

General			Income					
Budget Code ^	Budget Name	Supplier Contract	Original Budget	Internal Budget Transfer	Approved Owner Changes	Revised Budget	Pending Owner Changes	Projected Budget
			6,640,200.00	0.00	2,500.00	6,642,700.00	0.00	6,642,700.00
012100	Allowances	Trailer	100,000.00	(5,000.00)		95,000.00		95,000.00
015100	Temporary...	Utilities	40,200.00			40,200.00		40,200.00
037000	MassConcr...	Insurance	1,000,000.00			1,000,000.00		1,000,000.00
038000	ConcreteCu...	RoofandWallCla...	1,000,000.00			1,000,000.00		1,000,000.00
051200	StructuralS...	Substructure	1,500,000.00			1,500,000.00		1,500,000.00
051600	StructuralC...	Substructure	1,000,000.00			1,000,000.00		1,000,000.00

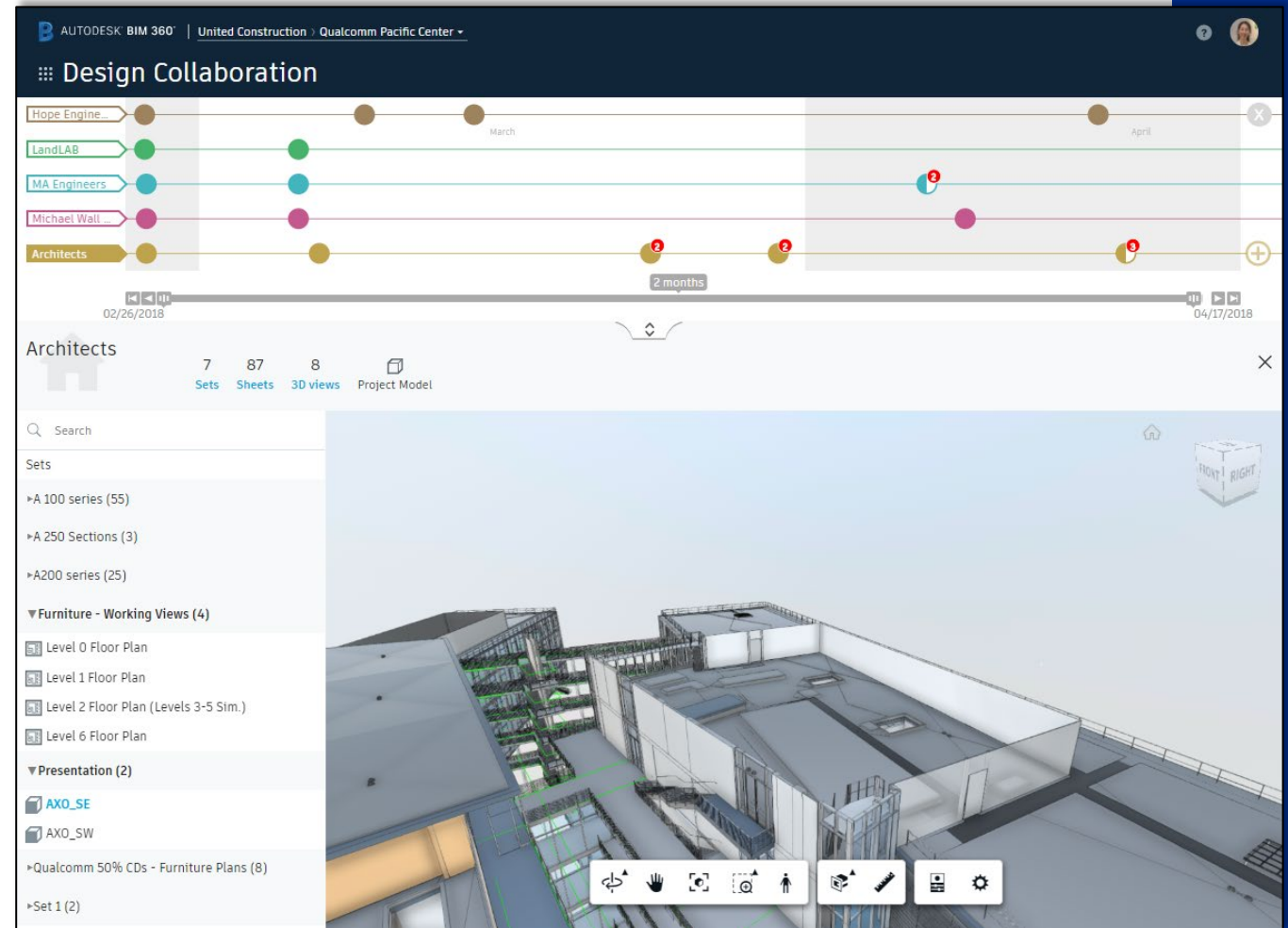
Design Collaboration

Update

- A sample with Revit Cloud Worksharing webhooks events:

<https://github.com/Autodesk-Forge/forge-bim360notifier>

- European data center support





Project Home

Project Home

United Construction
Pacific Center Campus
 Project Dates: Tue Oct 17 2017 - Fri Oct 29 2021

Project Address
 1 Market street
 San Francisco, CA 94105

Weather
 52° Cloudy
 Tue 52° Wed 58° Thu 56° Fri 57°
 Powered by Dark Sky

TrueLook
 MENU
 [Camera feed image]
 TRUELOOK

Project Checklists

Title	Location	Scheduled
Safety Event Form		May 31, 2018
General Space - Punch		May 31, 2018
Above Ceiling Inspection		May 31, 2018
Above Ceiling Inspection		May 31, 2018
Above Ceiling Inspection		May 31, 2018

5 of 134 Open Checklists | View all (134)

Open RFIs and Submittals

● Overdue ● Due in the next 5 days ● Due after 5 days

44 RFIs
 30 Overdue | 2 Due in the next 5 days | 12 Due after 5 days

106 Submittal Items
 15 Overdue | 91 Due in the next 5 days

Document Issue Trend

● Added ● Closed

Line chart showing document issue trend from August to January. The Y-axis ranges from -5 to 25. A significant spike in 'Added' issues occurs in November, reaching approximately 23.

Partner Card

E-mail to:
bim360partnercard@autodesk.com



Insight

AUTODESK BIM 360 | United Construction | Pacific Center Campus

Insight RISK DESIGN PROJECT CONTROLS COST SCHEDULE QUALITY SAFETY REPORTS

United Construction
Pacific Center Campus
Project Dates: Tue Oct 17 2017 - Fri Oct 29 2021

Quality Risk Safety Risk Today Quality Risk Factors

Risk Today: Med

2 HIGH RISK CONTRACTORS 14 HIGH RISK ISSUES 20 WATER RISK ISSUES 14 CHECKLIST ACTIVITY

AUTODESK BIM 360 | Autodesk Forge Partner Development

Insight RISK DESIGN QUALITY SAFETY **DATA**

Data Connector Preview Run

The data connector will automatically extract data from: Account projects, Companies, Users, Roles, and Business Units as well as Project Users, Project Companies (including archived projects), Project Roles, Issues, Checklists, Daily Logs, Locations, Submittals and Cost.

Generated files are only available for 30 days after creation

AVAILABLE EXTRACTIONS

Created	
May 7, 2020 3:54 PM	↓
May 7, 2020 2:38 PM	↓

- schemas
- admin_account_services.csv
- admin_accounts.csv
- admin_business_units.csv
- admin_companies.csv
- admin_project_companies.csv
- admin_project_services.csv
- admin_project_user_roles.csv
- admin_project_user_services.csv
- admin_projects.csv
- admin_roles.csv
- admin_users.csv
- checklists_checklist_assignees.csv
- checklists_checklist_items.csv
- checklists_checklist_items_answers.csv
- checklists_checklist_section_assignees.csv
- checklists_checklist_signatures.csv
- checklists_checklists.csv

- dailylogs_weather_logs.csv
- issues_attachments.csv
- issues_comments.csv
- issues_issue_subtypes.csv
- issues_issue_types.csv
- issues_issues.csv

Quality Risk Factors

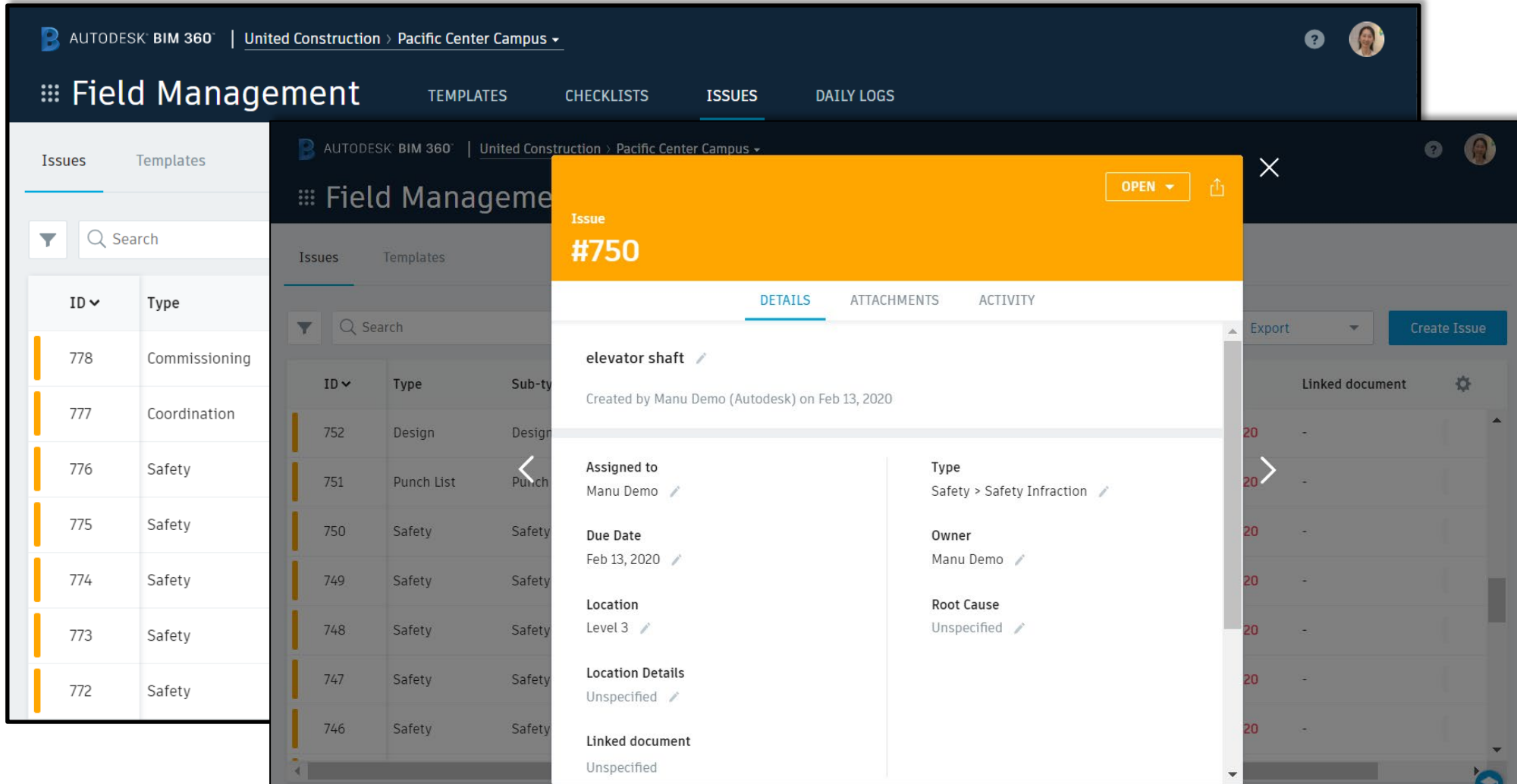
2 HIGH RISK CONTRACTORS 14 HIGH RISK ISSUES 20 WATER RISK ISSUES 14 CHECKLIST ACTIVITY

4 COMPLIANCE 11 CRITICAL COMPONENTS 13 DOCUMENTATION INCOMPLETE 99 OVERDUE ISSUES

Factors

12 HIGH RISK RFIS 20 DESIGN COORDINATION 116 MEP AND STRUCTURAL RFIS 21 DOCUMENTATION ERRORS

Field Management



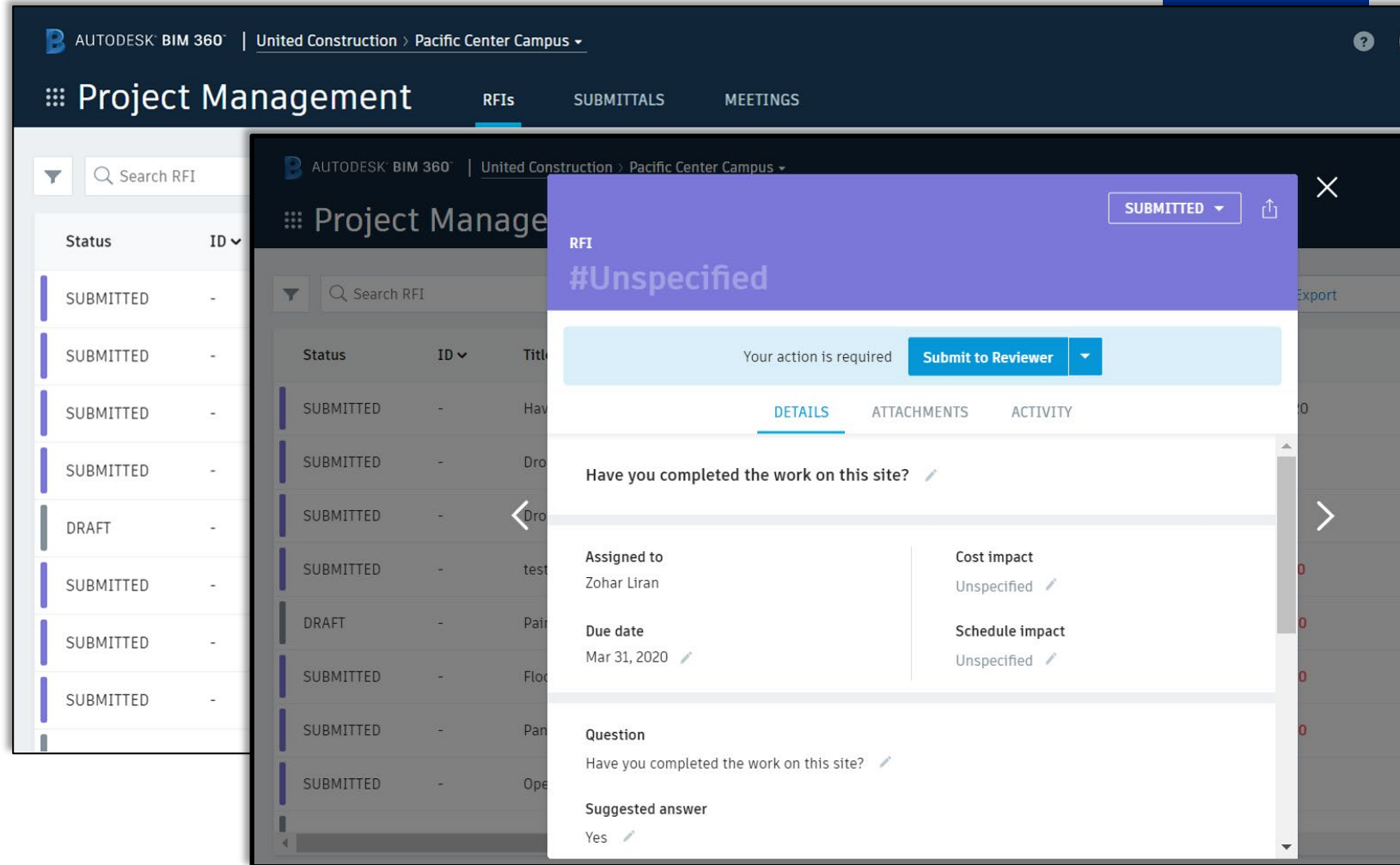
The screenshot displays the Autodesk BIM 360 Field Management interface. The main view shows a list of issues with columns for ID, Type, and Sub-type. An issue detail modal is open for issue #750, titled 'elevator shaft'. The modal includes tabs for DETAILS, ATTACHMENTS, and ACTIVITY. The details section shows the issue was created by Manu Demo (Autodesk) on Feb 13, 2020. It is assigned to Manu Demo, has a due date of Feb 13, 2020, and is located at Level 3. The type is Safety > Safety Infraction, and the owner is Manu Demo. The root cause is Unspecified. The linked document is also Unspecified.

ID	Type	Sub-type
778	Commissioning	
777	Coordination	
776	Safety	
775	Safety	
774	Safety	
773	Safety	
772	Safety	
752	Design	Design
751	Punch List	Punch
750	Safety	Safety
749	Safety	Safety
748	Safety	Safety
747	Safety	Safety
746	Safety	Safety

Project Management

API Update

- RFI v2



The screenshot displays the Autodesk BIM 360 Project Management interface. The top navigation bar includes the Autodesk BIM 360 logo, the project name "United Construction > Pacific Center Campus", and tabs for "RFIs", "SUBMITTALS", and "MEETINGS". A modal window is open, showing details for an RFI titled "#Unspecified". The modal has a purple header with the RFI title and a "SUBMITTED" status dropdown. Below the header, there is a light blue bar with the text "Your action is required" and a "Submit to Reviewer" button. The modal is divided into three tabs: "DETAILS", "ATTACHMENTS", and "ACTIVITY". The "DETAILS" tab is active and shows the following information:

- Assigned to:** Zohar Liran
- Due date:** Mar 31, 2020
- Cost impact:** Unspecified
- Schedule impact:** Unspecified
- Question:** Have you completed the work on this site?
- Suggested answer:** Yes

The background shows a list of RFIs with columns for Status and ID. The list includes several "SUBMITTED" entries and one "DRAFT" entry.



Assets

Assets

B AUTODESK BIM 360 | Autodesk Forge Partner Development > Forge Sandbox MH

Assets ASSETS

Asset **621642** INSTALLED

DETAILS **ISSUES** CHECKLISTS ATTACHMENTS

[Create Issue](#)

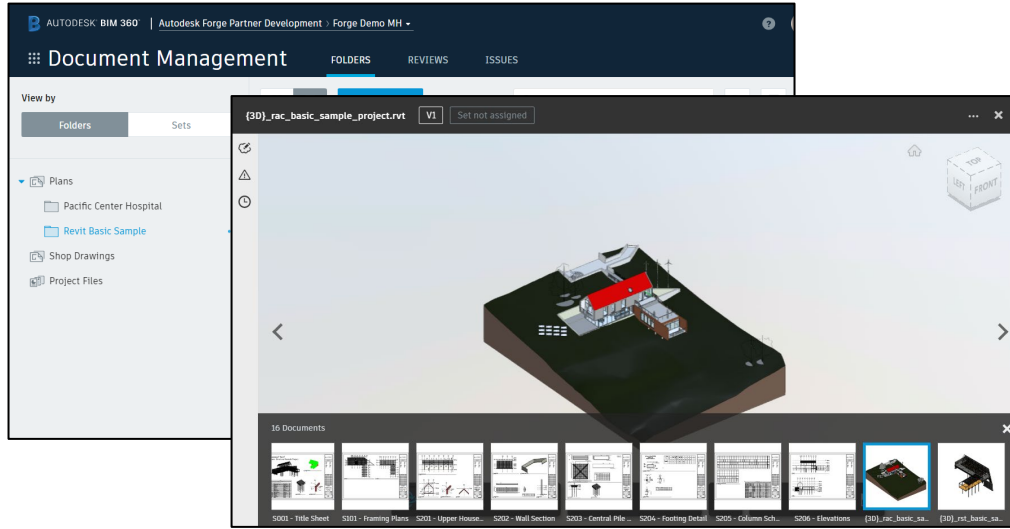
Linked references [Add reference](#)

Issue **OPEN** #35 air handler installation issue

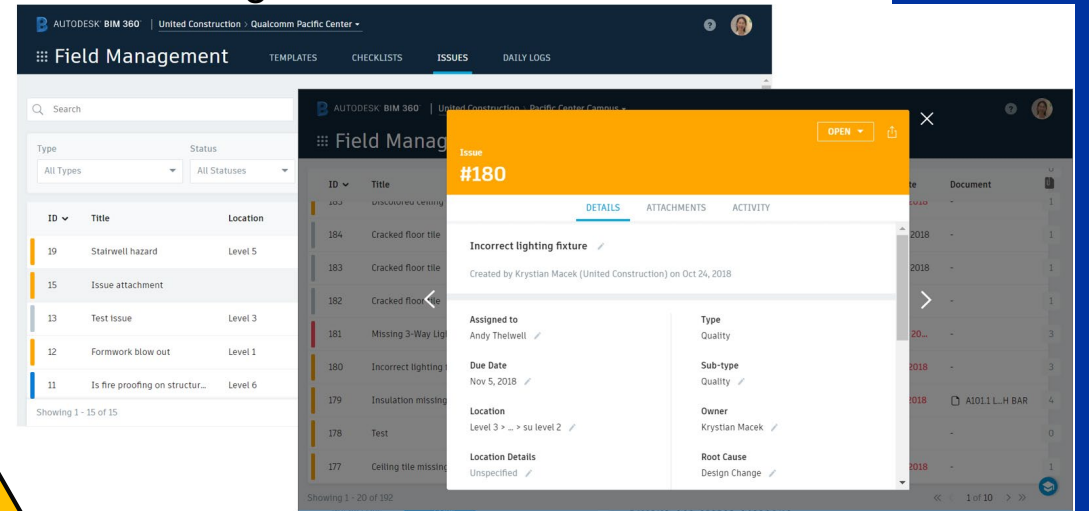
Asset Tree	Details			
	Asset ID	Category	Location	Model
All Categories				
▶ Air Handling Units (AHU's)				
▶ Electrical Equipment				
▶ Lighting Devices				
▶ Lighting Fixtures				
▶ Mechanical Equipment				
▶ Plumbing Fixtures				
▶ Pumps				
	621642	Lighting Fixtures > Rece...	... > Rm 212	-
	621643	Lighting Fixtures > Rece...	Tower 2 > 1 Floor	-
	621644	Lighting Fixtures > Rece...	... > Rm 116	-
	694117	Lighting Fixtures > Rece...	... > Rm 115	-
	694251	Lighting Fixtures > Rece...	... > Security Of...	-
	694268	Lighting Fixtures > Rece...	... > Elevator Lo...	-
	694269	Lighting Fixtures > Rece...	... > Facility Offi...	-

Issues

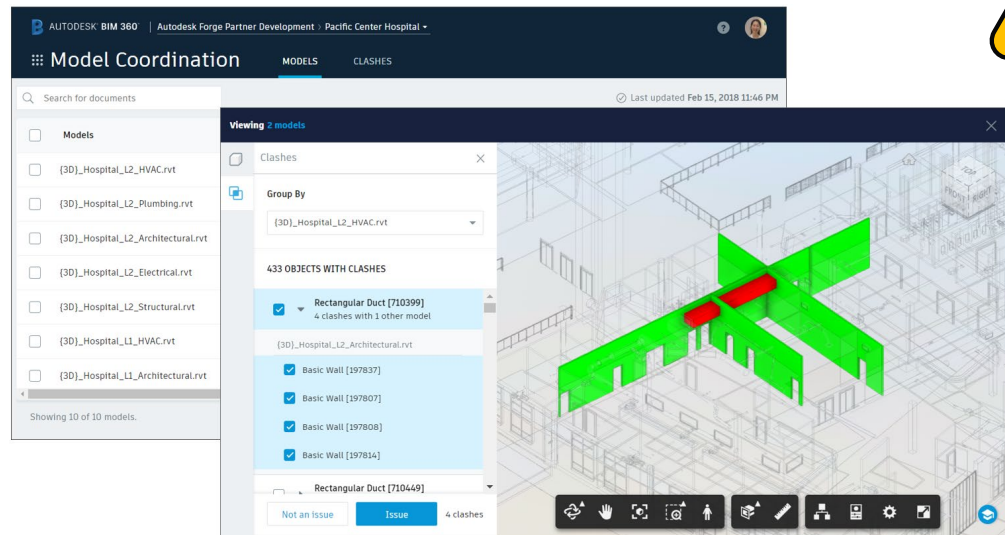
Document Management



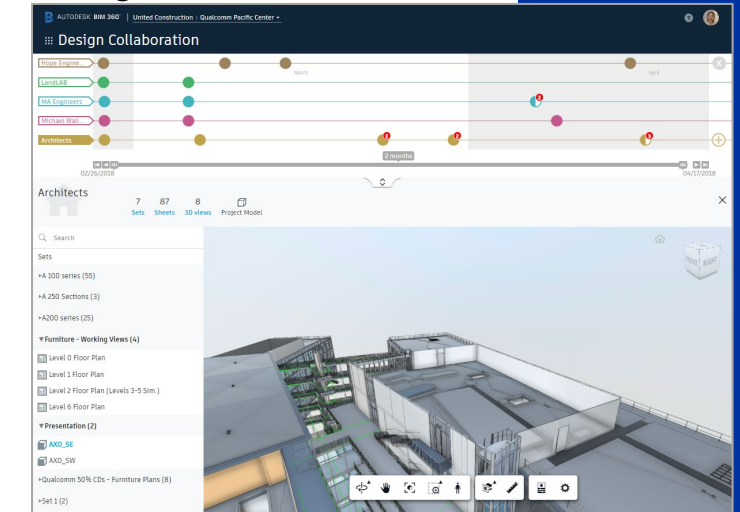
Field Management



Model Coordination



Design Collaboration



Navisworks BIM 360 Issues



Revit Issues Add-in

BIM 360 Release Notes

<https://blogs.autodesk.com/bim360-release-notes/2020>

<https://help.autodesk.com/view/BIM360D/ENU/>

BIM 360 Release Notes

- Multiple Daily Logs**
FIELD MANAGE... Sep 24, 2020
- BIM 360 Docs Search and Filter Enhancements f...**
NEXT GEN BIM 3... Sep 23, 2020
- Reopen Closed RFI**
PROJECT MANAGE... Sep 22, 2020
- Navisworks Issues Integration – September 202...**
NAVISWORKS Sep 22, 2020
- BIM 360 Model Coordination – September 2020 R...**
- BIM 360 Cost Management Updates – Septe...**
- BIM 360 Design Collaboration Update – Septemb...**
- Meetings Release – Delete a Record**

Assets API

In Pipeline

Assets API

Private beta (read) current

- asset items
- custom attributes
- categories
- status sets

Public beta near future

- Read + write items, batch, import*1

Priority feedback welcome!

*1) prioritize based on feedbacks

The screenshot displays the Autodesk BIM 360 Project Admin interface. The top navigation bar includes 'Project Admin' and tabs for 'MEMBERS', 'COMPANIES', 'SERVICES', and 'PROFILE'. A sidebar on the left lists 'Overview', 'Issues', 'Notifications', 'Locations', and 'Document Management'. The main content area shows 'Categories' with a table of asset categories. A dashed orange box highlights the 'Categories' tab and the table header. Below this, the 'Assets' section is shown with an 'ASSETS' tab highlighted. An 'Asset Tree' is visible on the left, listing categories like 'Air Handling Units (AHU's)', 'Electrical Equipment', 'Lighting Devices', 'Lighting Fixtures', 'Mechanical Equipment', 'Plumbing Fixtures', and 'Pumps'. The 'Details' view for asset 621642 is shown on the right, with a 'SPECIFIED' button. The details table includes fields like 'Asset ID', 'Category', 'Description', 'Barcode', 'Location', 'Serial number', 'Submittal', 'Purchase order', and 'Purchase date'.

Name	Active / Inactive	Status Set	Attributes
All Categories		Default	-

Asset ID	Category
621642	Lighting Fixtur...
621643	Lighting Fixtur...
621644	Lighting Fixtur...
694117	Lighting Fixtur...
694251	Lighting Fixtur...
694268	Lighting Fixtur...

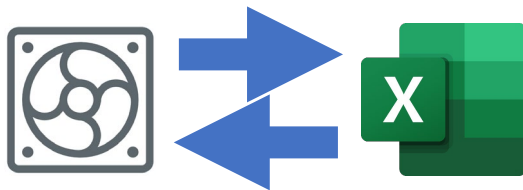
Field	Value
Asset ID	621642
Category	Lighting Fixtures > Recessed Parabolic Light
Description	2'x2'(2 Lamp) - 277V
Barcode	Unspecified
Location	Tower 2 > 2 Floor > Rm 212
Serial number	Unspecified
Submittal	Unspecified
Purchase order	Unspecified
Purchase date	Unspecified

Sample Applications

Export/Import to/from Excel

- **What it does:** Export all the Assets data in BIM 360 Assets module to a custom web page with links, then to Excel sheet. Modification in Excel is import back to Assets. This sample is to demonstrate the basic read/write access with Assets module.

- **Code:** GitHub Sample (TBD)
- **Author:** Xiaodong Liang, Autodesk



BIM 360 Asset Data Exchange

BIM360 Project List

clientAssetId	version	description	isActive	category	status	barcode	serialNumber	installationDate	installedBy	warrantyStartDate	warrantyEndDate	expectedLifeYears
AHU-999	3937	Performance Climate Changer Air Handler Floor 1	true	Air Cooled Chiller	Installed	barcode-12345	SN-7890456	2020-09-02	company-B	2020-09-09	2021-01-08	20
AHU-998	3938	Performance Climate Changer Air Handler Floor 2	true	Air Cooled Chiller	Functional Performance Tests	barcode-45789	SN-7890456	2020-09-02	company-C	2020-09-09	2021-01-08	20
AHU-997	3939	Performance Climate Changer Air Handler Floor 3	true	Air Cooled Chiller	Acceptance	barcode-34896	SN-674456	2020-09-02	company-R	2020-09-09	2021-01-08	20
VAV-996	3940	Base Mounted	true	Primary Water Pump	Installed	barcode-33556	SN-490874	2020-09-02	company-F	2020-09-09	2021-01-08	20

AUTODESK BIM 360 | Autodesk Forge Partner Development > xiaodong-test-asset

Assets

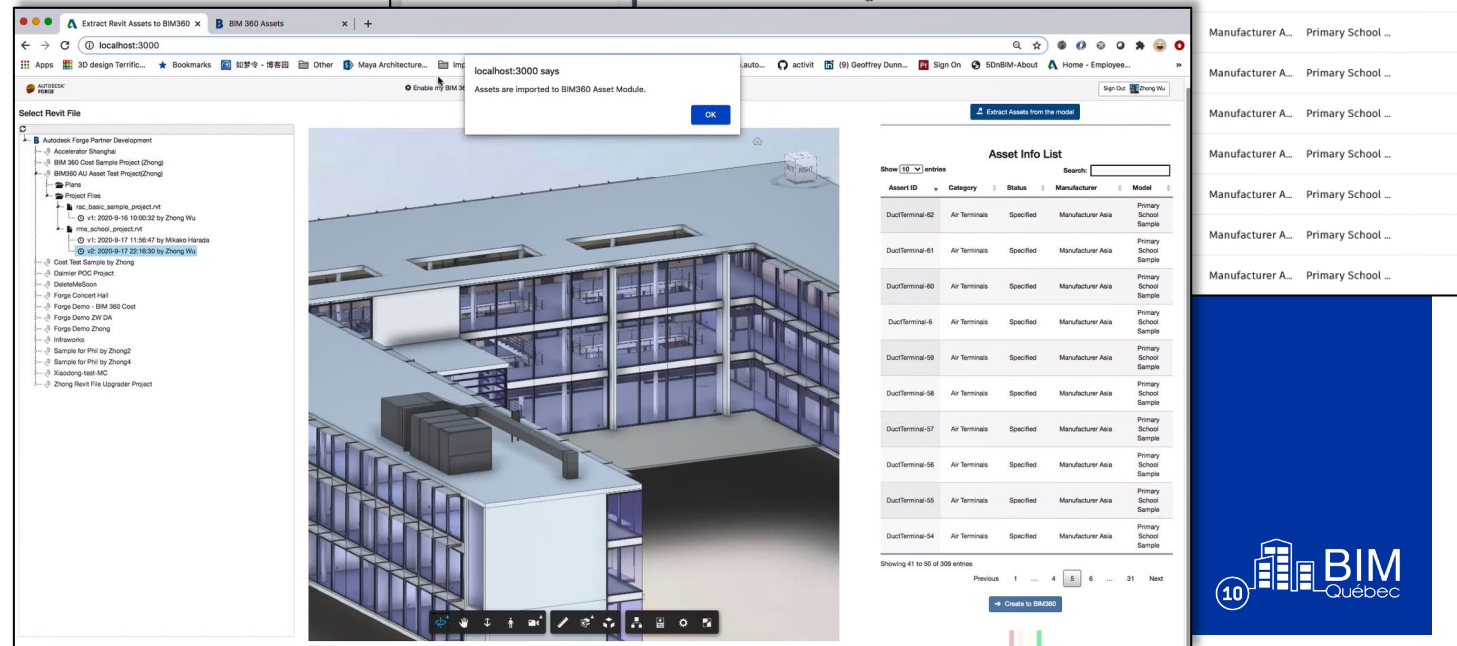
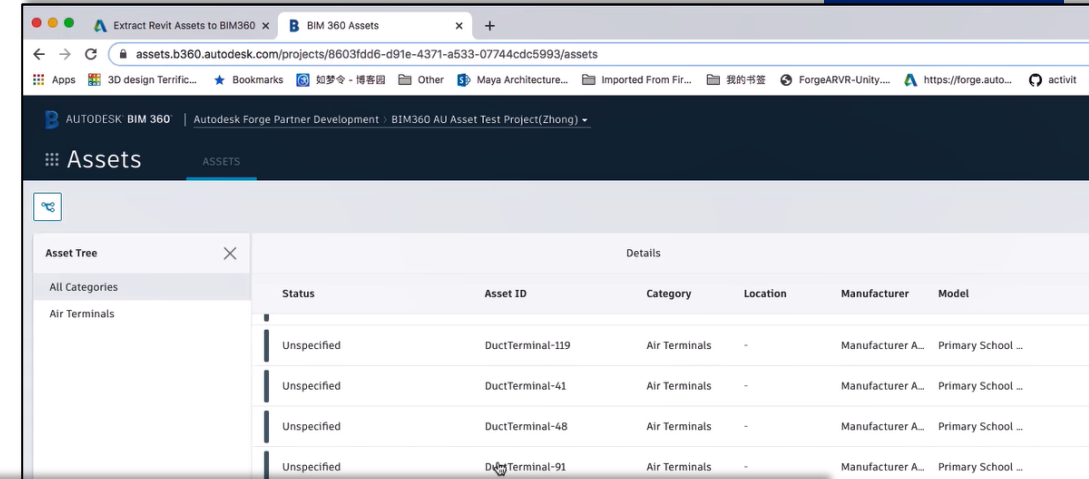
id	clientAssetId	category	category	statusId	status	description	barcode	serialNumber	specSection	purchaseOrder	purchaseDate	installedBy	install
1	b5d387AHU-999	4	Air Cooled	1d66d77	Installed	Performance Cl	barcode-12	SN-7890456	mechanical	PO3678056	2020-09-09	company-B	2020-
2	ba83d5AHU-998	4	Air Cooled	86b0de1	Functionz	Performance Cl	barcode-45	SN-7890456	electrical	PO3678056	2020-09-09	company-C	2020-
3	ea4b7dAHU-997	4	Air Cooled	5caa00f1	Acceptan	Performance Cl	barcode-34	SN-674456	pipe	PO3678056	2020-09-09	company-R	2020-
4	366fefVAV-996	5	Primary V	1d66d77	Installed	Base Mounted	barcode-33	SN-490874	duct	PO3678056	2020-09-09	company-F	2020-
5	752cb6VAV-995	5	Primary V	86b0de1	Functionz	Base Mounted	barcode-22	SN-098745	internet	PO3678056	2020-09-09	company-D	2020-
6	f8e593AHU-767	4	Air Cooled	1d66d77	Installed	Performance Cl	barcode-99	SN34879	floor5	PO888888	2020-09-09	Company-R	2020-
7	f1e9aePIPE-111	4	Air Cooled	86b0de1	Functionz	Performance Climate Changer Air Handler Floor 2							
8	f814e6PIPE-222	4	Air Cooled	5caa00f1	Acceptan	Performance Climate Changer Air Handler Floor 3							
9	781545MECH-876	5	Primary V	1d66d77	Installed	Base Mounted							
10	af2898DUCT-995	5	Primary V	86b0de1	Functionz	Performance Tests							

Set up Assets from a Design Model

What it does: Extract assets from a design model in BIM 360 Docs, using **Design Automation for Revit**, and import to Assets module. Optionally filter/verify assets before importing to Assets module. (We save Revit unique element ids as custom attributes to keep the association between assets to elements in Revit.)

Code: GitHub Sample (TBD)

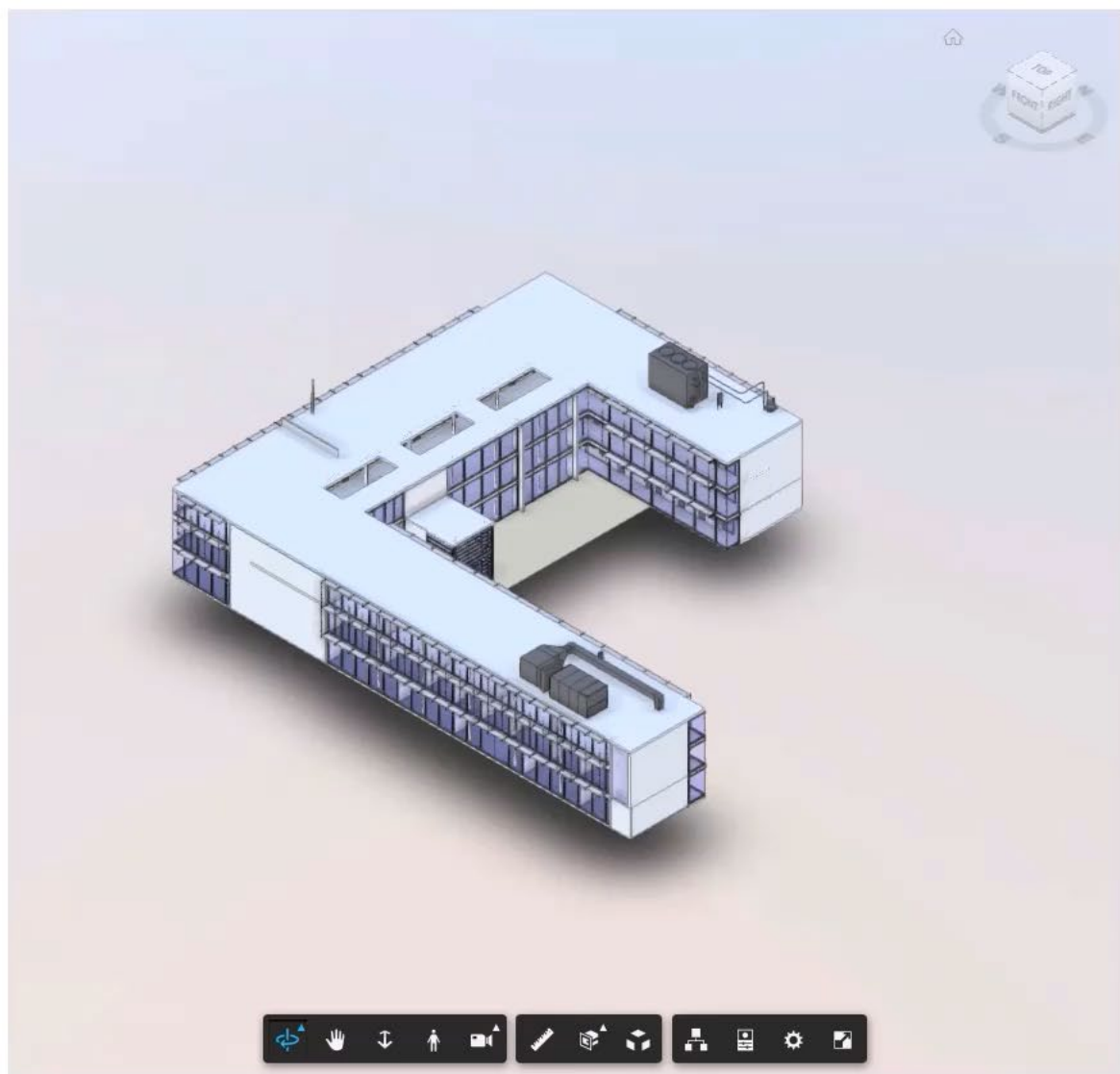
Author: Zhong Wu, Autodesk



Select Revit File

- Autodesk Forge Partner Development
 - Accelerator Shanghai
 - BIM 360 Cost Sample Project (Zhong)
 - BIM360 AU Asset Test Project(Zhong)
 - Plans
 - Project Files
 - rac_basic_sample_project.rvt
 - v1: 2020-9-16 10:00:32 by Zhong Wu
 - rme_school_project.rvt
 - v1: 2020-9-17 11:56:47 by Mikako Harada
 - v2: 2020-9-17 22:16:30 by Zhong Wu
 - Cost Test Sample by Zhong
 - Daimler POC Project
 - DeleteMeSoon
 - Forge Concert Hall
 - Forge Demo - BIM 360 Cost
 - Forge Demo ZW DA
 - Forge Demo Zhong
 - Infraworks
 - Sample for Phil by Zhong2
 - Sample for Phil by Zhong4
 - Xiaodong-test-MC
 - Zhong Revit File Upgrader Project

Model Viewer



Extract Assets from the model

Asset Info List

Show 10 entries Search:

Asset ID	Category	Status	Manufacturer	Model
No data available in table				

Showing 0 to 0 of 0 entries Previous Next

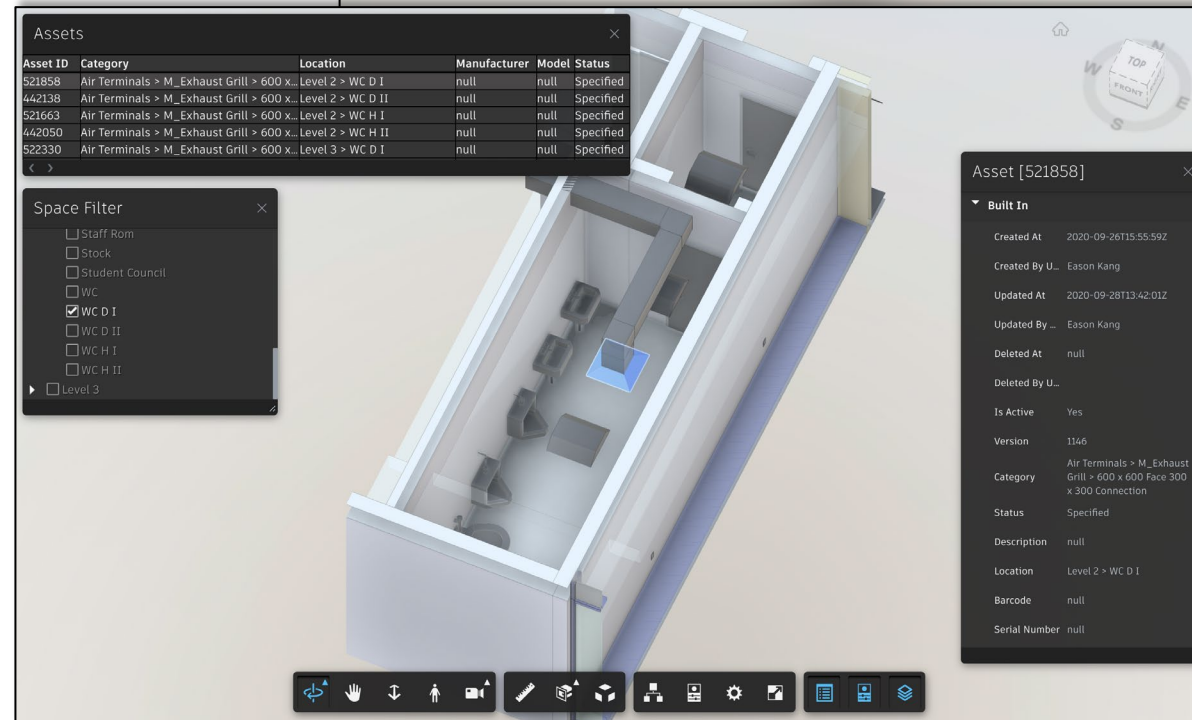
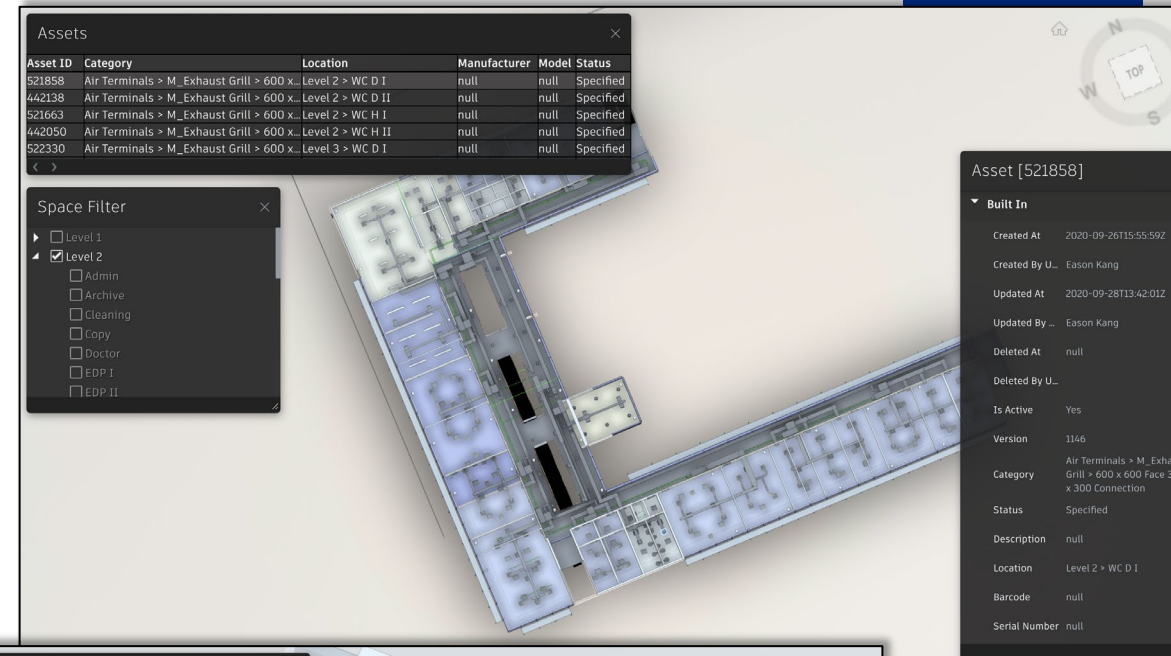
Create to BIM360

View Assets in Design Model

What it does: View asset data in the model viewer. You can filter assets by level and room. (We use Revit unique element ids saved as custom attributes to keep the association between assets to elements in Revit.)

Code: GitHub Sample (TBD)

Author: Eason Kang, Autodesk



Asset Tree	Details		
All Categories	Asset ID	Category	Location
▶ Air Terminals			
▶ Electrical Equipment			
▶ Electrical Fixtures			
▶ Lighting Devices			
▶ Lighting Fixtures			
▶ Mechanical Equipment			
	521858	Air Terminals > M_Exhaust Grill > 600 x 600 Face 300 x 30...	Level 2 > WC D I
	442138	Air Terminals > M_Exhaust Grill > 600 x 600 Face 300 x 30...	Level 2 > WC D II
	521663	Air Terminals > M_Exhaust Grill > 600 x 600 Face 300 x 30...	Level 2 > WC H I
	442050	Air Terminals > M_Exhaust Grill > 600 x 600 Face 300 x 30...	Level 2 > WC H II
	522330	Air Terminals > M_Exhaust Grill > 600 x 600 Face 300 x 30...	Level 3 > WC D I
	522312	Air Terminals > M_Exhaust Grill > 600 x 600 Face 300 x 30...	Level 3 > WC H I
	431155	Air Terminals > M_Return Diffuser > 600 x 600 Face 300 x ...	Level 2 > Admin
	430655	Air Terminals > M_Return Diffuser > 600 x 600 Face 300 x ...	Level 2 > Archive
	431276	Air Terminals > M_Return Diffuser > 600 x 600 Face 300 x ...	Level 2 > Cleaning
	430663	Air Terminals > M_Return Diffuser > 600 x 600 Face 300 x ...	Level 2 > Copy
	431304	Air Terminals > M_Return Diffuser > 600 x 600 Face 300 x ...	Level 2 > EDP I
	431365	Air Terminals > M_Return Diffuser > 600 x 600 Face 300 x ...	Level 2 > EDP I
	430875	Air Terminals > M_Return Diffuser > 600 x 600 Face 300 x ...	Level 2 > EDP II
	430885	Air Terminals > M_Return Diffuser > 600 x 600 Face 300 x ...	Level 2 > EDP II

DETAILS ISSUES CHECKLISTS ATTACHMENTS

Asset ID 521858

Category Air Terminals > ... > 600 x 600 Face 300 x 300 Connection

Description Unspecified

Barcode Unspecified

Location Level 2 > WC D I

Serial number Unspecified

Submittal Unspecified

Purchase order Unspecified

Purchase date Unspecified

Installation date Unspecified

Warranty start date Unspecified

Warranty end date Unspecified

Expected life (years) Unspecified

Installed by Unspecified

Spec section Unspecified

Manufacturer Unspecified

Model Unspecified

External Id f056ea9d-8fba-434e-80ce-46b4df0ea740-0007f682



Developer Resources

- Documentation
- Code samples on GitHub
- Postman collection

The screenshot shows the Autodesk Forge API Reference page for the 'assets' endpoint. The left sidebar contains a navigation menu with categories like 'API Reference', 'HTTP Specification', 'Assets', 'Asset-Statuses', 'Categories', 'Custom-Attributes', and 'Status-Step-Sets'. The 'GET assets' endpoint is selected. The main content area displays the endpoint details, including the method 'GET', the URI 'https://developer.api.autodesk.com/bim360/assets/v1/projects/:projectId/assets', the authentication context 'user context required', the required OAuth scope 'data:read', and the data format 'JSON'. Below this, there are sections for 'Request' and 'Headers'.

What's Next

Early 2021



Assets

Public Beta

Almost there

Open API access to all partners

Get feedback

Webinars/Accelerators

Private Beta

We are here

Fine tuning

Documentation

Samples

Select partnership

Public Release

TBD

Production level release

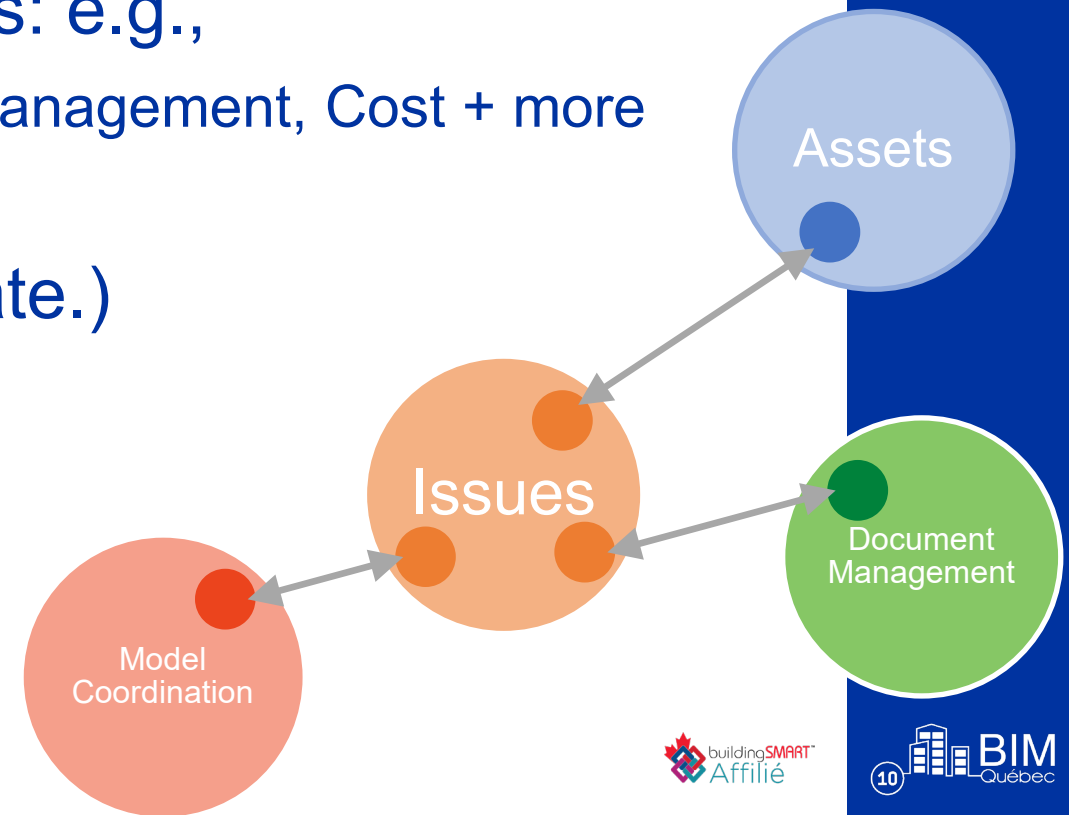
Post Release

Continuous Updates and enhancement

Relationships API

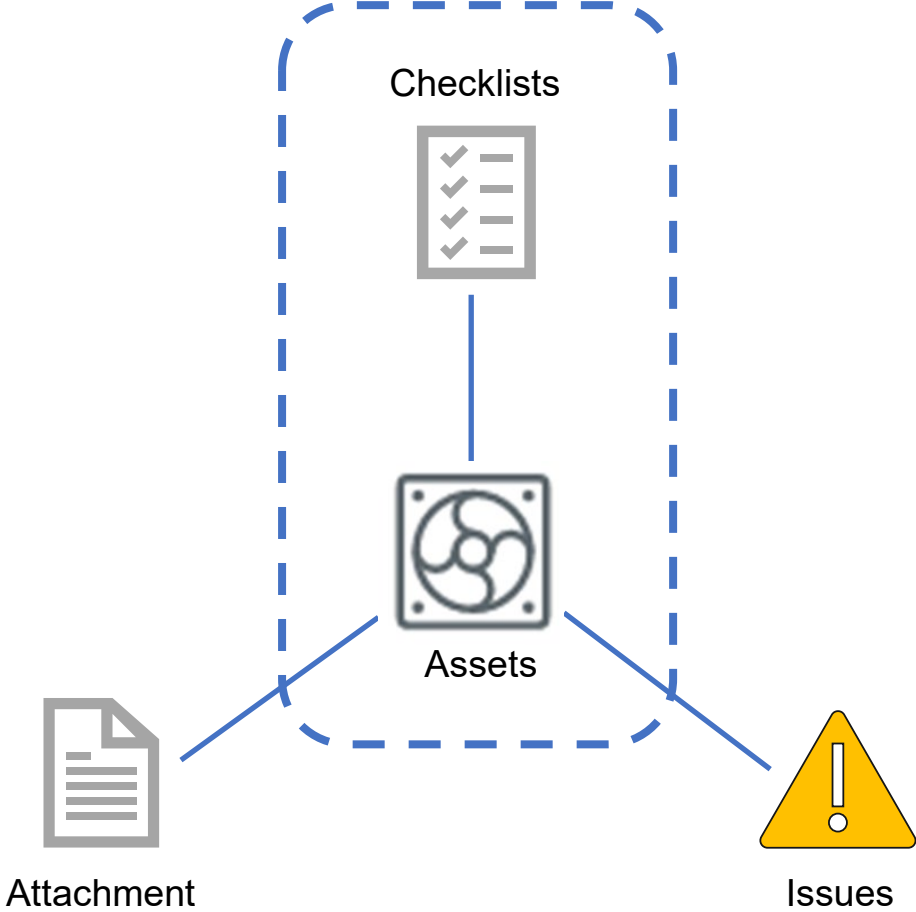
Relationships API

- Represent links between items (Entity) that reside in different functional components (Domain)
- Used in BIM 360 by various modules: e.g.,
 - Model Coordination, Assets, Field Management, Cost + more
 - Older implementation may not
- Read-only. (Domain function to create.)
- Publicly available today

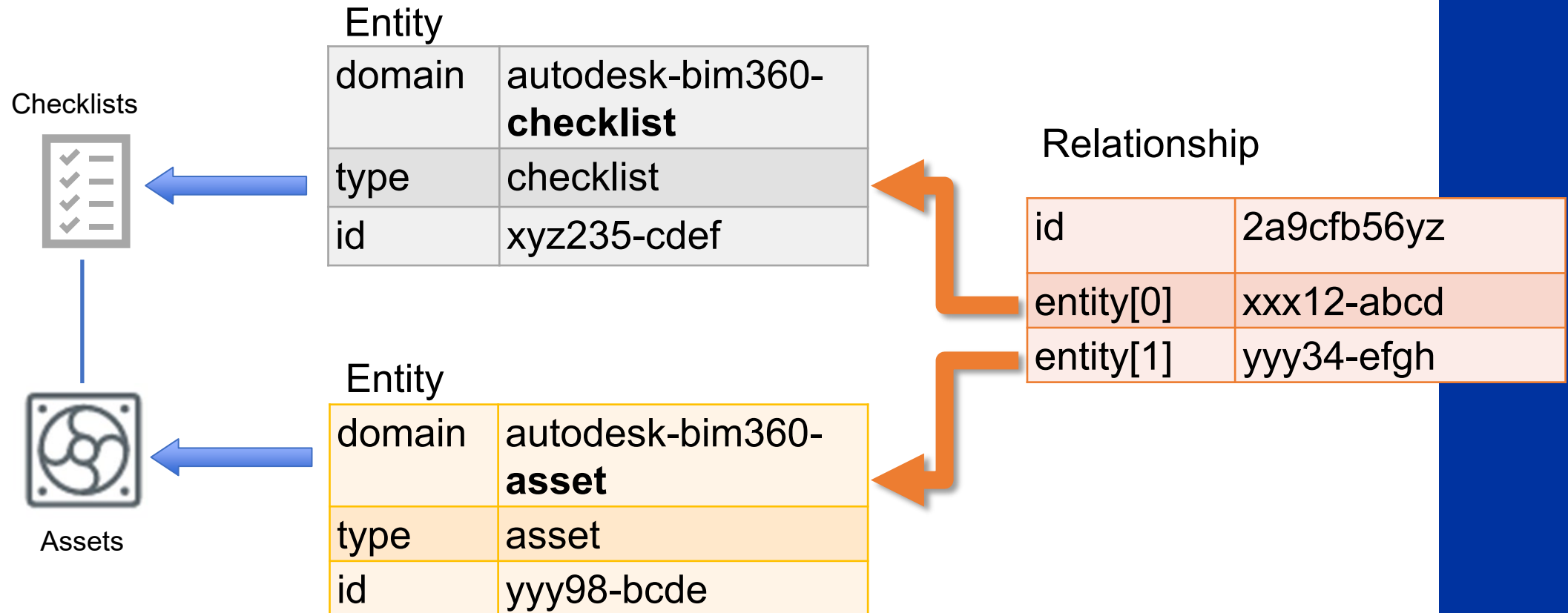


Relationships API

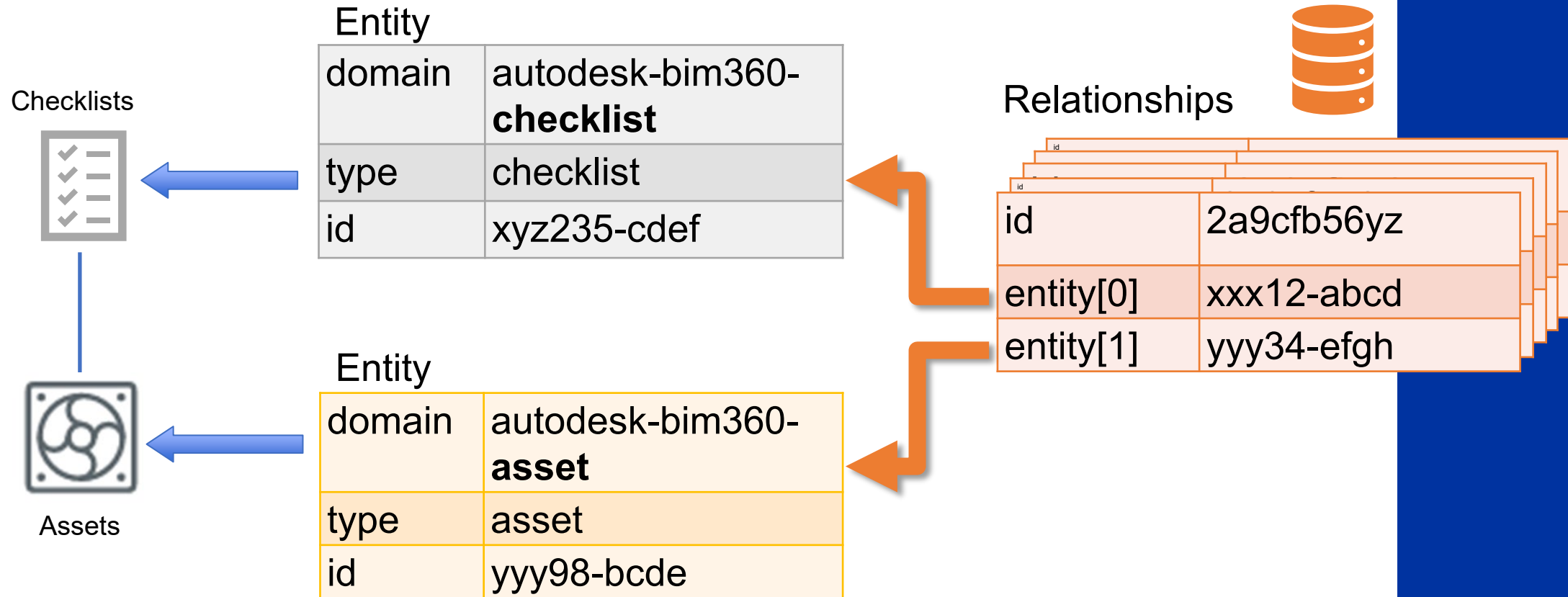
Example



Relationships API



Relationships API



Relationships API

Category	Endpoints
Search	GET relationships/: relationshipId
	POST relationships: batch
	GET relationships: search
	POST relationships: intersect
Sync	POST relationships: sync
	POST relationships: syncStatus

Relationships API

Category	Endpoints
Search	GET relationships/: relationshipId
	POST relationships: batch
	GET relationships: search
Sync	POST relationships: intersect
	POST relationships: sync
	POST relationships: syncStatus

Get relationship(s) from id(s)

```
JSON
  id : "79835e9e-ab4c-4c43-b480-a7ba54196e6e"
  createdOn : "2020-10-03T20:53:14.268952+00:00"
  isReadOnly : true
  isService : true
  isDeleted : false
  entities
    0
      createdOn : "2020-10-03T20:53:14.175205+00:00"
      domain : "autodesk-bim360-checklist"
      type : "checklist"
      id : "569859"
    1
      createdOn : "2020-10-03T20:49:21.651508+00:00"
      domain : "autodesk-bim360-asset"
      type : "asset"
      id : "f972c095-d6b2-4fd3-ae1c-70ef6061c8af"
```

Relationships API

Category	Endpoints
Search	GET relationships/: relationshipId
	POST relationships: batch
	GET relationships: search
	POST relationships: intersect
Sync	POST relationships: sync
	POST relationships: syncStatus

Search rel's that match the given criteria (domain, type, ids, date). e.g.,

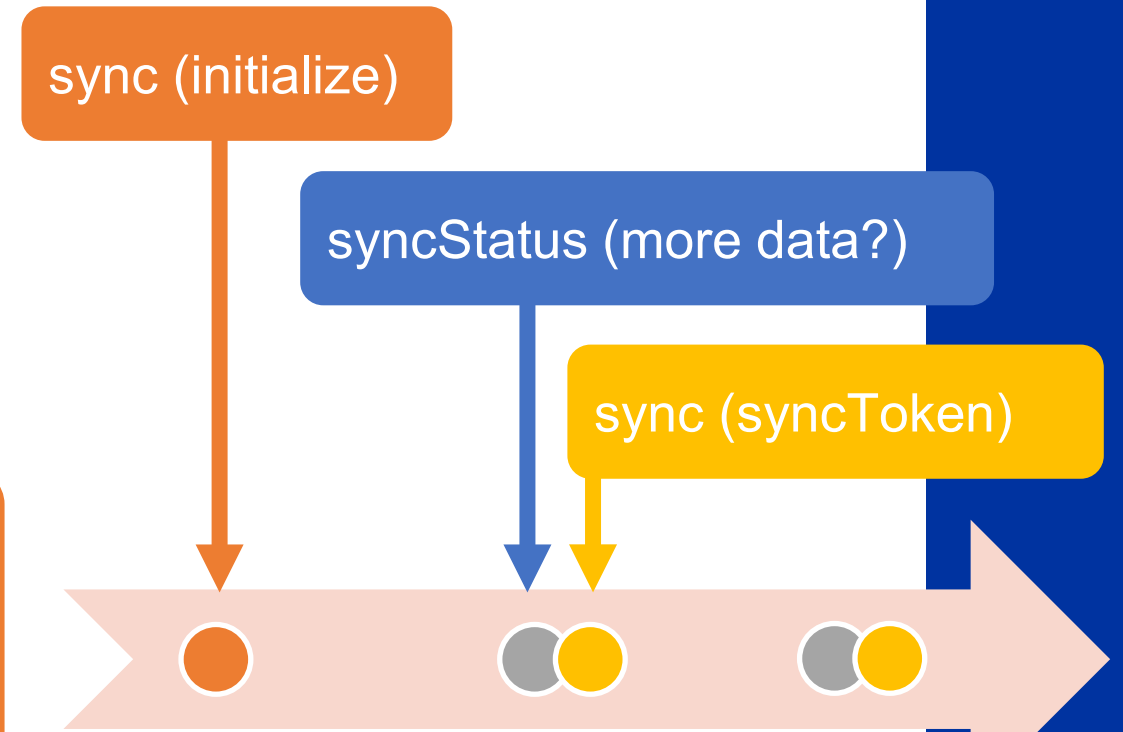
"Give me all the relationships between assets and checklists"

```
GET relationships:/search?  
domain=autodesk-bim360-asset  
&withDomain=autodesk-bim360-  
checklist
```

Relationships API

Category	Endpoints
Search	GET relationships/: relationshipId
	POST relationships: batch
	GET relationships: search
	POST relationships: intersect
Sync	POST relationships: sync
	POST relationships: syncStatus

Used to sync rel. data and external repository.



Developer Resources

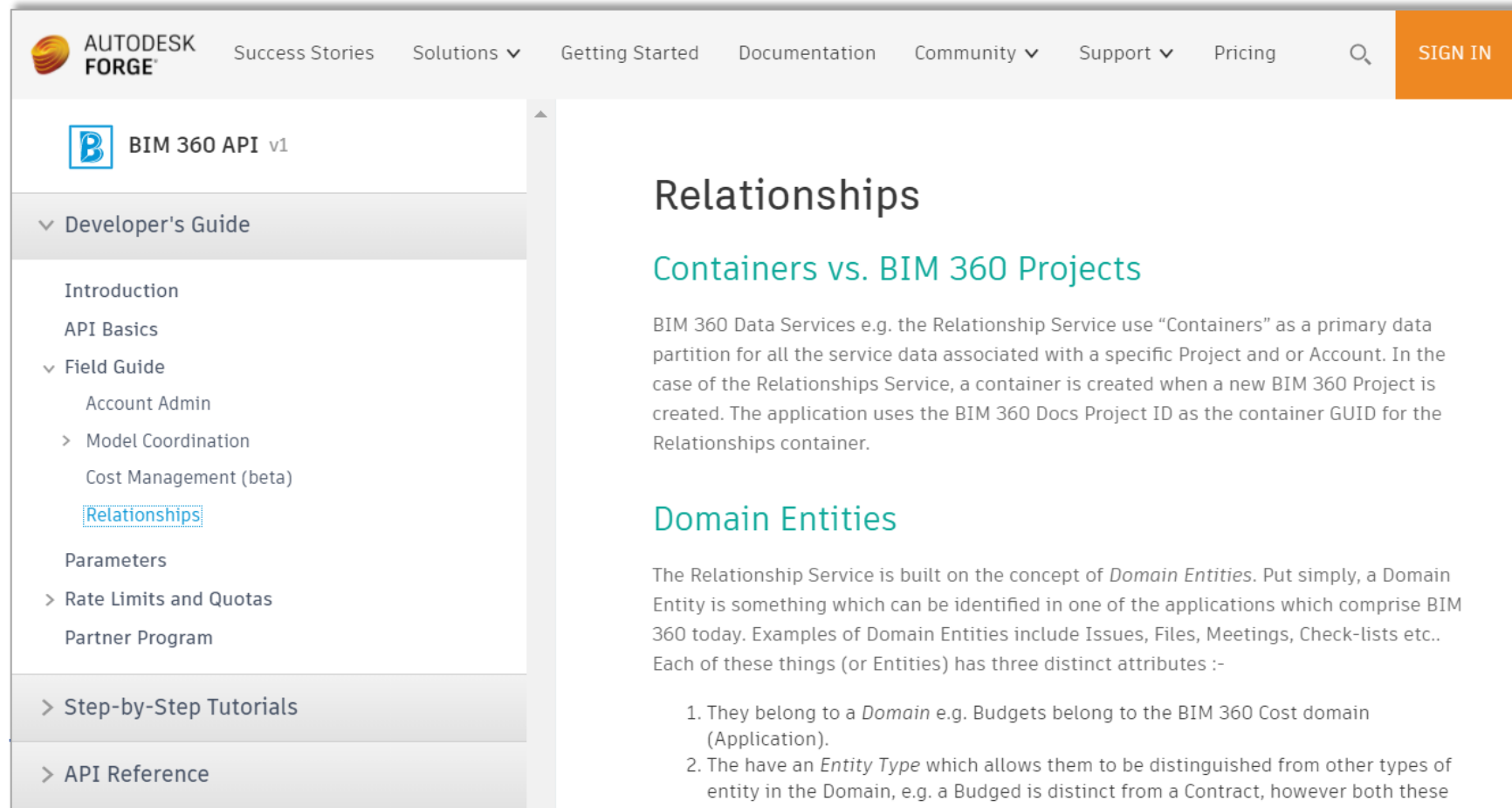
Relationship API SDK

- .NET Core nuget packages
- JavaScript and Node.js



Developer Resources

Documentation



The screenshot shows the Autodesk Forge BIM 360 API v1 documentation page. The navigation bar includes the Autodesk Forge logo, Success Stories, Solutions, Getting Started, Documentation, Community, Support, Pricing, a search icon, and a SIGN IN button. The left sidebar contains a table of contents with sections like Developer's Guide, Introduction, API Basics, Field Guide, Parameters, Rate Limits and Quotas, Partner Program, Step-by-Step Tutorials, and API Reference. The 'Relationships' link is highlighted. The main content area features the title 'Relationships' and a sub-section 'Containers vs. BIM 360 Projects'. The text explains that BIM 360 Data Services use 'Containers' as a primary data partition. It also includes a section for 'Domain Entities' with a list of attributes.

AUTODESK FORGE Success Stories Solutions ▾ Getting Started Documentation Community ▾ Support ▾ Pricing 🔍 SIGN IN

BIM 360 API v1

▾ Developer's Guide

- Introduction
- API Basics
- ▾ Field Guide
 - Account Admin
 - > Model Coordination
 - Cost Management (beta)
 - Relationships**
- Parameters
- > Rate Limits and Quotas
- Partner Program

> Step-by-Step Tutorials

> API Reference

Relationships

Containers vs. BIM 360 Projects

BIM 360 Data Services e.g. the Relationship Service use “Containers” as a primary data partition for all the service data associated with a specific Project and or Account. In the case of the Relationships Service, a container is created when a new BIM 360 Project is created. The application uses the BIM 360 Docs Project ID as the container GUID for the Relationships container.

Domain Entities

The Relationship Service is built on the concept of *Domain Entities*. Put simply, a Domain Entity is something which can be identified in one of the applications which comprise BIM 360 today. Examples of Domain Entities include Issues, Files, Meetings, Check-lists etc.. Each of these things (or Entities) has three distinct attributes :-

1. They belong to a *Domain* e.g. Budgets belong to the BIM 360 Cost domain (Application).
2. They have an *Entity Type* which allows them to be distinguished from other types of entity in the Domain, e.g. a Budget is distinct from a Contract, however both these

What's in the Pipeline

What's in the Pipeline

Document Management

- Custom attributes definition, review, controls on translation/viewables

Assets

- Initial release!

Cost Management

- Payments, billing period, main contracts, schedule of values, expenses^{*1}

Admin

- Project API: fill gaps, add users, update companies
- Activities

Model Coordination

- Alignments, aggregation, indexing enhancements^{*1}
- 2LO, webhooks

Field Managements

- Fill gaps: checklists, RFI, issues

*1) prioritize based on feedbacks

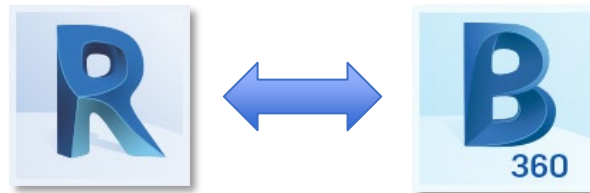
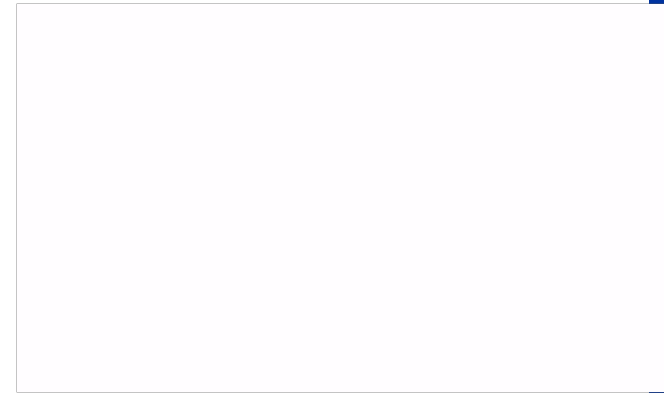
What's in the Pipeline

Insight

- Data connector

Design

- cloud model/
worksharing*²





AUTODESK CONSTRUCTION CLOUD™

What's Next?

Pre AU

This recording

Development

AU Virtual

11/17~ We are here

Share the latest at class
QA session and Answer
Bar

Product Release

Early 2021

Webinars

API Release

Shortly after product
release

Webinars

Accelerators

Get feedback



Monthly Update Webinars

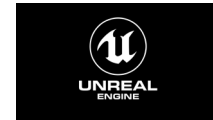


Questions?

PARTENAIRE
PUBLIC



PARTENAIRES
OR



PARTENAIRES
ACADÉMIQUES



PARTENAIRES
RÉGULIERS





BIM

Québec

POUR UN
ENVIRONNEMENT
BÂTI NUMÉRIQUE
AU QUÉBEC