



Introduction to Autodesk Construction Cloud API

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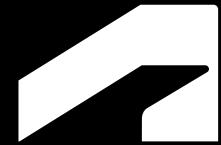
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Agenda

- 1 Autodesk Construction Cloud Family Products Overview
- 2 API Big Picture
- 3 Accessing Project Data – by Modules
- 4 Q&A
- 5 What's Next

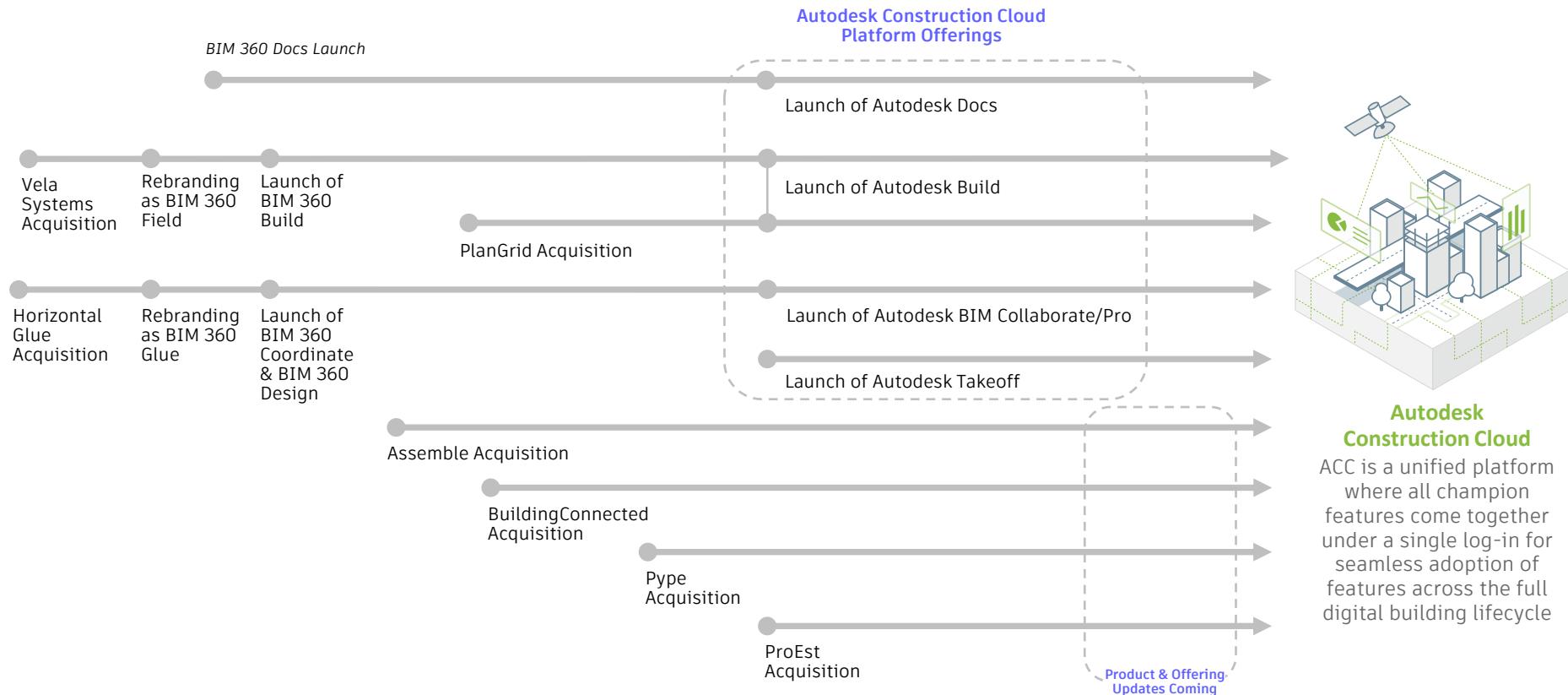




Autodesk Construction Cloud Product Overview

Construction Management @ Autodesk

High Level Product & Offering Evolution



Autodesk Construction Cloud Products

Latest product offering

AUTODESK Construction Cloud

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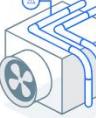
Products Solutions Resources Customer Stories Pricing

Autodesk Construction Cloud Products

The work may be challenging, software shouldn't be. Autodesk Construction Cloud products help you build better in a simple, user-friendly interface.

B Build Comprehensive field and project management software that delivers a broad, deep and connected set of tools for builders. 

T Takeoff Perform accurate 2D takeoffs and generate automated quantities from 3D models in a single online solution. 

C BIM Collaborate Connect decision-makers and construction teams to manage design reviews and automate model coordination with trades. Improve design quality and constructability from the office to the field. 

D Docs Centralized document management solution that acts as a single source of truth across the project lifecycle for all project teams. 

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ADDITIONAL PRODUCTS

AUTODESK CONSTRUCTION CLOUD MOBILE

Mobile-first, field collaboration app, now part of Autodesk Build.

[LEARN MORE](#) [Contact Us >](#)

BIM Collaborate Pro

Co-author designs, perform design reviews, and automate model coordination with trades. Collaborate in design tools anytime, from anywhere and improve design quality and constructability from the office to the field.

[LEARN MORE](#) [Try Now >](#)

ASSEMBLE

Query and connect BIM data to design reviews, takeoffs, estimating, change management, and value engineering to reduce risk and improve efficiency.

[LEARN MORE](#) [Get a Demo >](#)

BUILDING CONNECTED

The largest real-time, construction network with an easy-to-use platform that streamlines the bid and risk management process.

[LEARN MORE](#) [Get a Demo >](#)

PYPE

Create and review submittal logs, collect closeout documentation and create dynamic document turnover packages while reducing risk and increasing accuracy.

[LEARN MORE](#) [Get a Demo >](#)

PROEST

Powerful cloud-based estimating solution that ensures estimates are accurate, bids are competitive, and projects are profitable.

[LEARN MORE](#) [Get a Demo >](#)

AUTODESK Construction Cloud Connect

Create powerful custom integrations easily. Build unique workflows that

<https://construction.autodesk.com/products/>

AUTODESK Construction Cloud

Unified Products



AUTODESK
BIM Collaborate



AUTODESK
BIM Collaborate
Pro



AUTODESK
Takeoff



AUTODESK
Build



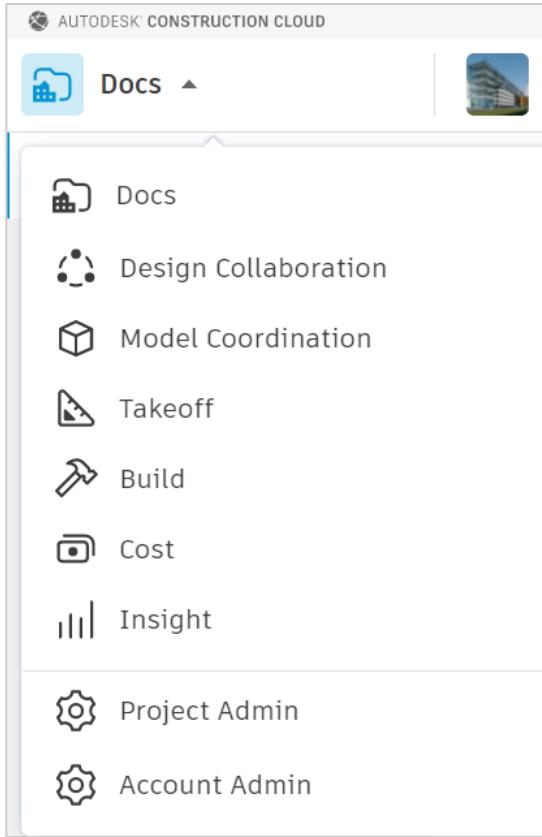
AUTODESK Docs

INSIGHTS

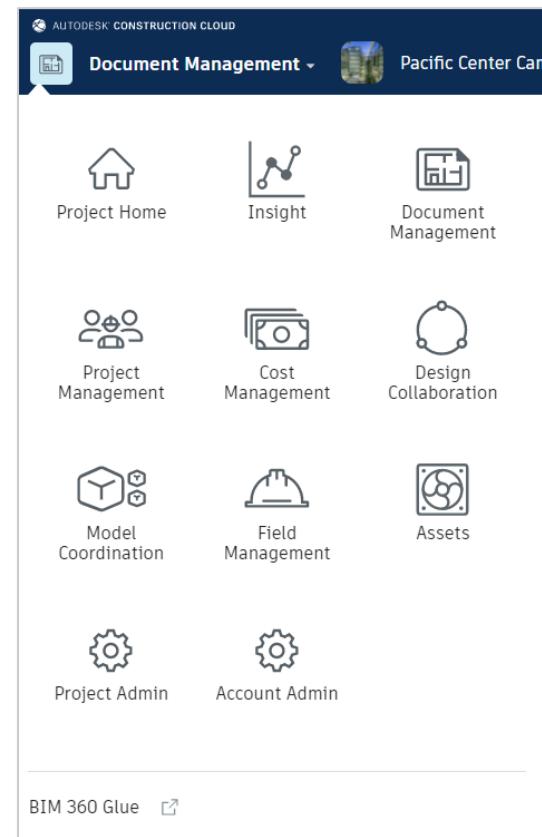
ADMINISTRATION

Products/Subscription & Modules

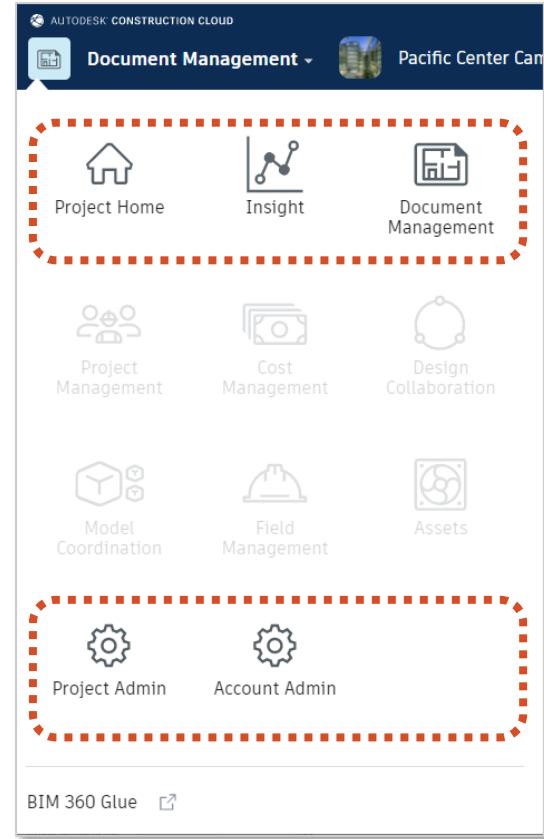
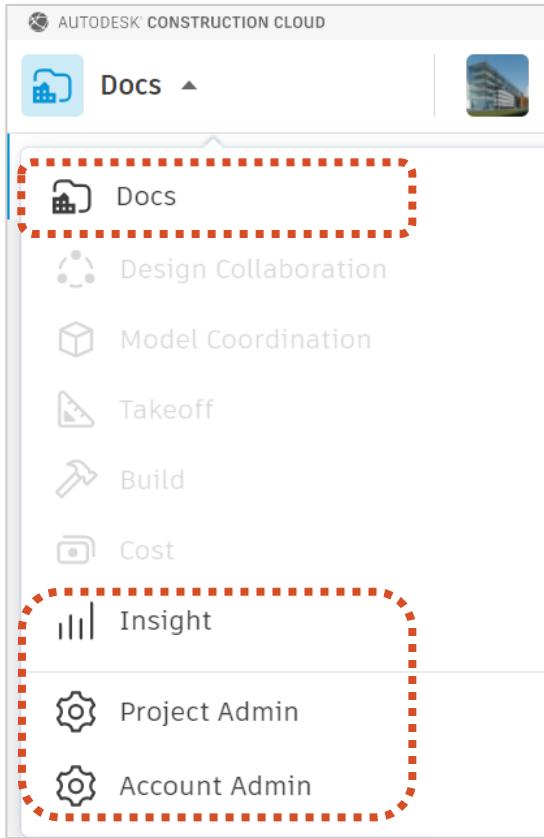
ACC



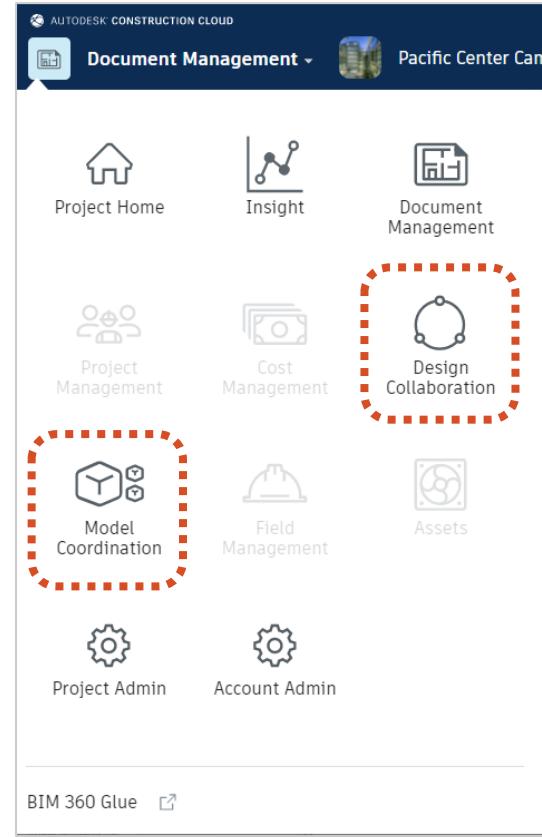
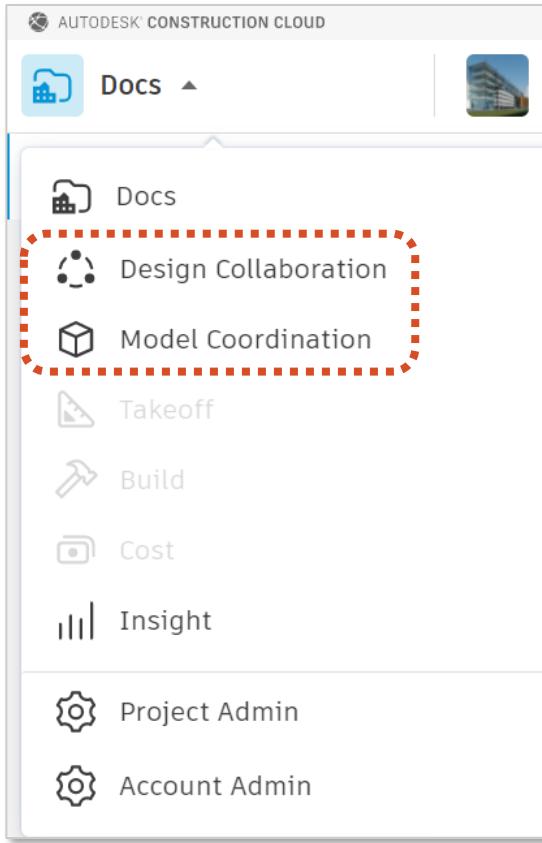
BIM 360



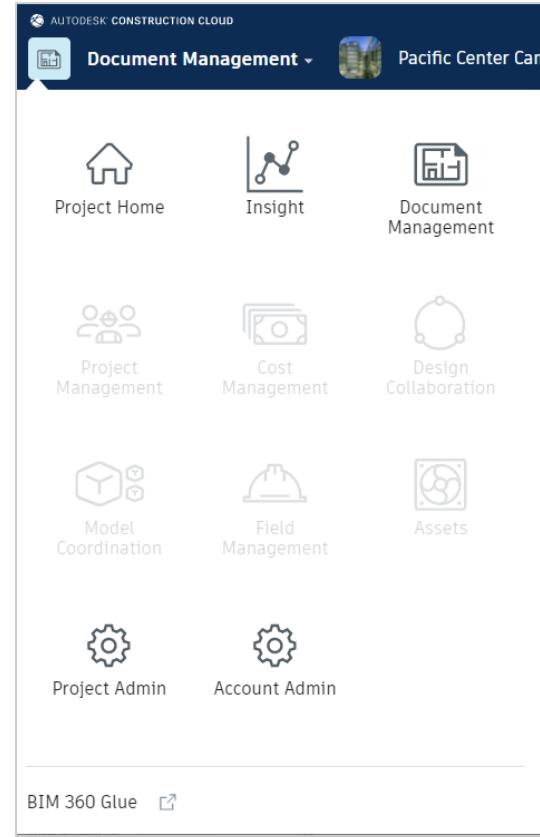
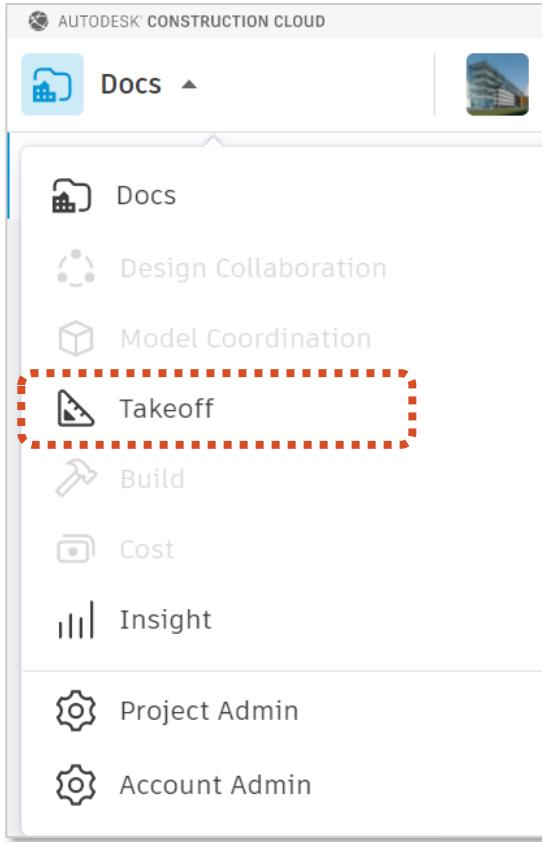
Products/Subscription & Modules



Products/Subscription & Modules



Products/Subscription & Modules



Products/Subscription & Modules

AUTODESK CONSTRUCTION CLOUD

Docs ▾

- Docs
- Design Collaboration
- Model Coordination
- Takeoff
- Build
- Cost
- Insight
- Project Admin
- Account Admin



AUTODESK CONSTRUCTION CLOUD

Document Management ▾ Pacific Center Cam

Project Home Insight Document Management

Project Management Cost Management Design Collaboration

Model Coordination Field Management Assets

Project Admin Account Admin

BIM 360 Glue

Products Access

acc.autodesk.com, acc.autodesk.eu, acc.apac.autodesk.com

New!

The screenshot shows the Autodesk Construction Cloud interface. At the top, there's a navigation bar with links for Account Admin, Executive Insight, More Autodesk products (PlanGrid, BuildingConnected, TradeTapp, Pype AutoSpecs), and a user profile for Mikako Harada. Below the navigation bar, a red dashed box highlights the user profile area. The main content area has a welcome message "Welcome, Mikako" and a question "What would you like to do today?". There are tabs for My Home, Projects (which is selected and highlighted with a blue border), and Project Templates. A "Create project" button is visible. To the right is a search bar with the placeholder "Search projects by name..." and a magnifying glass icon. A second red dashed box highlights the "Create project" button and the search bar area. Below these, a table lists three projects:

Type	Name	Number	Quick access	Account	Created on
	MH Test		Docs ▾	Developer Advocacy Support	Jun 12, 2023
	BIM 360 APS Training			Riley Peterson	Apr 11, 2023
	MH Test ACC Proj		Project Admin ▾	Developer Advocacy Support	Feb 21, 2023

The screenshot shows the Autodesk Construction Cloud Product Roadmap page. At the top, there's a navigation bar with links for Products, Solutions, Resources, Customer Stories, Pricing, and a LOGIN button. Below the navigation is a header with three tabs: PRODUCT ROADMAP (selected), IN PROGRESS, and RECENT RELEASES. A blue banner at the top states: "The information provided in this material, including all product roadmaps and schedules, are not promises and is subject to change. We're as excited as you to see new functionalities and improvements in our products, but their development, releases, and timing remain at our sole discretion. The information provided here should not be relied upon for purchasing, investment, or other decisions." The main title is "Autodesk Construction Cloud Product Roadmap". Below the title, a paragraph says: "We are focused on delivering on our promise of a unified platform to help connect teams and project data from design to done—reducing risk, protecting profits, and increasing predictability." Another paragraph states: "New functionality is released across our Autodesk Construction Cloud products regularly. If you're a product user, you will receive in-product updates about recent releases or subscribe to our newsletter to have product updates dropped in your inbox." A large image below the text shows a construction site with the text "In Progress" overlaid. Below the image, a section titled "In Progress" lists several items under the heading "Construction Management". A blue arrow points from the "Construction Management" item towards the "Coming Soon" section on the right.

AUTODESK Construction Cloud

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Products Solutions Resources Customer Stories Pricing

PRODUCT ROADMAP IN PROGRESS RECENT RELEASES

The information provided in this material, including all product roadmaps and schedules, are not promises and is subject to change. We're as excited as you to see new functionalities and improvements in our products, but their development, releases, and timing remain at our sole discretion. The information provided here should not be relied upon for purchasing, investment, or other decisions.

Autodesk Construction Cloud Product Roadmap

We are focused on delivering on our promise of a unified platform to help connect teams and project data from design to done—reducing risk, protecting profits, and increasing predictability.

New functionality is released across our Autodesk Construction Cloud products regularly. If you're a product user, you will receive in-product updates about recent releases or subscribe to our newsletter to have product updates dropped in your inbox.

In Progress

Below is a select list of features we are actively developing. This is our global roadmap, please note that not all features will be available in all regions.

Administration and Project Standardization	+
Document Management	+
Construction Management	+
BIM/VDC	+
Preconstruction	+
Data and Intelligence	+

Construction Management

Our roadmap for Construction Management currently focuses on building tools that allow users to leverage models in construction, increase customization and control in cost and project management workflows including RFIs, Submittals and Correspondence and improve onsite scheduling.

Related Products:

AUTODESK Build

Coming Soon

Assets Statistics
Autodesk Build mobile users will get more insight into Assets with the ability to view the status of open assets and the number of open forms and issues associated with an asset.

Export/Import Templates into Assets
Autodesk Build users will be able to export existing Asset project settings from BIM 360 Assets and import into Project Templates in Autodesk Construction Cloud.

Change Order Required Field
Autodesk Build Cost Management users will be able to better understand the impact of change orders upfront by having specific information like schedule change and custom attributes required at submission. Project admins will define the required fields within Cost Management's settings.

Assign Roles and Companies to Submittals
Autodesk Build users will be able to assign specific Roles to

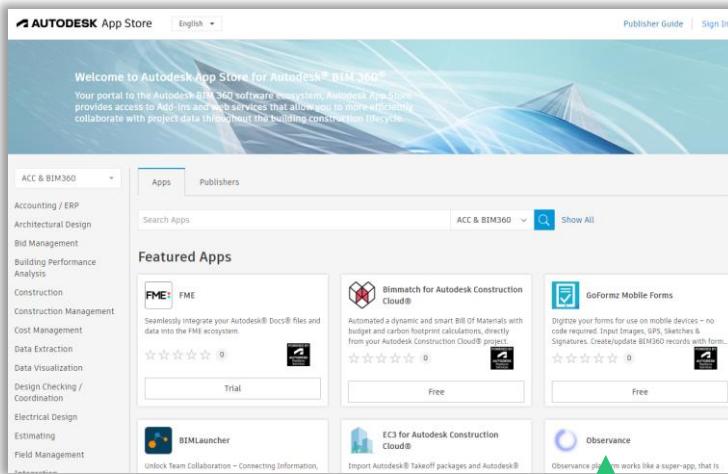
ACC Product Roadmap

<https://construction.autodesk.com/products/product-roadmap/>

ACC/BIM 360 App Store

- apps.autodesk.com

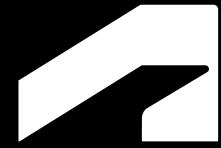
- Visible to all users
- Custom Integration Tab to provision App



same publishing process :
<https://www.autodesk.com/developapp>

- In-product store

- Visible to Account Admin
- Simplified provisioning

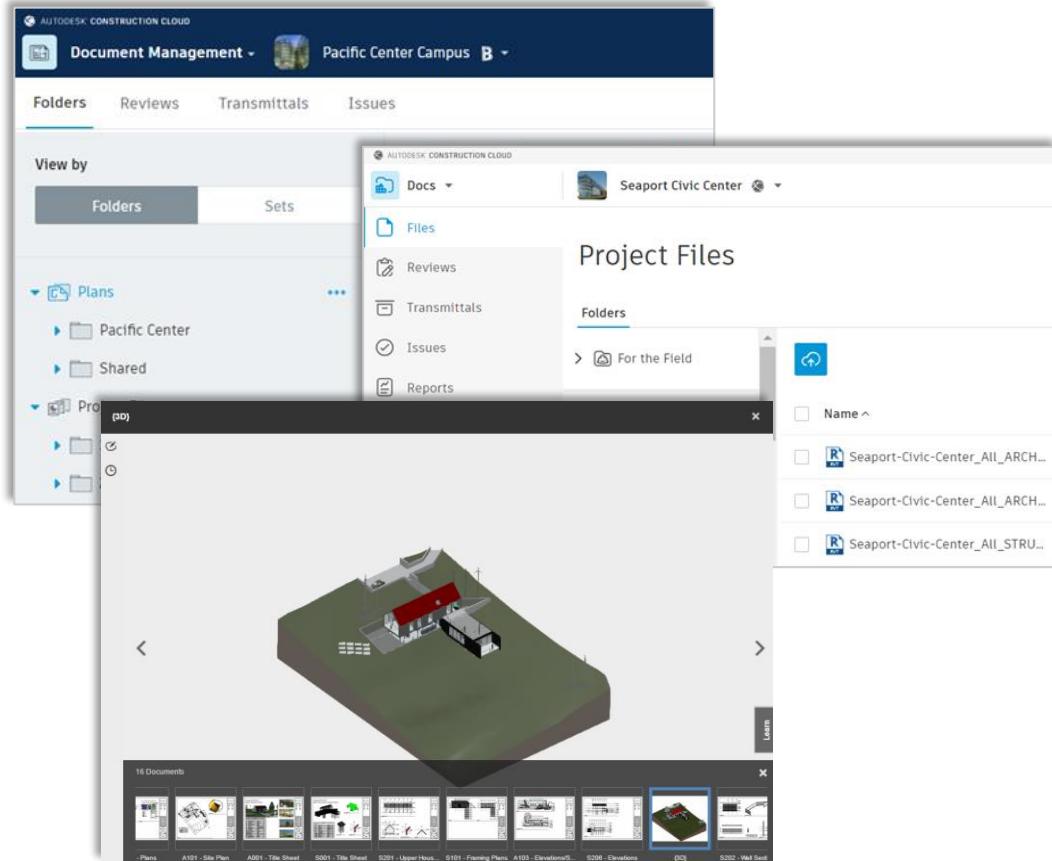


API - Big Picture



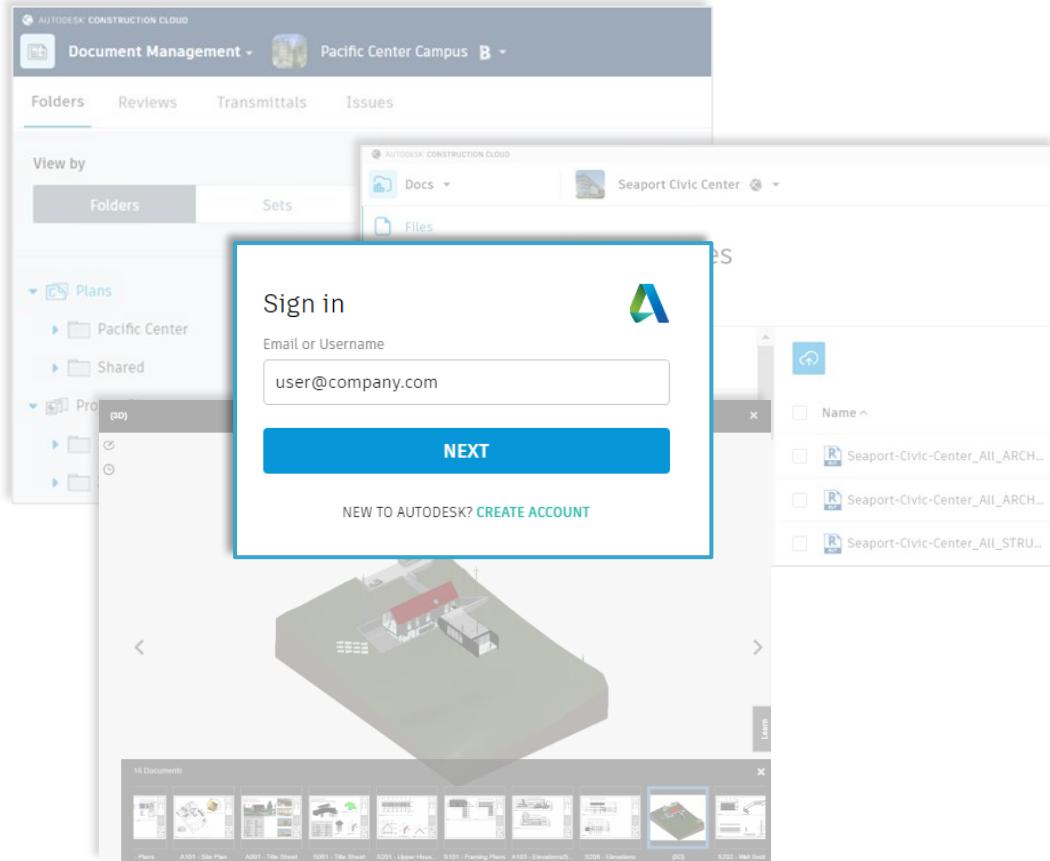
Autodesk/BIM 360 Docs – API Overview

- Authentication (OAuth)
- Data Management API
- Model Derivative API
- Viewer
- Admin API
- Issues API



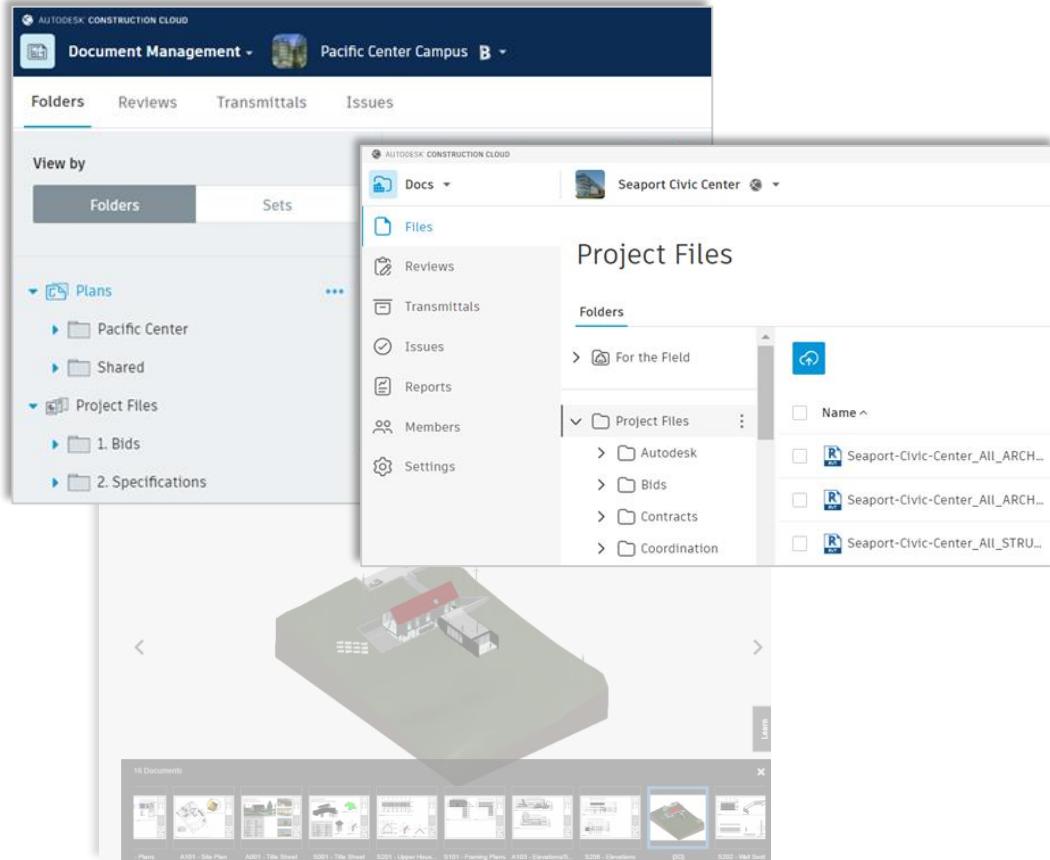
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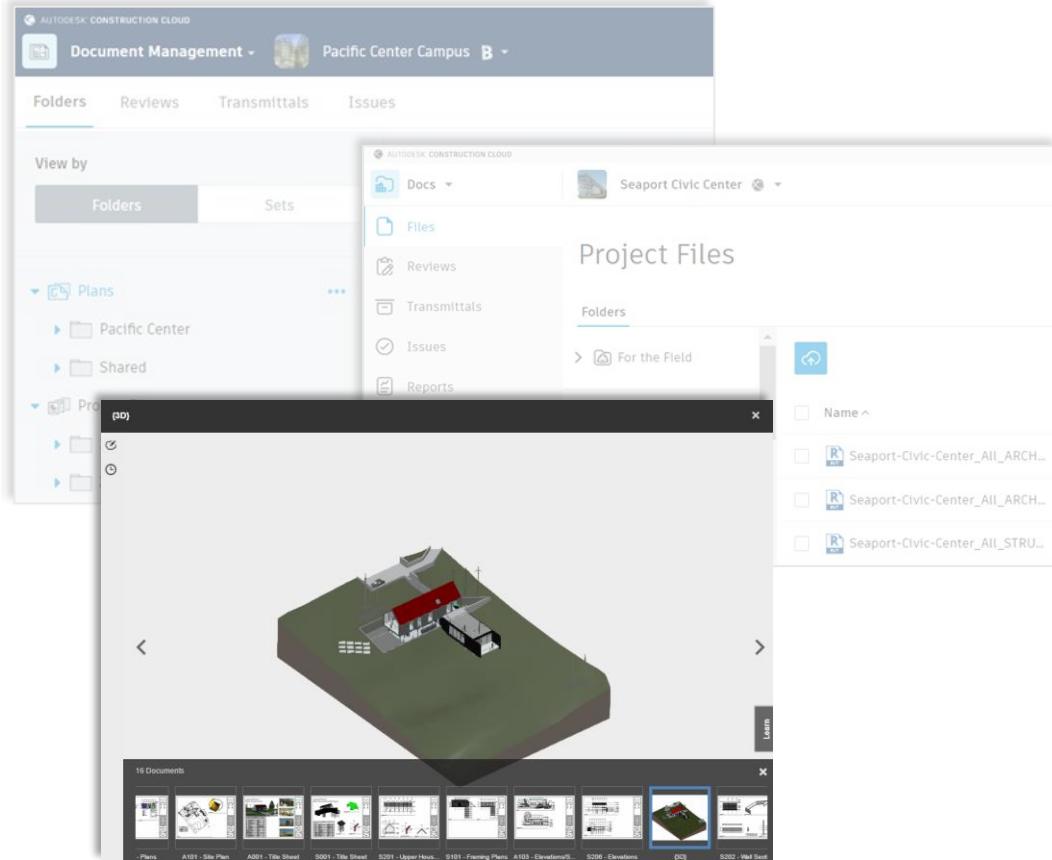
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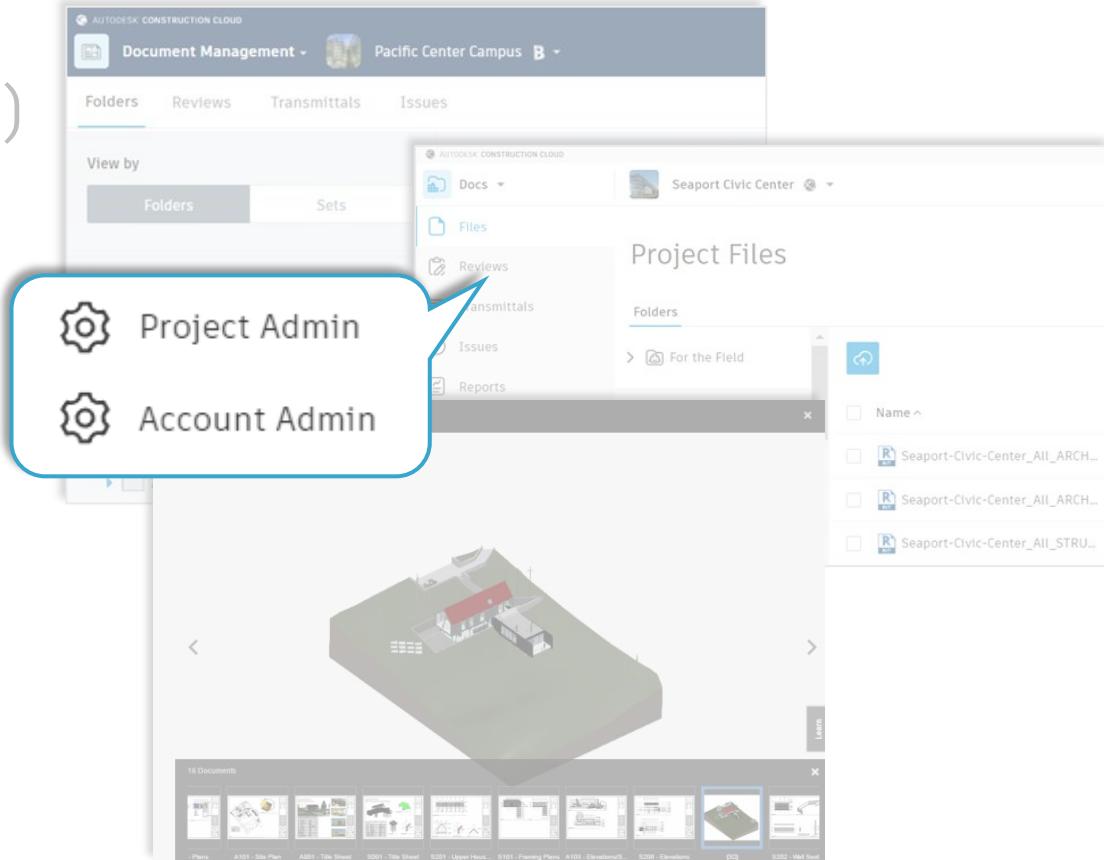
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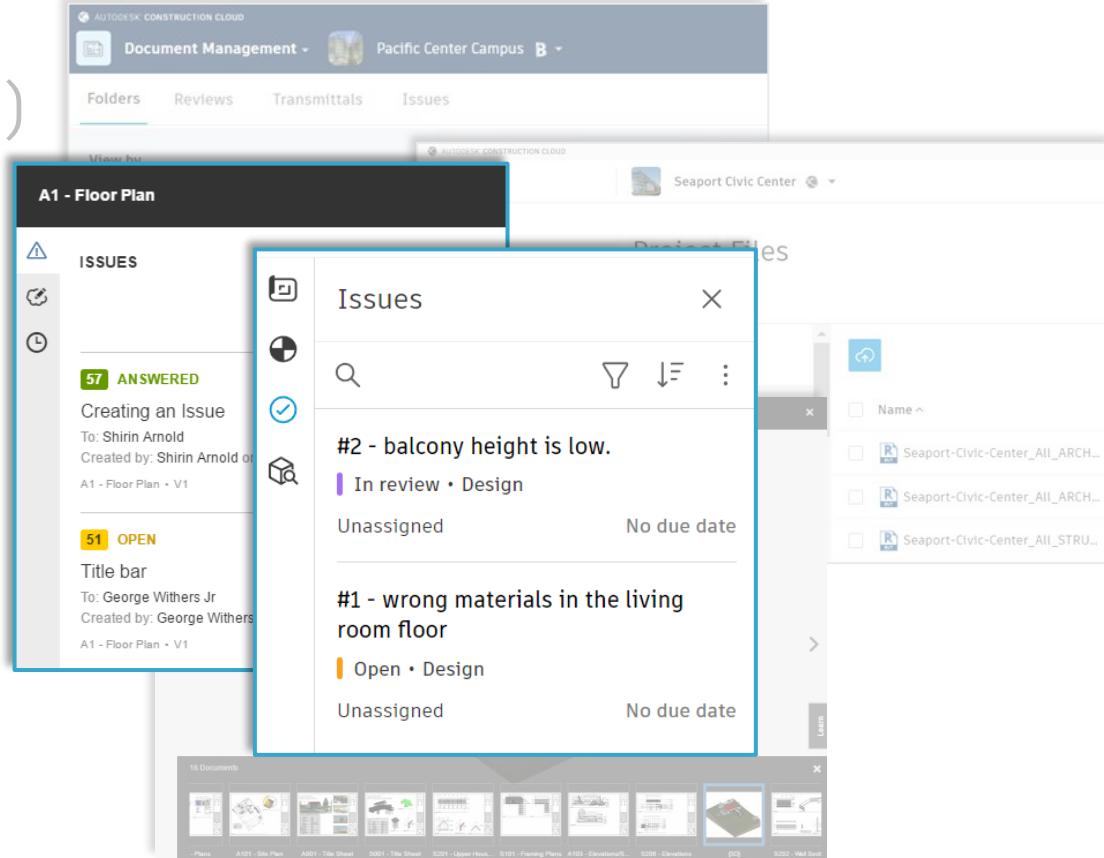
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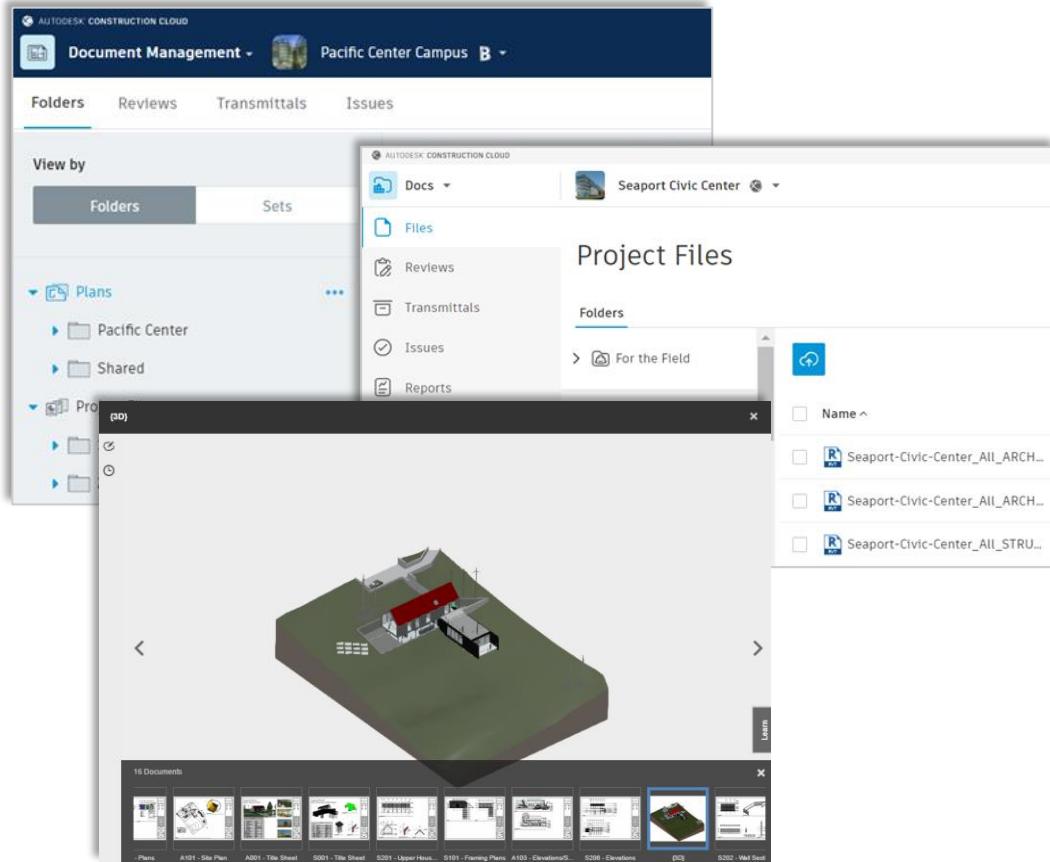
Autodesk/BIM 360 Docs – API Overview

- Authentication (OAuth)
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- Model Derivative API
- Viewer

Platform API

- Admin API
- Issues API

ACC/BIM 360 API



AUTODESK Construction Cloud

Unified Products and API



AUTODESK
BIM Collaborate



AUTODESK
BIM Collaborate
Pro



AUTODESK
Takeoff



AUTODESK
Build



AUTODESK Docs

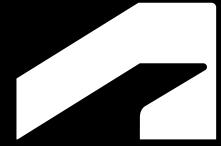
Docs Specific

Platform API

INSIGHTS

Shared Services within ACC/BIM 360

ADMINISTRATION



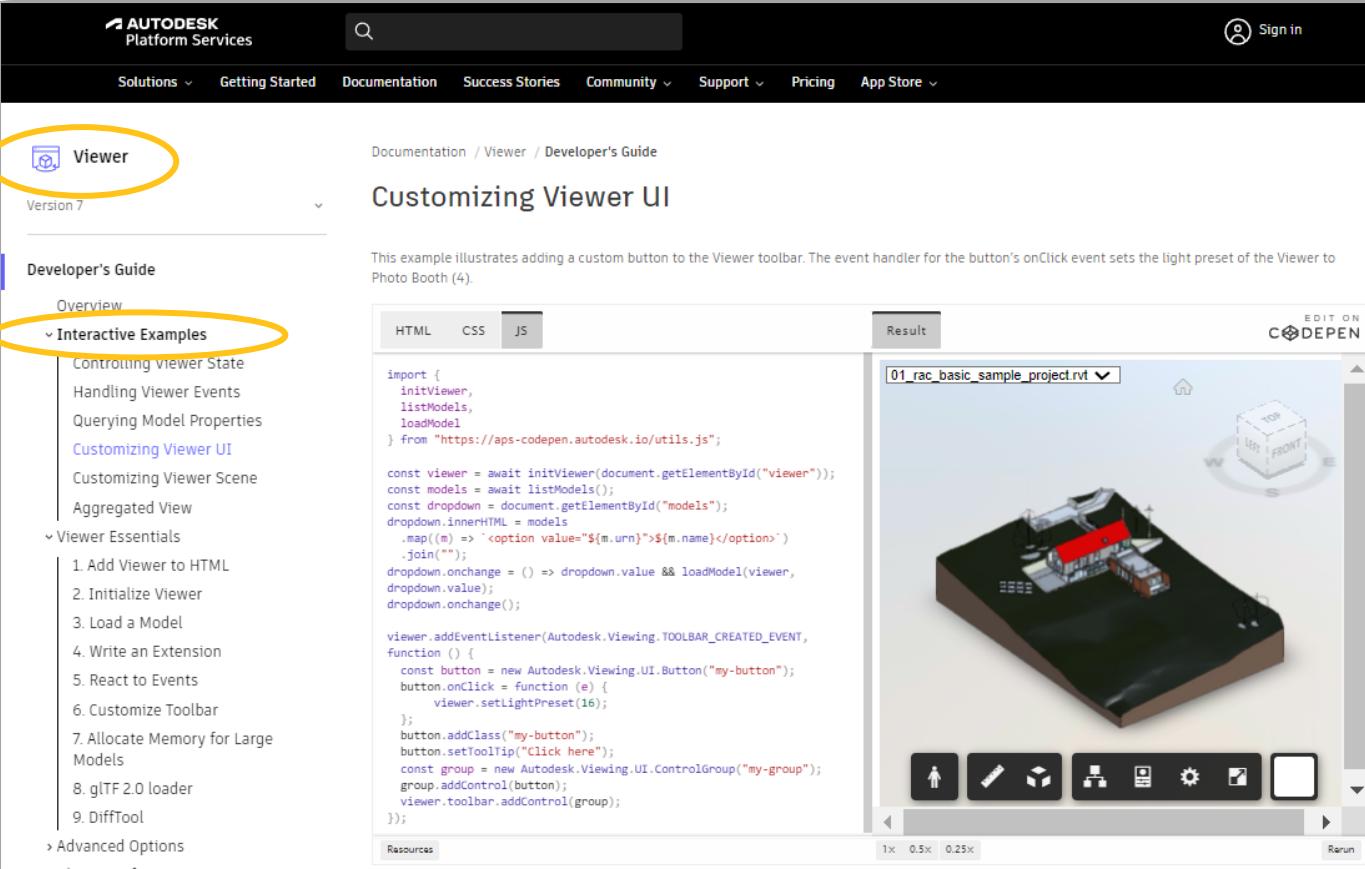
Autodesk Platform Services (APS)

APS (Autodesk Platform Services) API

- APS basics
 - Authentication (OAuth)
 - Data Management (DM) API
 - Model Derivatives API
 - Viewer
- Learning
 - aps.autodesk.com >> Getting Started
 - Setup
 - Tutorials
 - Link to Github

The screenshot shows the Autodesk Platform Services website. At the top, there's a navigation bar with links for Solutions, Getting Started (which is highlighted with a yellow circle), Documentation, Success Stories, Community, Support, and Pricing. Below the navigation bar, the main content area has a header "Getting Started". On the left, there's a sidebar with links: Environment Setup, Tutorials (also highlighted with a yellow circle), Simple Viewer, Hubs Browser (with a yellow star icon), Dashboard, Design Automation, ACC Administrator (with a yellow star icon and the text "New!"), and Learn More. The main content area has a heading "Getting Started" and text: "Here's a couple of things you want to do before building your first Platform Services application." To the right, there's a "Create an account" section with a "TIP" box containing the text: "You can take advantage of a trial subscription that is valid for...".

APS (Autodesk Platform Services) API



The screenshot shows the Autodesk Platform Services Documentation website. The main navigation bar includes links for Solutions, Getting Started, Documentation, Success Stories, Community, Support, Pricing, and App Store. A search bar is located at the top right. On the left, there's a sidebar with a 'Viewer' icon (circled in yellow) and the text 'Version 7'. Below it is the 'Developer's Guide' section, which has 'Interactive Examples' (also circled in yellow) expanded, showing a list of topics like Controlling viewer State, Handling Viewer Events, Querying Model Properties, Customizing Viewer UI, Customizing Viewer Scene, Aggregated View, and more. The main content area shows the 'Customizing Viewer UI' page, which includes a code editor with tabs for HTML, CSS, and JS, and a preview window showing a 3D model of a building with a toolbar at the bottom.

Documentation / Viewer / Developer's Guide

Customizing Viewer UI

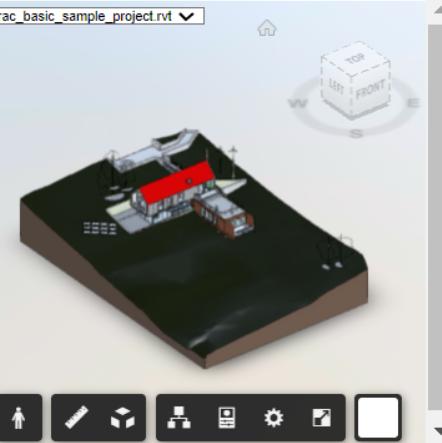
This example illustrates adding a custom button to the Viewer toolbar. The event handler for the button's onClick event sets the light preset of the Viewer to Photo Booth (4).

HTML CSS JS

```
import {  
    initViewer,  
    listModels,  
    loadModel  
} from "https://aps-codepen.autodesk.io/utils.js";  
  
const viewer = await initViewer(document.getElementById("viewer"));  
const models = await listModels();  
const dropdown = document.getElementById("models");  
dropdown.innerHTML = models  
.map((m) => <option value="${m.urn}">${m.name}</option>)  
.join("");  
dropdown.onchange = () => dropdown.value && loadModel(viewer,  
dropdown.value);  
dropdown.onchange();  
  
viewer.addEventListener(Autodesk.Viewing.TOOLBAR_CREATED_EVENT,  
function () {  
    const button = new Autodesk.Viewing.UI.Button("my-button");  
    button.onClick = function (e) {  
        viewer.setLightPreset(16);  
    };  
    button.addClass("my-button");  
    button.setToolTip("Click here");  
    const group = new Autodesk.Viewing.UI.ControlGroup("my-group");  
    group.addControl(button);  
    viewer.toolbar.addControl(group);  
});
```

01_rac_basic_sample_project.rvt

EDIT ON CODEPEN



Activating API Access – before you code ...

- Account Admin needs to activate API access:
 - ACC: Account Admin >> **Custom Integration**
 - BIM 360: Account Admin>> **Settings >> Custom Integration**
- “**Provisioning**”

The screenshot shows the Autodesk Construction Cloud (ACC) interface. On the left, there's a sidebar with various options: Projects, Members, Companies, Roles, Project templates, Library, Apps, **Custom integrations**, Settings, and BIM 360 admin. The 'Custom integrations' option is highlighted with a red oval. At the top, the user is identified as 'Account Admin'. A secondary red oval highlights the 'Add custom integration' button in a blue box. To the right, a modal window titled 'Add custom integration' is open, prompting for an 'Account ID' (0f9cb13-e-95-4-765f4c165f4c16f-1), a 'Autodesk Platform Services Client ID' (input field), a 'Custom integration name' (input field), and a 'Description' (input field). A yellow 'New!' annotation points to the 'Custom integrations' option in the sidebar.

ACC UI →

New!

Activating API Access – before you code ...

- Account Admin needs to activate API access:
 - ACC: Account Admin >> **Custom Integration**
 - BIM 360: Account Admin>> **Settings >> Custom Integration**
- “**Provisioning**”

BIM 360 UI →

The screenshot shows the Autodesk Construction Cloud interface. At the top, there's a navigation bar with tabs: PROJECTS, MEMBERS, COMPANIES, ROLES, ANALYTICS, SETTINGS (which is underlined and highlighted with a yellow circle), and APPS. Below that is a secondary navigation bar with Profile, Business Units, Custom Integrations (highlighted with a yellow circle), and Admin Activities. The main content area is titled "AUTODESK Forge" and contains a brief description of custom integrations. At the bottom left of this area, there's a blue button labeled "Add Custom Integration" which is also highlighted with a yellow circle. To the right, there's a grid of integration cards:

Integration Type	App Name	Status
Forge	myDemoApp	Suspended
SharePoint	MHForgeDemoApp2	Active
XL Framework + Building Blocks	XL_Test_BIMDocs	Active
Google Drive sample app	Google Drive sample app	Active
WorkshopSample	WorkshopSample	Active
forgedmboxintegration.he rokuapp.com	forgedmboxintegration.he rokuapp.com	Active

Activating API Access

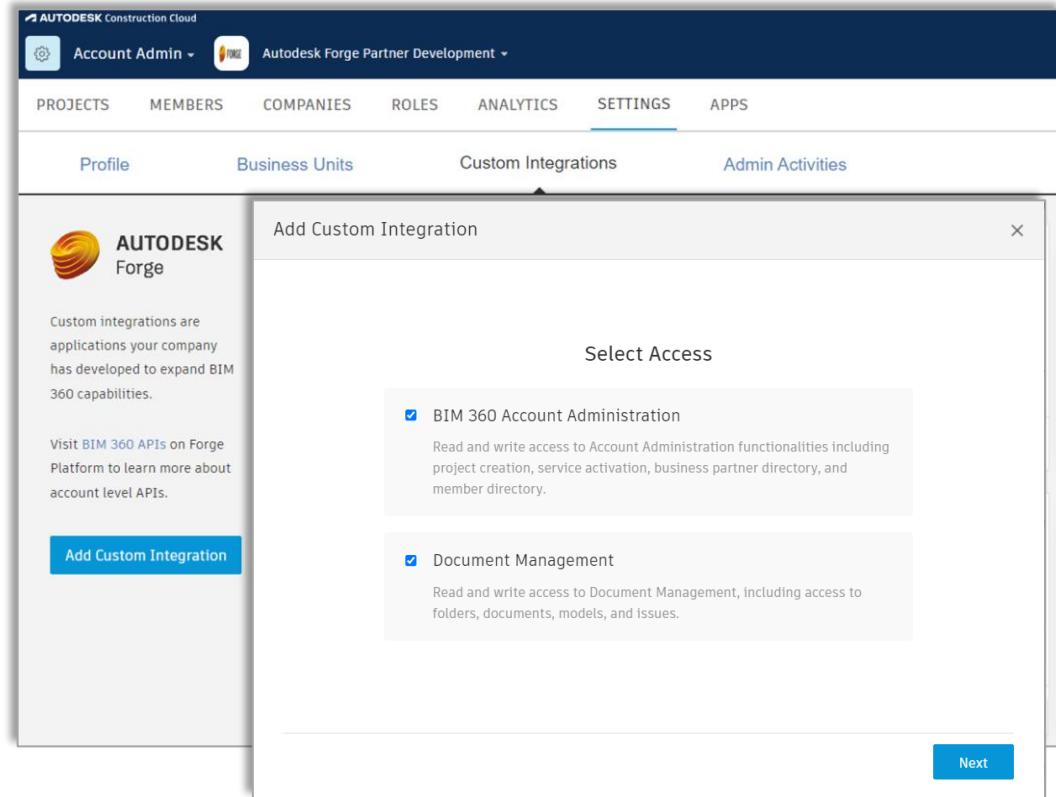
- ACC – if you have access to BIM 360 ...
- Account Admin
>> BIM 360 Admin >> Settings
- **⚠** Activate all at account level!
- Wish: BIMAPI-96: granular controls giving access to 3rd party apps.
- Secure Service Account in roadmap

The image consists of three vertically stacked screenshots of the Autodesk Construction Cloud interface, illustrating the process of activating API access:

- Top Screenshot:** Shows the "Project List" screen. The "Account administration" link in the top right corner is circled in orange. A green arrow points down from this link to the second screenshot.
- Middle Screenshot:** Shows the "BIM 360 admin" screen. The "Account Administration" link in the top left navigation bar is circled in orange. The "BIM 360 admin" link in the main navigation bar is also circled in orange. A green arrow points down from the "Account Administration" link to the third screenshot.
- Bottom Screenshot:** Shows the "Custom Integrations" screen under the "SETTINGS" tab. The "SETTINGS" tab in the top navigation bar is circled in orange. The "Custom Integrations" link in the main content area is also circled in orange.

Activating API Access

- BIM 360 UI has options:
 - Account Admin and Docs
 - In-house development or invite 3rd party developer



Activating API Access

AUTODESK Construction Cloud

Account Admin

PROJECTS M

Profile

AUTO Forge

Custom integration applications you developed to expand capabilities.

Visit BIM 360 API Platform to learn about account level APIs

Add Custom Integration

BIM 360 info you need

When accessing BIM 360 APIs from your app, you need to specify the BIM 360 Account ID. Before proceeding, please make sure to save the BIM360 Account ID info for your records.

BIM 360 Account ID

70826065-e117-4d4d-bbd2-00c7ac73d0a2

I have saved the Account ID info

Fill in App Information

* Forge Client ID

o57oA9BMeJlmmgbqxQLo6TvVARurZc9U6

App Logo

* App Name

ApsIntroApp

App Description

aps introduction app

Select image to upload

JPEG, GIF, PNG, or BMP
(file(400*200px, 4MB max))

AUTODESK Platform Services

Back to Applications

ApsIntroApp

Created on May 29, 2017

Client Credentials

The Client ID and Client Secret are used to obtain access tokens, which you must use to authenticate API calls.

Client ID: o57oA9BMeJlmmgbqxQLo6TvVARurZc9U6

Client Secret:

Regenerate

<https://aps.autodesk.com/myapps/>

API Products to Choose

- When you create a Client ID for your Application
- <https://aps.autodesk.com> >> Sign in >> Applications

Product(s) to Support	Proxy to Use
BIM 360	BIM 360 API
BIM 360/ACC Use compatible API's only	BIM 360 API
BIM 360/ACC. Use full range of API's	BIM 360 API & ACC API
ACC Use ACC Specific API's and backward compatible API's *1	ACC API

*1) ACC project Admin GET endpoints

API Access

These are the APIs your app is allowed to access. It can be changed anytime.

2 APIs selected

- Autodesk Construction Cloud API
- BIM 360 API
- BuildingConnected API
- Data Exchange API
- Data Management API
- Design Automation API
- Fusion Data API
- Model Derivative API
- Parameters API
- Premium Reporting API
- Reality Capture API
- Token Flex Usage Data API
- Webhooks API

<https://aps.autodesk.com/myapps/>

Authentication Methods

- OAuth2
 - 2-legged
 - Application context
 - 2-legged w/ user impersonation (x-user-id)
 - User context
 - 3-legged
 - User context
 - Re-direct to authorization server

The image shows a screenshot of the Autodesk sign-in page. It features a logo at the top right, a placeholder text field for 'Email or Username' containing 'user@company.com', a large blue 'NEXT' button, and a link 'NEW TO AUTODESK? CREATE ACCOUNT' at the bottom.

	BIM 360 Team/ Fusion Team	Autodesk/BIM 360 Docs	ACC/BIM 360 Admin	ACC unified Prod/BIM 360 “vertical” modules
2-legged	X	0	0	X
3-legged	0	0	Δ ^{*1}	0

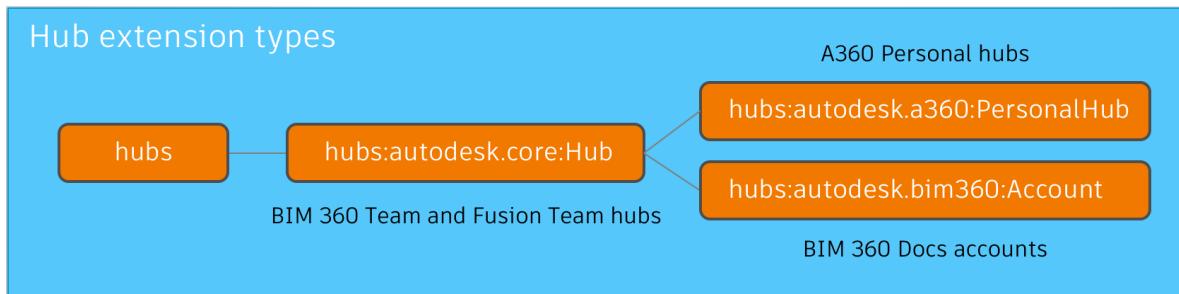
*1) currently mixed; endpoints with /admin/, /hq/v2/ supports 3LO

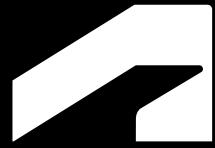
- 2-legged authentication gives you power user privilege. Use 3-legged where possible.
- https://aps.autodesk.com/en/docs/oauth/v2/developers_guide/overview/



Tips: Data Management API with Docs

- Basic workflow is same across the products
 - A few differences:
 - Docs support 2-legged and 3-legged.
 - “Hubs” is equivalent of “Accounts” in Autodesk/BIM 360 Docs.
 - Docs requires an additional step for activating API access in Account Admin Page.
 - Id's in Team start with **a**.xxx, Docs with **b**.xxx
 - Look for the use of extension types, such as ***:autodesk.bim360:*** instead of ***:autodesk.core:***
- ⚠️
- Details: https://aps.autodesk.com/en/docs/data/v2/developers_guide/basics/





ACC/BIM 360 API

ACC/BIM 360 API Component Services & Structure

BIM Collaborate/Pro

- Model Coordination



Takeoff

- Takeoff^{*1}



Build

- Assets
- Cost
- RFI
- Submittals^{*3}
- Checklists^{*2}
- Forms^{*1}
- Photos^{*1}
- Sheets^{*1}
- AutoSpecs^{*1}



Docs

- Custom attributes
- Permissions^{*3}
- PDF export^{*3}

- Naming standard

Shared Services

- Data Connector
- Model Properties
- Relationships
- Admin^{*3}
- Issues^{*3}
- Locations^{*3}

Platform API

- Data Management
- Model Derivatives
- Webhooks
- OAuth
- Viewer

*1) ACC only, *2) BIM 360 only, *3) Not compatible or partially compatible

ACC/BIM 360 API Component Services & Structure

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- Custom attributes
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Shared Services

- Data Connector
- Model Properties
- Relationships

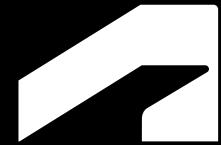
- Admin^{*3}
- Issues^{*3}
- Locations^{*3}

Platform API

- Data Management
- Model Derivatives

- Webhooks
- Viewer
- OAuth

*1) ACC only, *2) BIM 360 only, *3) Not compatible or partially compatible



ACC/BIM 360 API - Shared Services

Docs/Document Management



- Data Management API + Docs specific API
(Viewer + Model Derivative)

- Feature differences

- no “Plans” folder in ACC
 - Single page pdf (pdf export)
 - “For the Field” in ACC



- **Permissions**



- **Custom attribute** behavior change
projects after March 23, 2021~ (API TBD)

- GET projects >> data[n].attributes.extension.data.
projectType = “ACC” | “BIM360”

- Naming convention read API – Oct. 2021

- Export PDF w/ markups and hyperlinks in ACC – Nov., 2022

The image displays two screenshots of the Autodesk Construction Cloud Document Management interface. The top screenshot shows the main navigation bar with 'Document Management' selected, and the 'Folders' tab is active. The sidebar includes 'Reviews', 'Transmittals', and 'Issues'. The main area shows a 'View by' dropdown set to 'Folders', with 'Plans' and 'Project Files' expanded. The 'Plans' section contains 'Pacific Center' and 'Shared' folders. The 'Project Files' section contains '1. Bids' and '2. Specifications' sub-folders. A secondary screenshot below shows the 'Project Files' section for the 'Seaport Civic Center' project, displaying 'For the Field' and 'Autodesk' folders. The interface uses a clean, modern design with blue and grey branding.

Admin



API

- Partially compatible
 - GET projects/project users – compatible
 - POST projects/projects users – NOT compatible
 - Project creation from template - ACC only
- No method to distinguish hub type
- For more info.
 - <https://aps.autodesk.com/blog/acc-project-admin-api-project-creation-and-user-management> (recording, presentation, postman collection)
 - Getting started >> Tutorials >> “ACC Administrator”



The screenshot shows the Autodesk Construction Cloud (ACC) web interface. At the top, there are navigation tabs: Account Admin, Autodesk Forge Partner Development, PROJECTS, MEMBERS, COMPANIES, ROLES, ANALYTICS, SETTINGS, and APPS. The PROJECTS tab is selected.

Project Directory: This section lists all projects in the account. It includes a search bar, a blue "Add" button, and a link to "185 Current Projects | View Archived". A table displays project details such as Name, Members, Companies, and Status (Active). One project listed is "00 Design Files".

Projects: This section shows a list of active projects. It includes a sidebar with navigation links: Account Admin, Projects, Members, Templates, Library, Settings, Apps, and BIM 360 admin. A "Create project" button is available. The table lists projects by Name, Number, and Type. Projects shown include "000Woods", "001_CDE_ITALY", "003_CDE_ITALY", and "00-ADSK Docs".

Text Overlay: The text "(Nov 20, 2023)" is overlaid on the bottom right of the screenshot.

New!

Issues



- Used in Docs, Build, Design Collaboration, Model Coordination + Desktops: Revit, Navisworks

- API



- NOT compatible
- ACC Issues (Sept, 2022)
- BIM 360 Issues v2**
- Gap - High priority area
 - Add Pushpin**
- References
 - use **Relationships API** for ACC
 - use Issues specific API for BIM 360

The image displays two screenshots of the Autodesk Construction Cloud interface. The top screenshot shows the 'Field Management' section under 'Issues', listing various issues such as 'Door hardware installation defect' (ID #1505) and 'Drawing Discrepancy: Floor Finish'. The bottom screenshot shows the 'Build' section under 'Issues', also listing several issues, including 'Loader backing up in the array with spotters' (ID #226). Both screens show detailed issue cards with fields like Title, ID, Status, Type, Assigned to, and Description.

Field Management - Issues

ID	Type	Sub-type	Title
1509	Design	Building Code	wrong door
1508	Installation Def...	Installation Def...	Roy - test - B...
1507	Design	Design	test
1506	Installation Def...	Installation Def...	dadas
1505	Installation Def...	Installation Def...	Door hardware
1504	Commissioning	Commissioning	Have issues f...

Build - Issues

Title	ID	Status	Type	Assigned to
Drawing Discrepancy: Floor Finish	#230	Pending	Design	Leah Ho
Installation	#228	Open	Quality	-
Safety	#227	Open	Safety	Christine Acker
Loader backing up in the array with spotters.	#226	Open	Safety	Bill Kagan
Forklift operator backed up in the ar...	#225	Open	Safety	Bill Kagan
Worker standing on mid rail of sciss...	#224	Open	Safety	Bill Kagan
Near miss getting Injured	#223	Open	Safety	Bill Kagan

Insight/Data Connector



• Data Connector API

- API itself is **compatible**. Data may vary
- Project level support (July 2022)
- Tip: “Executive Overview” for account level.
- Schemas in `http://json`. **Public url's:**
 - <https://developer.api.autodesk.com/data-connector/v1/doc>
 - <https://developer.api.autodesk.com/data-connector/v1/doc/changes>

New!

schemas
`admin_account_services.csv`
`admin_accounts.csv`
`admin_business_units.csv`
`admin_companies.csv`
`admin_project_companies.csv`
`admin_project_roles.csv`
`admin_project_services.csv`

`assets_asset_custom_attribute_values.csv`
`assets_asset_permissions.csv`
`assets_asset_statuses.csv`
`assets_assets.csv`
`assets_categories.csv`
`assets_category_custom_attribute_assignments.csv`
`assets_category_status_set_assignments.csv`
`assets_custom_attribute_default_values.csv`

The screenshot shows the Autodesk Construction Cloud Insight interface. On the left, there's a sidebar with 'DASHBOARDS' and 'Project Controls' selected. Under 'Project Controls', there are links for 'Cost', 'Schedule', 'Quality', and 'Safety'. Below these are 'Executive Overview', 'Data Connector', and 'Reports'. In the main content area, there's a 'My Dashboard' section with cards for 'Project Address' (Port Rico), 'Weather' (72°), 'Quality Risk' (Low), and 'Safety Risk Today' (Med). To the right, there's a 'Data Connector' section with a 'Run extraction' button and a 'Schedule' button.

This screenshot shows a different view of the Autodesk Construction Cloud Insight interface. It features a 'Project Controls' sidebar with 'Cost', 'Schedule', 'Quality', and 'Safety' options. The main area has sections for 'Open RFIs and Submittals' (with filters for 'Overdue', 'Due in the next 5 days', and 'Due after 5 days') and 'Open RFIs by Current Assignment' (with filters for 'Overdue', 'Due in the next 5 days', and 'Due after 5 days'). Below this is an 'EXECUTIVE OVERVIEW' section with 'Risk', 'Cost', 'Design', 'Quality', and 'Safety' metrics. At the bottom, there's a 'Data Connector' section with 'Run extraction' and 'Schedule' buttons, and a 'Created' button.

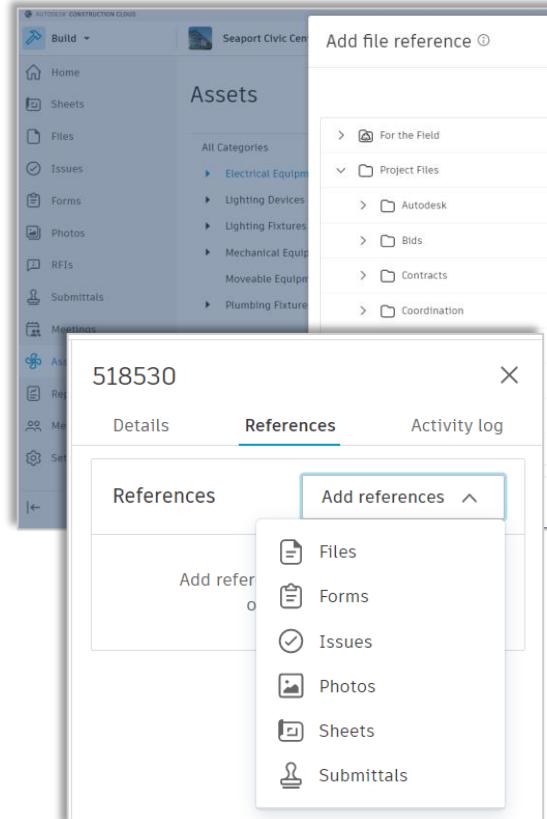
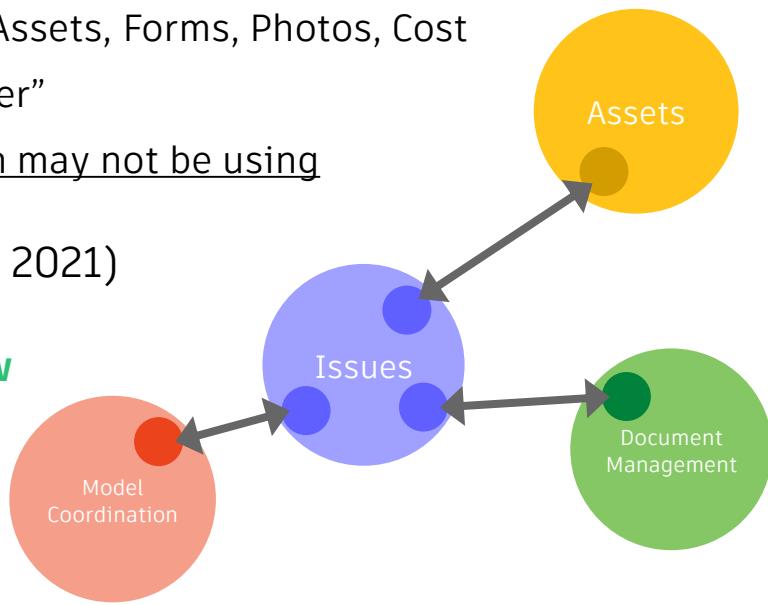
Locations

- Hierarchy of physical locations in a project
 - Set in Project Admin
 - Referenced from Issues, Assets, and other Build features (e.g., RFI, Forms).
 - Read API for ACC & B360 (July, 2021)
 - Write API for ACC only (Aug. 2022)

	Name	Linked Documents	Area
<input type="checkbox"/>	Project		
<input type="checkbox"/>	Basement	1	
<input type="checkbox"/>	Room 1	1	
<input type="checkbox"/>	Room 2	1	
<input type="checkbox"/>	apartment 1	1	
<input type="checkbox"/>	bathroom	2	
<input type="checkbox"/>	Room 3	2	
<input type="checkbox"/>	Level 1	1	
<input type="checkbox"/>	Level 2	4	
<input type="checkbox"/>	Office 237	5	
<input type="checkbox"/>	Office 306	4	
<input type="checkbox"/>	Office 271	4	

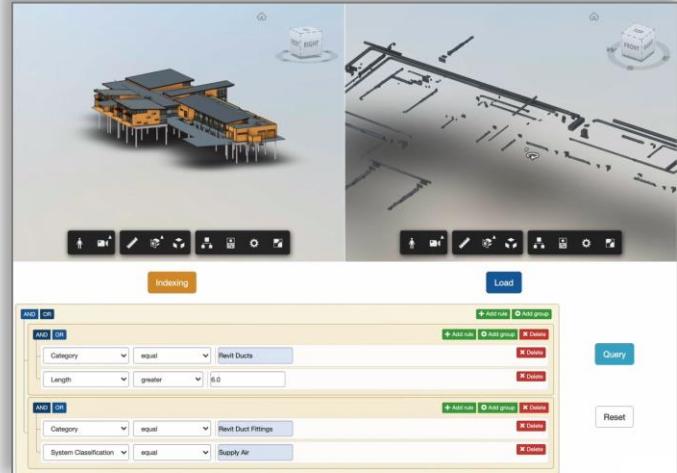
Relationships API

- Represent links between items (Entity) that reside in different functional components (Domain)
- Used in BIM 360 and ACC by various modules: e.g.,
 - Model Coordination, Assets, Forms, Photos, Cost
 - a.k.a. “Reference Picker”
 - Older implementation may not be using
- Read & Write (2020 & 2021)
- **Learn more tomorrow**



Model Properties API

- Built on Derivative Services (svf2), extends properties data for analysis of a BIM model
 - **Index** – query, filter properties of a model
 - **Diff** - compare two versions
- Use in products
 - Change analysis in Design Collaboration
 - Clash analysis in Model Coordination
 - Model based workflow in Assets
- Provides granular control on search/query
 - Works with models in Autodesk/BIM 360 Docs
- **Learn more tomorrow**



ACC/BIM 360 API Component Services & Structure

BIM Collaborate/Pro

- Model Coordination



Takeoff

- Takeoff^{*1}



Build

- Assets
- Cost
- RFI
- Submittals^{*3}
- Checklists^{*2}
- Forms^{*1}
- Photos^{*1}
- Sheets^{*1}
- AutoSpecs^{*1}



Docs

- Custom attributes
- Permissions^{*3}
- PDF export^{*3}

- Naming standard

Shared Services

- Data Connector
- Model Properties
- Relationships

- Admin^{*3}
- Issues^{*3}
- Locations^{*3}

Platform API

- Data Management
- Model Derivatives

- Webhooks
- Viewer
- OAuth

*1) ACC only, *2) BIM 360 only, *3) Not compatible or partially compatible

ACC/BIM 360 API Component Services & Structure

BIM Collaborate/Pro

- Model Coordination



Takeoff

- Takeoff^{*1}



Build

- Assets
- Cost
- RFI
- Submittals^{*3}
- Checklists^{*2}
- Forms^{*1}
- Photos^{*1}
- Sheets^{*1}
- AutoSpecs^{*1}



Docs

- Custom attributes
- Permissions^{*3}
- PDF export^{*3}

- Naming standard

Shared Services

- Data Connector
- Model Properties
- Relationships

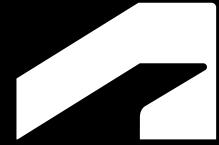
- Admin^{*3}
- Issues^{*3}
- Locations^{*3}

Platform API

- Data Management
- Model Derivatives

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ACC/BIM 360 API – BIM Collaborate, Takeoff & Build



Model Coordination

- Detect clashes between 3D models
 - rvt, dwg, ifc, nwc
- API
 - Compatible ACC & BIM 360
 - There are related API:
Model Properties API (Feb. 2022)
expands to all ACC Unified products.

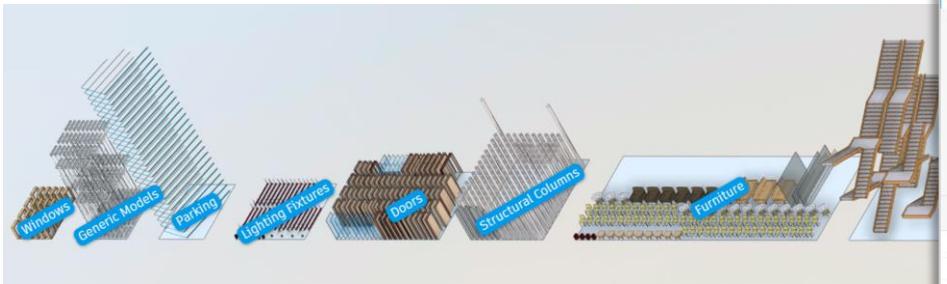
The screenshot displays the Autodesk Construction Cloud Model Coordination interface. At the top, there are two icons: a blue cube with a white 'C' and a white cube with three smaller cubes attached to its edges. Below the title 'Model Coordination' is a navigation bar with tabs for 'Models', 'Clashes' (which is selected), and 'Views'. The main area shows a 3D model of a building site with several green and red shaded regions indicating detected clashes. A modal window titled 'Viewing 2 models (Unsaved View)' is open, showing a list of 'Clashes' with a 'Primary model' set to 'Seaport-Civic-Cent...on.rvt - Mech Pipe'. It also lists 'Clash with' 'Seaport-Civic-Cente...sworks - Electrical' and 'Group by Object'. The modal shows '77 CLASHES (18 Selected)' and a list item 'Basic Wall [1741199] 18 clashes with 1 other model'. At the bottom of the modal are buttons for 'Not an issue' and '+ Create issue'.



Takeoff



- Quantification in 2D and 3D. ACC only
- API
 - Read inventory data (Oct 2021)
 - Project setting (classifications, setting) write (Feb. 2022)
 - Form Cluster tool
viewer.loadExtension("Autodesk.VisualClusters")



The screenshot shows the Autodesk Construction Cloud Takeoff interface. In the top navigation bar, 'Takeoff' is selected. The main area is titled 'Packages' with a sub-section 'Doors'. Below this, 'Takeoff Types' lists '7 takeoff types' under '030000 - Concrete' with a '72" x 53" option. The 'Inventory' section displays a table of items:

Name	Count	Quantity	Unit	Classification	Open Header	Takeoff Name	Quantity	Unit	Distance (LF)
050000 - Metals	3	18.49	LF	052119 - Open Web Steel Joist Framing	A	Takeoff Name	6.16	LF	6.16
052000 - Metal Joists	3	18.49	LF	052119 - Open Web Steel Joist Framing	A	Open Header	6.16	LF	6.16
052100 - Steel Joist Fram...	3	18.49	LF	052119 - Open Web Steel Joist Framing	A	Open Header	6.16	LF	6.16
052119 - Open Web Ste...	3	18.49	LF	052119 - Open Web Steel Joist Framing	A	Open Header	6.17	LF	6.17
Open Header	3	18.49	LF	052119 - Open Web Steel Joist Framing	A	Open Header	6.17	LF	6.17

The 'Sheets & Models' section shows a list of 31 sheets and models, including 'Seaport-Civic-Center_AL...' and 'Seaport-Civic-Center_3D'. A preview of a sheet shows a floor plan with various rooms and door locations.

The screenshot continues from the previous interface. The 'Sheets & Models' section shows a preview of a sheet titled 'Seaport-Civic-Center_AL...'. The 'Inventory' section at the bottom displays a table of items:

Name	Count	Quantity	Unit	Classification	Open Header	Takeoff Name	Quantity	Unit	Document
052000 - Metal Joists	3	18.49	LF	052119 - Open Web Steel Joist Framing	A	Takeoff Name	6.16	LF	6.16
080000 - Openings	260	260	EA		A	Door-Curtain-Wall...	1	EA	Seaport-Civic-Center_AL..._detached.n...
081000 - Doors and Frames	257	257	EA		A	Door-Curtain-Wall...	1	EA	Seaport-Civic-Center_AL..._ARCH_detached.n...



Build



- **Assets API (Feb, 2021)**

- Compatible
 - Provide /construction/ and /bim360/ endpoints with ACC and BIM360 proxy. Same backend.
- References - use Relationships API.

- **RFI API**

- Compatible, except attachments
- /construction/ endpoints deprecated
Use /bim360/ endpoints

The screenshot displays the Autodesk Construction Cloud interface. On the left, there's a navigation sidebar with links like Home, Sheets, Files, Issues, Forms, Photos, RFIs, Submittals, Meetings, Assets, Reports, Members, Settings, and RFIs. The main area shows two tabs: 'Assets' and 'RFIs'. The 'Assets' tab is active, showing a list of assets with columns for Name, Category, Location, and Created on. One asset is highlighted: 'WLT-ST-2110' (Category: Worksite Register, Location: Zone C, Created on: Jul 7). The 'RFIs' tab is also visible, showing a list of requests with columns for Status, ID, and Title. One RFI is highlighted: '#19' (Status: Open, Title: Door Opening Width). A modal window for RFI #19 is open, showing details like 'Open', 'Door Opening Width', and a note from 'David Sanchez (BNIM) should provide an official response'. The 'RFIs' tab also shows other open RFIs: '#17' (Missing Soffit) and '#16' (Height of Ceiling).

This screenshot shows the Autodesk Construction Cloud interface with the 'Assets' tab selected. The left sidebar is identical to the previous screenshot. The main area shows a list of assets under 'All Categories' with columns for Name, Category, Status, and Linked refer. One asset is highlighted: '518530' (Category: Mechanical Equipment, Status: Specified). To the right, there's a detailed view of asset '518530' with sections for 'Details', 'References', and 'Activity log'. Below this, another asset card for '518530' is shown with status 'Closed and distributed' and 'Approved'. At the bottom, there are sections for 'Official response' (Walls of SM CONFERENCE 128 & 129 will match 17'-3" dimension), 'General information', and 'Activity log' (with a placeholder 'Add a comment, us...').



Build



• Forms – ACC

- pdf & web forms, checklists, reports
- Forms/template read API (March, 2021)
- Forms write API (April, 2023)

• Photos – ACC

- Read API (June, 2021)
 - POST photos:filter
 - GET photos/:photoId

• Checklists – BIM 360

- Read API
- Not compatible.

The screenshot shows the Autodesk Construction Cloud Field Management interface. At the top, it displays 'Pacific Center Campus' and navigation tabs for 'CHECKLISTS', 'ISSUES', 'DAILY LOGS', and 'PHOTOS'. Below this, a checklist titled '1 Framing' is shown with one item: 'Framing complete with any deviations corrected?' with options 'Yes', 'No', and 'NA'. On the right, a sidebar titled 'Checklist Instance Details' shows '0/8 Sections' and '0/35 Items'. It includes fields for 'Assigned To' (Unassigned), 'Location' (Unspecified), and 'Scheduled' (Unspecified). A user profile for 'Mikako Harada' is visible at the top right.

The screenshot shows the Autodesk Construction Cloud interface for a 'Daily Safety Inspection' form under 'Seaport Civic Center'. The left sidebar lists 'Build', 'Home', 'Sheets', 'Files', 'Issues', 'Forms', 'Photos', 'RFIs', 'Submittals', and 'Meetings'. The main area shows 'Form Details' with a form date of '8/23/2021', ID '#86', and a description. To the right, the 'Daily Safety Inspection Checklist' is displayed, featuring sections for 'Employee Observation / PPE', 'First Aid / Survival', and 'Other Observations'. A user profile for 'Mikako Harada' is visible at the bottom right.

The screenshot shows the Autodesk Construction Cloud interface for 'Photos' under 'Seaport Civic Center'. The left sidebar lists 'Build', 'Home', 'Sheets', 'Files', 'Issues', 'Forms', 'Photos', 'RFIs', 'Submittals', 'Meetings', 'Assets', 'Reports', 'Members', and 'Settings'. The main area shows a 'Photos' gallery with a 'Gallery' view. A filter sidebar on the right allows users to search by 'Title', 'Date Taken', 'Photo type', 'Referenced by', 'Tags', and 'Uploaded by'. A message at the bottom states 'Results must include all tags'.



Build



- **Sheets - ACC**



- Multi-page PDF to individual page
- PDF only (rvt not supported)
- Read/Write API (Aug., 2022)
- Workflow similar to DM API
+ additional steps.

- **AutoSpecs – ACC**

- Intelligently create submittal logs
- New feature since March 2023
- Read API
- North America only

The screenshot displays two main sections of the Build software interface:

- Sheets Module:** The top section shows a sidebar with "Build" and "Xiaodong-Test-Project". The "Sheets" option is selected. A sub-menu includes "Files", "Issues", and "Forms". A large "Add sheets" button is prominent. The main area is titled "Sheets" and contains a "Number" field.
- Smart Register Module:** The bottom section shows a sidebar with "AutoSpecs" and "400 Beale". The "Smart Register" option is selected. A sub-menu includes "Spec View", "Product Data", "Files", "Members", and "Settings". The main area is titled "Smart Register" and shows "Version: IFC". It features a filter bar for "Applied filters: ACTION AND INFORMATIONAL X CLOSEOUT SUBMITTALS X MOCKUPS X" and a toolbar with "Division", "Section", "Submittal type", "Submittal group (3)", "Reset filters", "+ Add", "Delete", "Copy", "Save", "Undo", "Actions", and "Specification versions". Below the toolbar is a table with columns: "PDF", "Submittal nu...", "Section number", "Section name", and "Sub section". The first row of the table shows values: 1, 02 21 00, MONUMENTS, and 14-A.



Cost



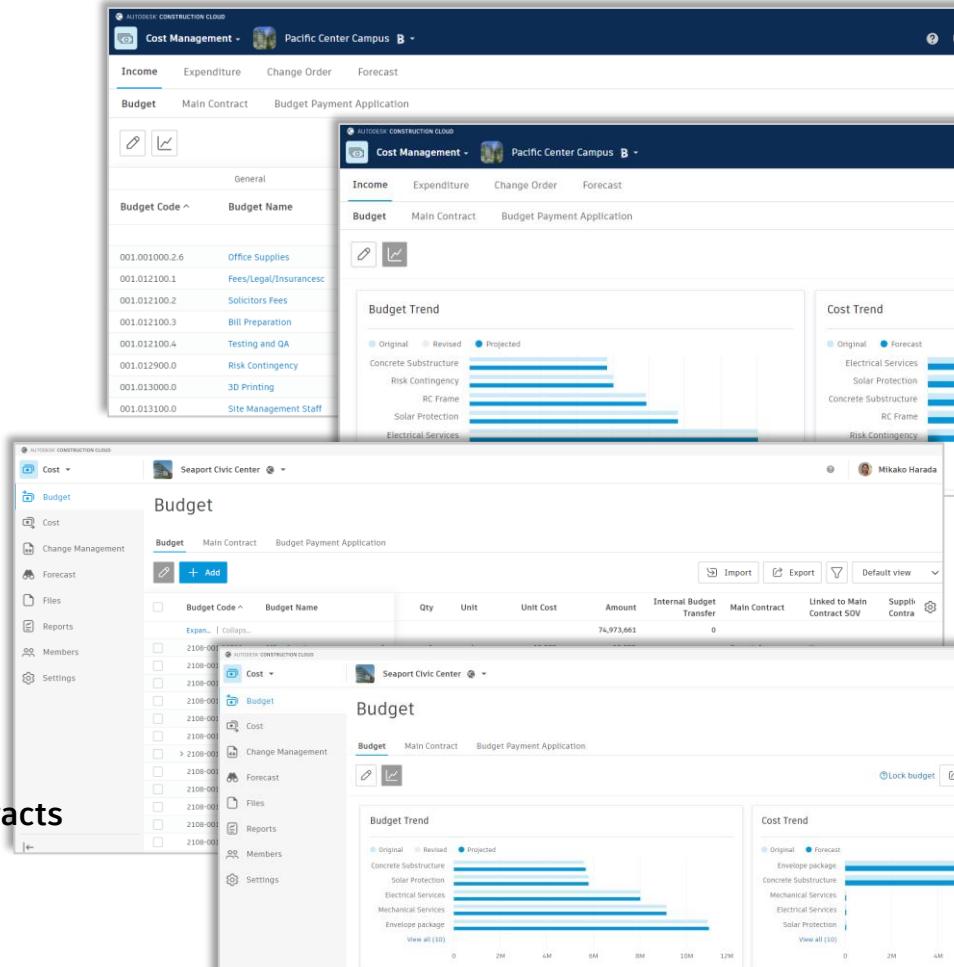
- Manage, track cost, such as budgets and change orders.
- Many feature enhancements with customization capability
- API
 - Compatible
 - Comprehensive coverage
 - Webhooks
 - POST budgets-contracts:link
 - Deprecating “budgets” field in POST/PATCH contracts
 - Request welcome

New!



POST budgets-contracts:link

- Deprecating “budgets” field in POST/PATCH contracts



Learn More

- Documentation on aps.autodesk.com
 - Field Guide
 - Tutorials
 - Reference guide
 - github.com/autodesk-platform-services
 - Postman collections
 - A range of code samples from basic to advanced integration
 - Blog: aps.autodesk.com/blog
 - Announcement and tips

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Autodesk Construction Cloud APIs

Version 1

Developer's Guide

Step-by-Step Tutorials

- > Getting Started
- > Assets (beta)
- > AutoSpecs
- > Issues
- > Files (Document Management)
- > Forms
- > Locations
- > RFIs (Coming Soon)
- > Takeoff (Coming Soon)
- > Model (Coming Soon)
- > Sheets (Coming Soon)
- > Clash Detection (Coming Soon)

API Reference

- HTTP S ▾
- ModelSets

Autodesk Construction Cloud APIs Documentation / Autodesk Construction Cloud APIs / Developer's Guide

ACC Account Admin API Field Guide

The ACC Account Admin API automates setting up and managing projects, assigning project admins, managing member and partner company directories, and managing project users across products. You can also synchronize data with external systems. The Admin API includes the following features:

- Retrieve information about ACC projects (beta). Note that the project endpoints support both 2-legged (with user ID) and 3-legged authentication.
- Retrieve information about ACC project users (beta). Note that the project user endpoints support both 2-legged (with user ID) and 3-legged authentication.
- Manage your business partner companies across products.
- Create a master member directory to manage account users and project users across products.
- Manage a business units structure that can be used to create regional offices

Clash Overview

Object Type	Count	Object Type	Count	Object Type	Count
(3D) Autodesk_Architecture.nsf	719	(3D) Autodesk_Structure.nsf	216		
(3D) Autodesk_Mechanical.nsf	91				
(3D) Autodesk_Structure.nsf	324				
					47

Main View by Object Count of Active Clash

Object Type	Count
(3D) Autodesk_Architecture.nsf	719
(3D) Autodesk_Mechanical.nsf	91
(3D) Autodesk_Structure.nsf	324
	47

PowerWt Analyze by Object Category and Clash Count

Category	Count
Total Clash Count	1982

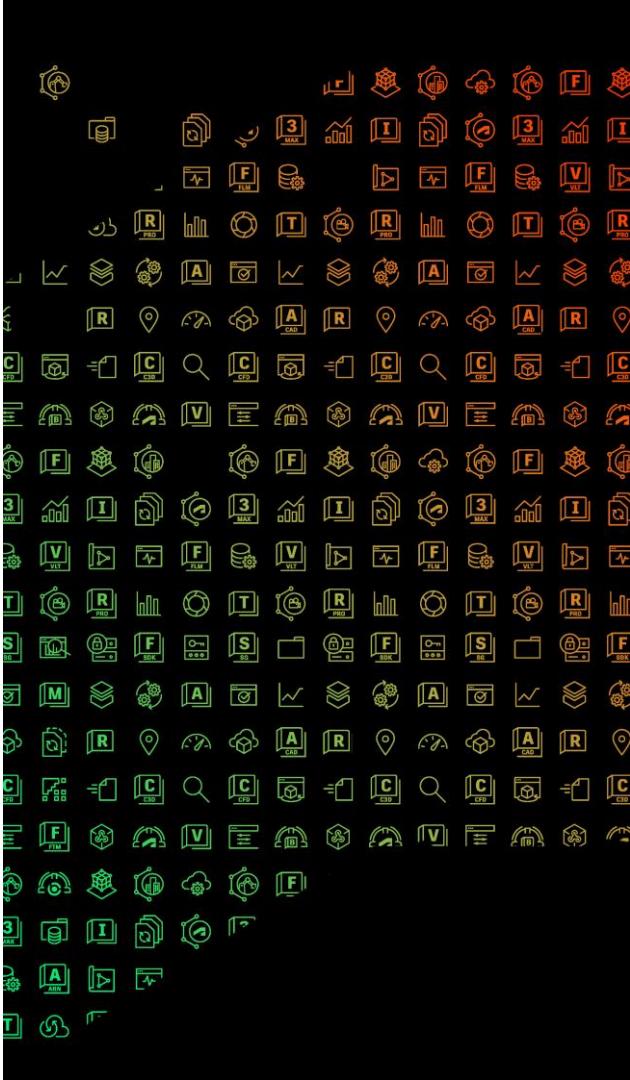
Object Name: (3D) Autodesk_Architecture.nsf (3D) Autodesk_Structure.nsf

Clash Impact View

Analyzing clashes

Summary

- 1 Autodesk Construction Cloud Family Products Overview
- 2 API Big Picture
- 3 Accessing Project Data – by Modules
- 4 Q&A
- 5 What's Next





Make Anything

<https://aps.autodesk.com/get-help>
aps.help@autodesk.com