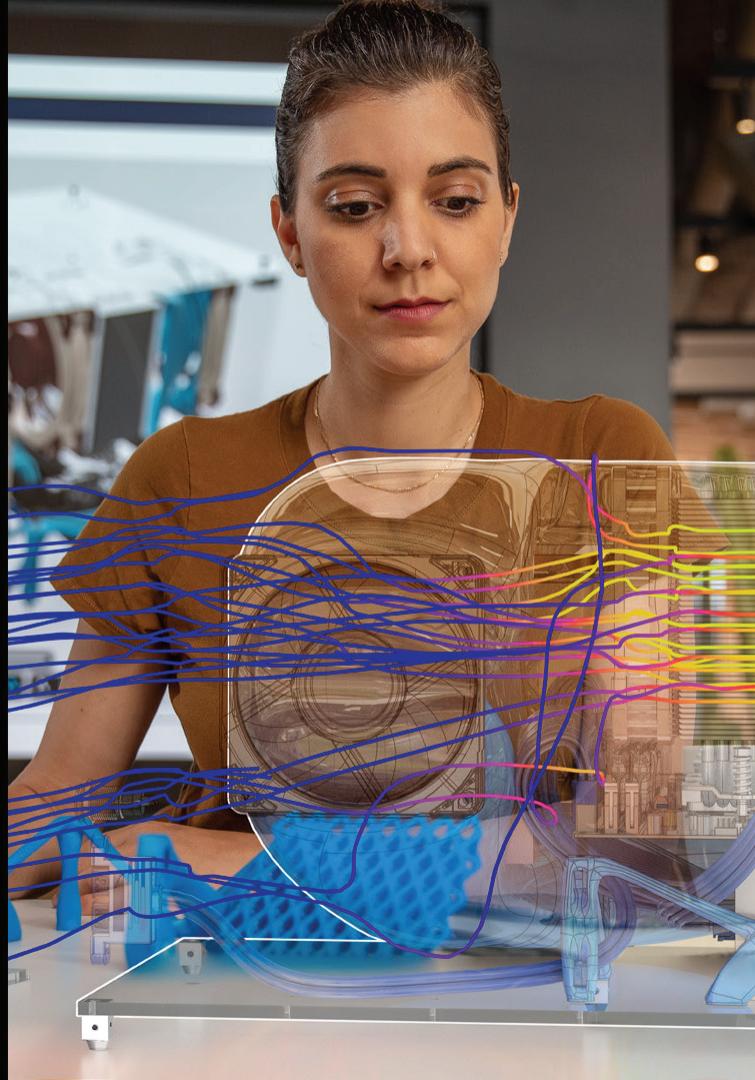


AECO トピックス キヤッチャップ

小笠原 龍司

 **AUTODESK**
Platform Services



免責事項

本日のプレゼンテーションには、当社の戦略的優先事項、ビジネスモデルの移行、2024年度以降のガイダンス、長期的な財務および経営目標、M&A戦略、資本配分の取り組みに関する記述を含め、当社の戦略、製品、将来の結果、業績、財務上、経営上、その他に関する将来予想に関する記述が含まれている可能性があります。これらの記述は、現在入手可能な情報に基づく経営陣の現在の予想、見積もり、仮定を反映したもので、これらの将来見通しに関する記述は、将来の業績を保証するものではなく、重大なリスク、不確実性およびその他の要因を内包しています。これらの要因によって、当社の実際の業績、経営結果または成果は、買収した事業の統合が成功しなかった場合など、本プレゼンテーションに含まれる将来見通しに関する記述によって明示的または默示的に示される業績、経営結果または成果とは大きく異なる可能性があります。；COVID-19パンデミックの進展とそれに伴う当社の事業および業務への影響、一般的な市場、政治、経済、ビジネスの状況、新しいビジネスモデルおよび市場への完全な移行、建設業界の予想通りの成長の失敗、新製品の開発の失敗、当社製品の採用拡大に成功しなかった場合、製品の変更が望ましい効果をもたらさなかった場合など。

将来の業績に影響を及ぼす可能性のある要因については、www.sec.govで入手可能な当社の最新のForm 10-KおよびForm 10-Q提出書類に記載されています。これには、当社に影響を及ぼす可能性のあるリスク要因や、これらのプレゼンテーションで述べられた将来の見通しに関する記述についての説明が含まれています。これらのプレゼンテーションに記載されている将来の見通しに関する記述は、ライブ・プレゼンテーションの日時点でのものです。これらのプレゼンテーションがライブ・プレゼンテーションの日時以降に見直された場合、その後、当社または当社のウェブサイトもしくはその他の方法で利用可能になったとしても、これらのプレゼンテーションには最新または正確な情報が含まれていない可能性があります。当社は、新たな情報、将来の出来事、その他に基づき、将来予想に関する記述を更新または修正する義務を一切負いません。

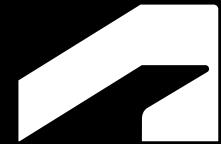
当社の製品およびサービスに関する計画的または将来的な開発努力に関する記述は、製品、サービス、または機能の将来の利用可能性を約束または保証することを意図したものではなく、単に当社の現在の計画を反映したものであり、現在当社が把握している要因に基づくものです。これらの記述に依存して購入の意思決定を行うべきではありません。

注意：すべてのオートデスクのコンテンツは所有権で保護されています。許可なくコピー、投稿、配布しないでください。

アジェンダ

- Autodesk Forma と Extension
- Autodesk Construction Cloud API アップデート
- AEC Data Model API アップデート
- Autodesk Data Exchange





Autodesk Forma & Extension

3つのインダストリークラウド



Autodesk FLOW



Autodesk FUSION



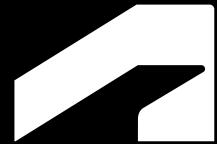
Autodesk FORMA



Autodesk Forma

インダストリークラウド

for architecture, engineering, and construction



Autodesk FLOW



Autodesk FUSION



Autodesk FORMA

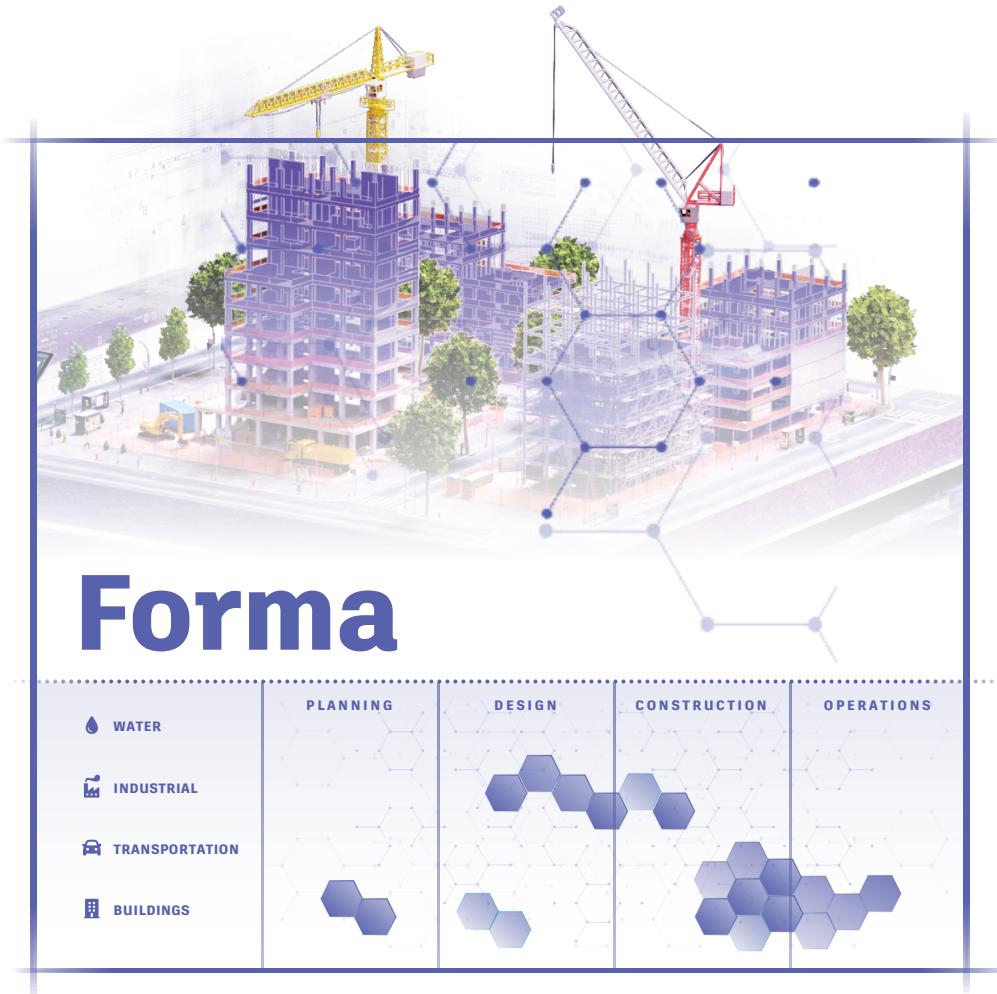


Forma とは

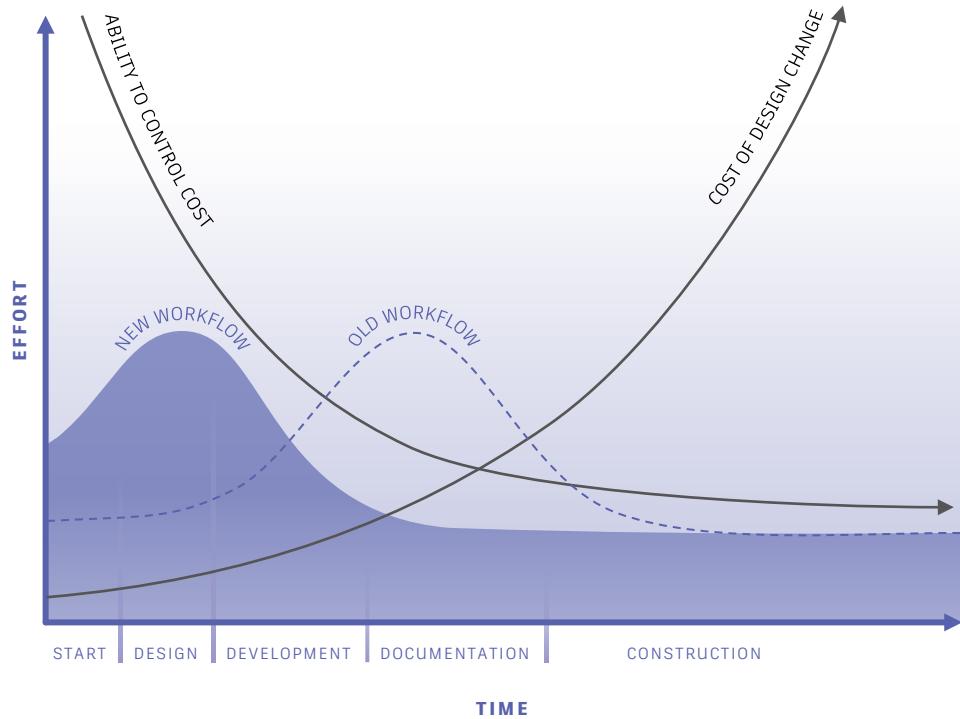
建築、エンジニアリング、建設、運用
のためのインダストリークラウド

建築環境の計画、設計、施工、運用を行
うチーム全体のBIMワークフローを統一す
る

プロジェクトフェーズ、ステークホルダー、アセット
タイプ（水、工業、交通、建物）間をシームレスに流
れるきめ細かなデータ



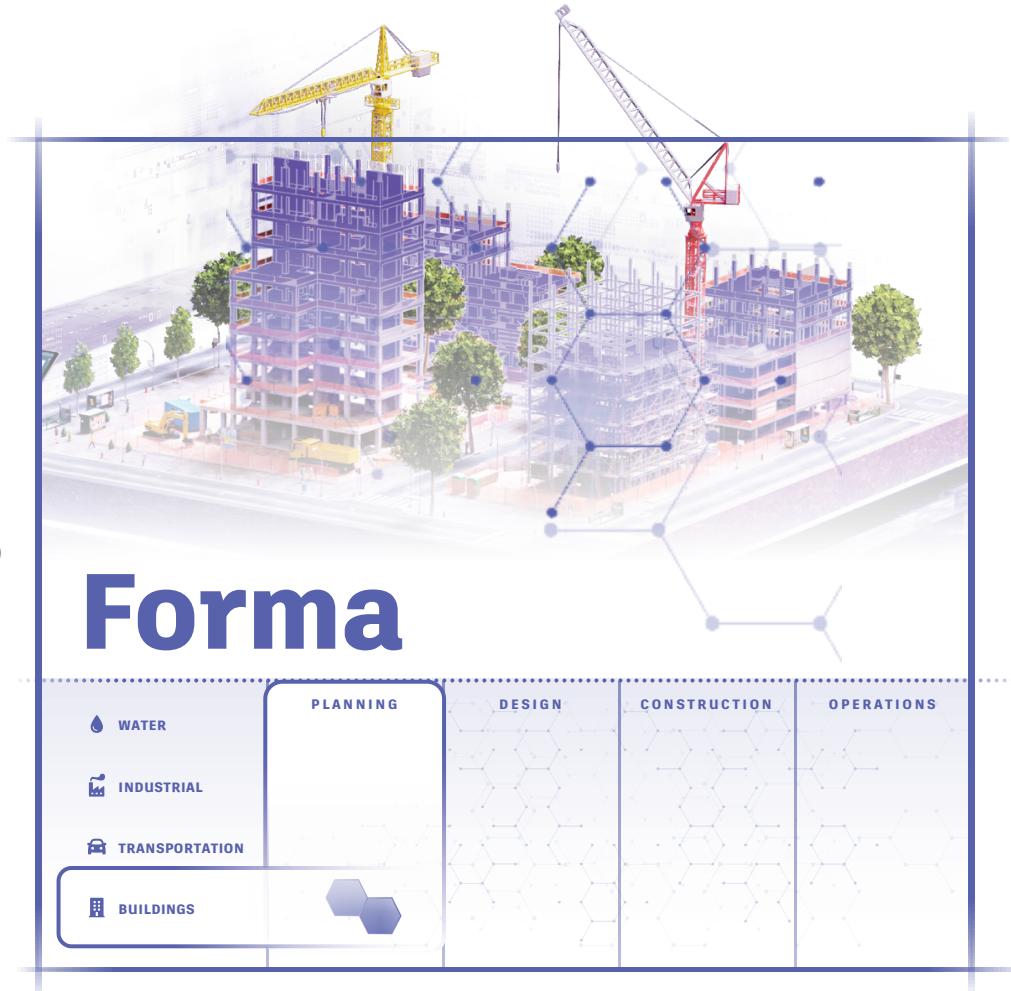
計画と初期設計の決定 がプロジェクトの成果 に大きな影響を与える

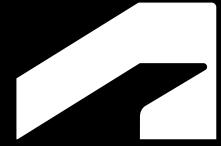


マクレミー曲線

Autodesk Forma は まだ初期段階

初期のFormaでは、建設プロジェクトの計画フェーズをターゲットとしています。





Forma で何ができるか?

Autodesk Forma

- “SpacemakerAI”より名前を変更
 - 2023 年 5 月 8 日より
- プランニングおよび初期段階の建築コンセプト設計のためのクラウドベースのソフトウェア サービス
 - 意思決定のサポート
 - コンセプト設計を探索する
 - 効率とコラボレーション
 - 自動化と AI を活用した洞察
 - 反復的なタスクを減らす
 - 建築現場周囲の環境品質を評価する
- <https://app.autodeskforma.com/>



Autodesk Forma

Web ユーザーインターフェース

- ハブ（※ACC とは別）
- プロジェクトとプロポーザル (1:N)
- デザインモード

プロジェクトの作成

- エリアのマップ
- データの注文
- レイヤーの編集
- メンバーを招待

モデルのインポート

- Mesh: ifc, obj
- Vector: dxf
- 座標の設定
- キャンパスに配置

モデルの詳細定義

- 3Dスケッチツールを用いてモデルの編集

モデルの解析

- エリアの定義
- 結果の検査
- 視覚化による比較
- Revitへ送る



ハブ

AUTODESK Forma

Region EU US Log out



“Autodesk Forma opens up new possibilities for design and collaboration.”

Knut Ramstad, Architect and Chief Technology Officer, Nordic Office of Architecture

< >

• • • •

Create a Hub

A Hub is a shared workspace where all your organization's projects will be stored. Creating a Hub is required before you can create projects and invite your colleagues. See explainer video (1.30 min).

Name your Hub ?

E.g. “Acme Inc”

Where would you like to store your data? ?

European Union

United States SUGGESTED

Previous Set up my Hub

プロジェクト

AUTODESK Forma

APS Japan

New project

Home

Projects

Members

Hub settings

My Recent Projects

Toranomon Hills
9 days ago

Demo project: quick massing
11 months ago

Create a new project

Follow the guided steps to start designing a model of a site in a real-world location.

New project

Try a demo project

Experience Forma in action with a pre-populated demo project.

Go to demo project

Learn

Recommended based on your goals

Video: Optimize collaboration with Forma

Watch this 2-minute video with an

Feature guide: Forma board

Learn how our interactive whiteboard can help you document

Workflow: Document insights and metrics

Follow these steps to document key

Success story: Nordic Office of Architecture

Forma's easy-to-understand visuals

Follow Forma updates

Sign up for our newsletter or follow us in the channels below to stay up to date with Forma news.

Sign up

YouTube channel

Community forum

Forma blog

Help Center

Help

プロポーザル

Site design ▾

Toranomon Hills ▾

Proposals

A Toranomon Hills A
2023年12月19日

Layers

Terrain

Elements that are unique for a proposal will be listed here.

Untitled base

Buildings

Roads

Analysis area

Entire model

Area metrics

Buildings

Site area

BC - 0 m²

> GFA - 0 m²

> GIA - 0 m²

> NIA - 0 m²

Number of units - 0

Help

Mapbox © OpenStreetMap Improve this map Geospatial Information Authority of Japan website © OpenStreetMap contributors

Autodesk Forma



- 面積分析
- 日照時間の分析
- 日照のポテンシャル分析
- 簡易/詳細 風の解析
- 微気候解析
- オペレーションによるエネルギー解析
- 簡易騒音解析
- 太陽エネルギー分析*BETA

Area metrics	
Site area	
GFA	0 m ²
Residential	0 m ²
Commercial	0 m ²
Unspecified	0 m ²



daylight potential analysis



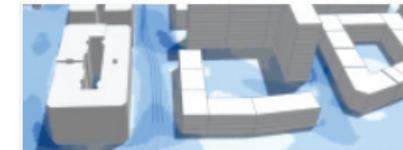
microclimate analysis
perceived temperature



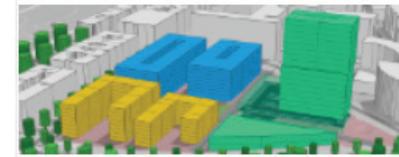
rapid noise analysis



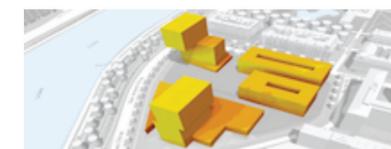
detailed sun hours analysis



rapid wind analysis
detailed wind analysis



rapid energy analysis



solar energy analysis

サードパーティの機能を使用して機能拡張

FORMA
ネイティブ機能



3rdパーティ
エコシステム

データマーケットプレース

あなたの地域に固有のデータを取得する



データ作成(AUTHORING)環境

好みのツールを使用してジオメトリとデータを作成する



解析プラットフォーム

既存の解析機能をカスタマイズしたり、新しい解析機能を作成する



Autodesk Forma Product Capabilities - Conceptual Design

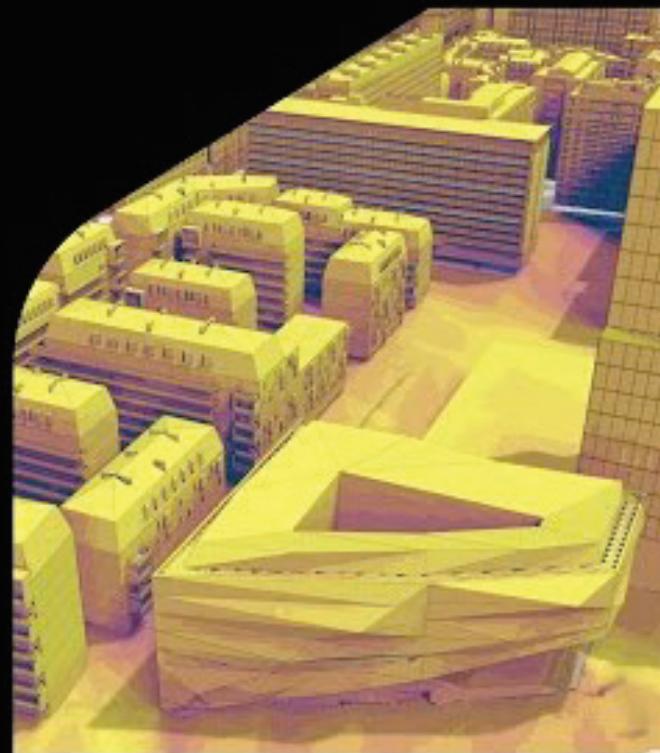


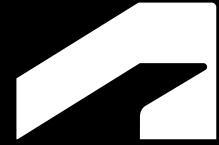
Autodesk Forma Product Features Overview



Product Features Overview

May 2024





Forma エクステンション概要

Optional subtitle goes here

Forma エクステンション

The screenshot shows the Forma extension interface for a site design project titled "Toranomon Hills".

Left Panel (Extensions):

- Embodied carbon** (PREVIEW): Assess the embodied carbon of your buildings. Created in collaboration between Autodesk and C.Scale.
- Generator App**: BETA
- Local testing**: BETA
- Shadow study**: BETA
Easily perform shadow studies of your site and export images for each timestamp.
- Test App**: BETA

Top Bar:

- Site design
- Toranomon Hills
- Help

Right Panel (Analysis area):

- Entire model** (selected)
- Area metrics**: Buildings
- Site area**:
 - BC: 0 m²
 - GFA: 0 m²
 - GIA: 0 m²
 - NIA: 0 m²
- Number of units**: 0

Map View: A 3D wireframe model of the Toranomon Hills area, showing building footprints and street networks.

Toolbars:

- Top toolbar: Includes icons for sun, wind, solar panel, tree, leaf, and temperature.
- Bottom toolbar: Includes icons for 3D view, 2D view, camera, and other map controls.

Mapbox and OpenStreetMap credits:

© Mapbox © OpenStreetMap Improve this map Geospatial Information Authority of Japan website © OpenStreetMap contributors

公開済みのエクステンション

The screenshot shows the Autodesk App Store interface integrated into a larger software application window. The main title bar reads "AUTODESK App Store". The interface includes a search bar at the top left, a settings gear icon, and a close button. On the left, there's a sidebar with icons for Site, Extension, Em... (Ellipsis), Gen..., Loc..., Share..., and Test... (Ellipsis). The right side features a vertical toolbar with icons for Entire model, 3D view, 2D view, and temperature, along with buttons for 0 m² and 0.

Aerial Views by Plex-Earth
Aerial and satellite imagery from the world's best providers like Airbus, Maxar, Nearmap, Hexagon,...

Archistar
Instantly generate 3D Building Designs options with the most advanced 3D Generative AI...

Autodesk Forma® Add-In for Revit, Beta
The Forma Add-in for Revit add-in allows you to send data between Autodesk Forma® and Autodesk®...

Autodesk Forma® Plug-In for Rhinoceros®
Maximize your design insights with our continually improving Autodesk Forma® Plug-In, a comprehensive...

Dynamo Player BETA
Automate tasks and create custom workflows with Autodesk Forma® and Dynamo.

Embodied carbon
Assess the embodied carbon of your buildings. Created in collaboration between Autodesk...

Envelope Analysis
Unique insights into envelope design decisions.

Environment Terrain Analysis
Gain deeper insights into terrain conditions and the effects of terrain modification with Terrain Analysis.

At the bottom, there are footer links for Mapbox, OpenStreetMap, Improve this map, Geospatial Information Authority of Japan website, and OpenStreetMap contributors. A help button is also present in the bottom right corner.

エクステンションの登録

The screenshot shows the Autodesk Forma interface. A red box highlights a context menu that has appeared over the 'Autodesk Forma® Add-In for Revit, Beta' card. The menu options are:

- Find extension by ID
- Create extension
- Manage extensions

The 'Create extension' option is currently selected. The 'Autodesk Forma® Add-In for Revit, Beta' card contains the following text:
The Forma Add-in for Revit add-in allows you to send data between Autodesk Forma® and Autodesk®...
The 'Autodesk Forma® Plug-In for Rhinoceros®' card also visible in the background contains the text:
Maximize your design insights with our continually improving Autodesk Forma® Plug-In, a comprehensive...

At the bottom left, a blue box lists the following items:

- APS アプリケーションとの紐づけ
- 公開範囲
- Iframe 内コンテンツの URL
- 表示位置

At the bottom right, there is a page number <#>.

Forma App Store に公開

AUTODESK App Store English ▾

Publisher Guide | Sign In

Forma ▾

Apps Publishers

Generators

Search Apps Forma ▾ Show All

Featured Apps

Autodesk Forma™ Add-In for Revit

Transfer your Autodesk Forma™ proposals into Autodesk® Revit® projects and use Forma to analyze your Revit designs.

0

Free

TestFit Parking Generator

TestFit's real estate feasibility platform makes it easy to do site planning. Our real-time AI configurators allow for rapid iterations to get deals done quickly.

0

Free

ShapeDiver

Load parametric algorithms created in Grasshopper and hosted on ShapeDiver into Autodesk® Forma projects.

0

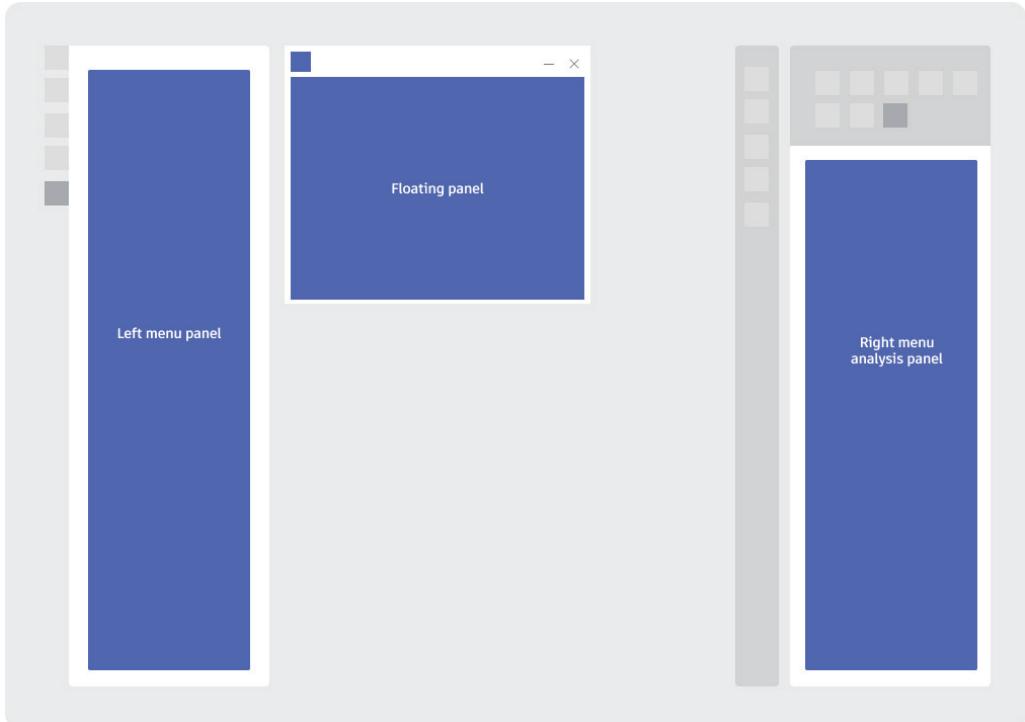
Free

Embedded Views (組み込みビュー)

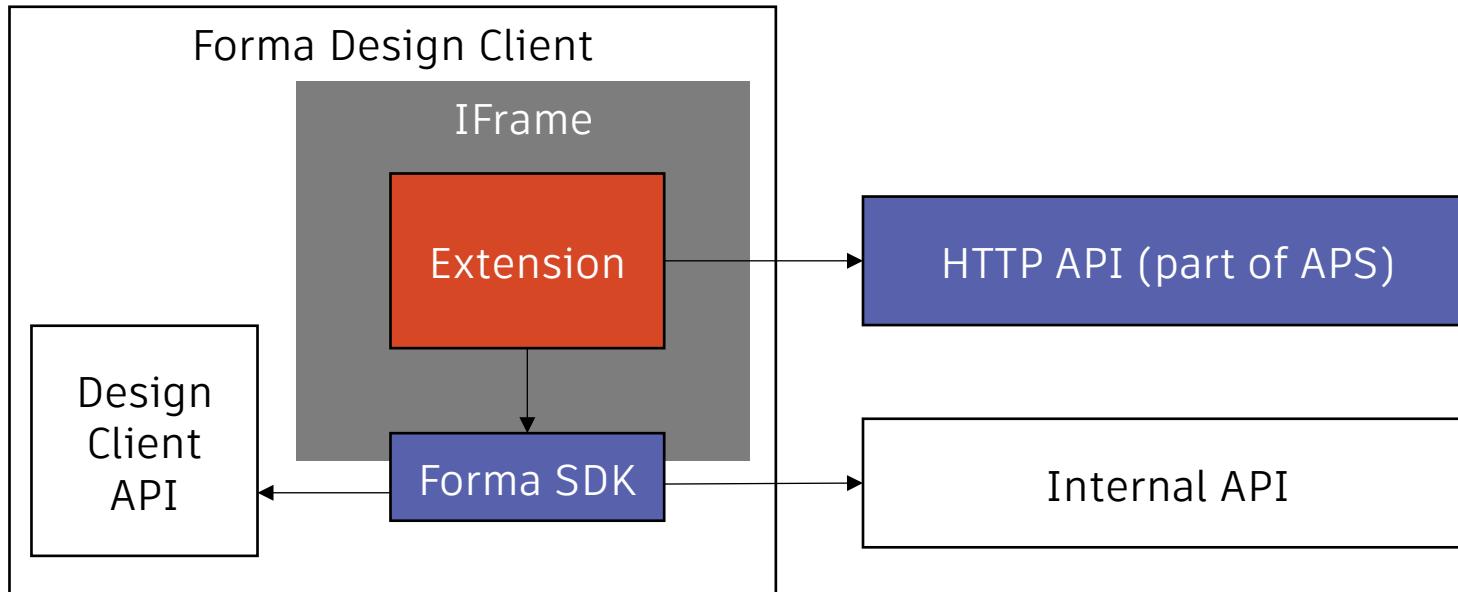
- Forma にサードパーティーが提供するウェブページを iframe として組み込む。
- カスタム UI を提供したり、JavaScript や WebAssembly のコードを実行したりできます。
 - 3Dシーンとのインタラクション
 - ジオメトリやその他のプロジェクト・データのフェッチ
 - 解析結果とエリアのメトリクスへのアクセス
 - Formaのエレメントシステムへの新しいデータ(ジオメトリ)の追加
 - プロポーザルの編集とライブラリへのアセット追加
 - 独自のエンドポイントやサービスを呼び出す
- HTML サイトをホスティングし、Extension をそのサイトに紐づける設定をして、Embedded Viewを作成します。Forma は、HTMLサイトを iframe で囲み、Forma や Forma モデルとやり取りできるようにします。

Embedded Views (組み込みビュー)

- どのような機能を提供したいかによって、Embedded View の配置位置を決めます。
 - Left menu panel
 - プロポーザル・プロジェクトに関連
 - Right menu analysis panel
 - パラメータ入力、解析のトリガなど
 - Floating Panel
 - 様々な用途で利用可能
 - シーンとのインタラクション
 - ジオメトリの表示など



Forma SDK & Forma HTTP API



Forma SDK (Beta)

- JavaScript SDK
- Web ブラウザベース 3D アプリのデザインクライアントと直接コミュニケーション

forma-embedded-view-sdk Forma API: Developer's Guide

forma-embedded-view-sdk

- > index
- > auto
- > analysis
- > areaMetrics
- > camera
- > colorbar
- > design-tool
- > elements
- > experimental
- > extensions
- > generators
- > metadata

forma-embedded-view-sdk

Welcome to the Forma Embedded View SDK docs! Please see our [developer's guide](#) for more context. The [tutorial](#) is a great starting point for learning how to use the SDK.

The package is available on [NPM](#):

```
npm install forma-embedded-view-sdk
```

It can also be used via [esm.sh](#), whereby accessing the APIs is as simple

```
<script type="module">
  import { Forma } from "https://esm.sh/forma-embedded-view-sdk@0.x/auto";

  // Your code using the Forma object here
</script>
```

Forma HTTP API (Beta)

Library
Project

Forma 要素ライブラリとのインターラクション
プロジェクトデータの読み込み

Elements

要素の読み込み

Proposal
Geometries
Integrate
Terrain
Analysis

プロポーザルの作成
ベーシックな要素の作成
複雑な要素の作成
地形の作成
日照解析など

<https://developer.api.autodesk.com/forma/>

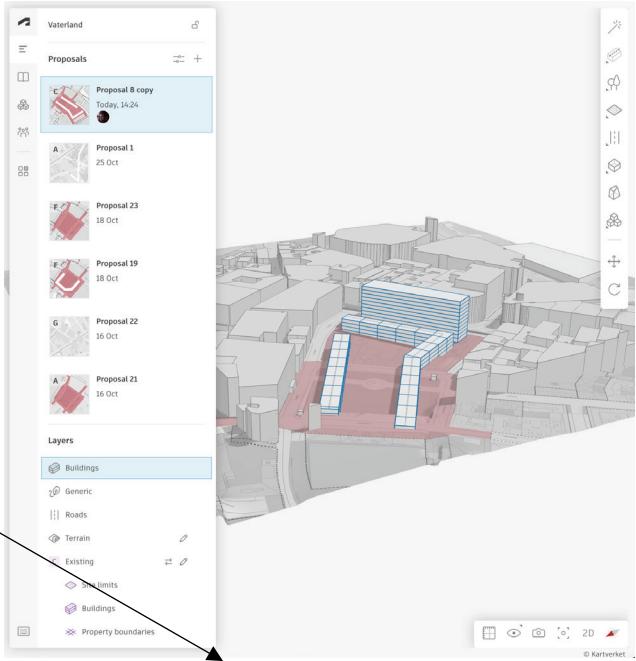
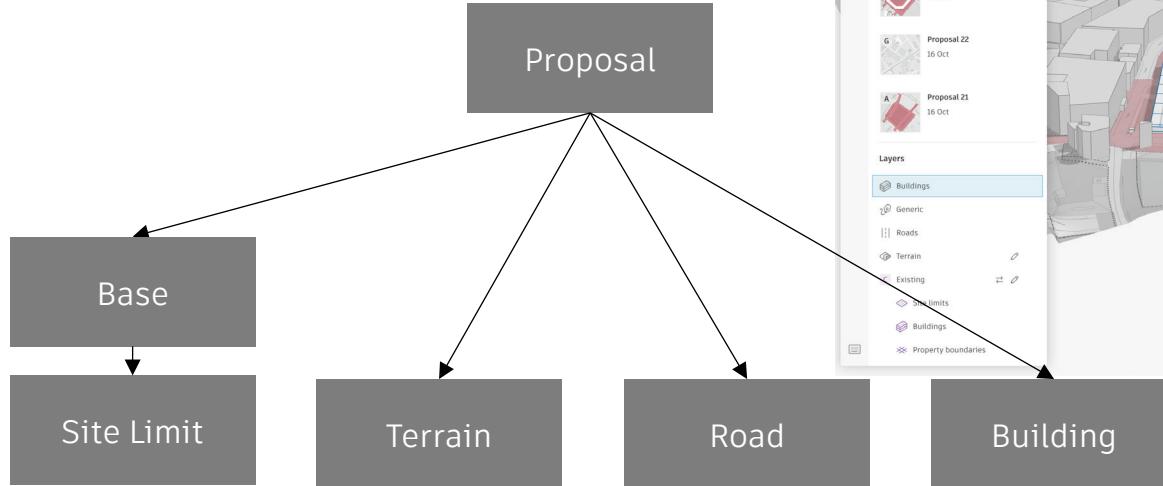
<https://aps.autodesk.com/en/docs/forma/v1/reference/http-reference/>

Forma HTTP API (Beta)

- Forma API や APS API, その他の外部の HTTP APIと連携しながら、Formaをサードパーティーのコンテキストで操作することができます。
- これらのAPIを通して、ジオメトリの読み書き、プロジェクトやプロポーザルの管理、ライブラリのオーガナイズを行うことができます。
- APIを利用するには、ログインフローを完了させることで得られる 3-legged トークンが必要です。
- CORS エラーに注意

Forma の要素

Elements



Representations

- TerrainShape

- VolumeMesh

- TerrainShape

- VolumeMesh
- GraphBuilding
- 2.5D Volume

要素のパラメータ

Urn

- 要素を識別するためのパス

Properties

- キーバリューのデータ

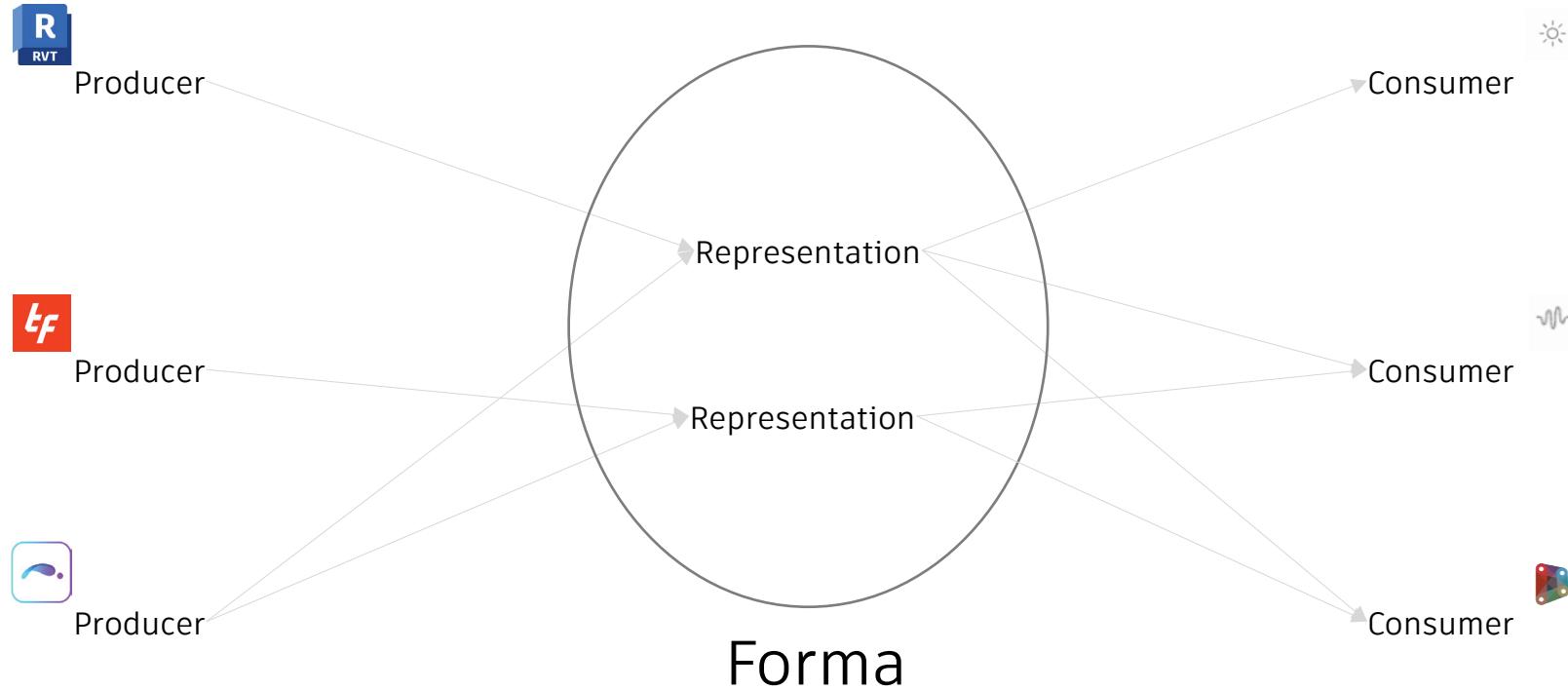
Children

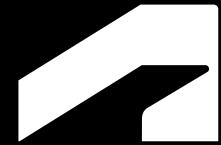
- 要素間の関係

Representations

- 要素のジオメトリ

要素のジオメトリ

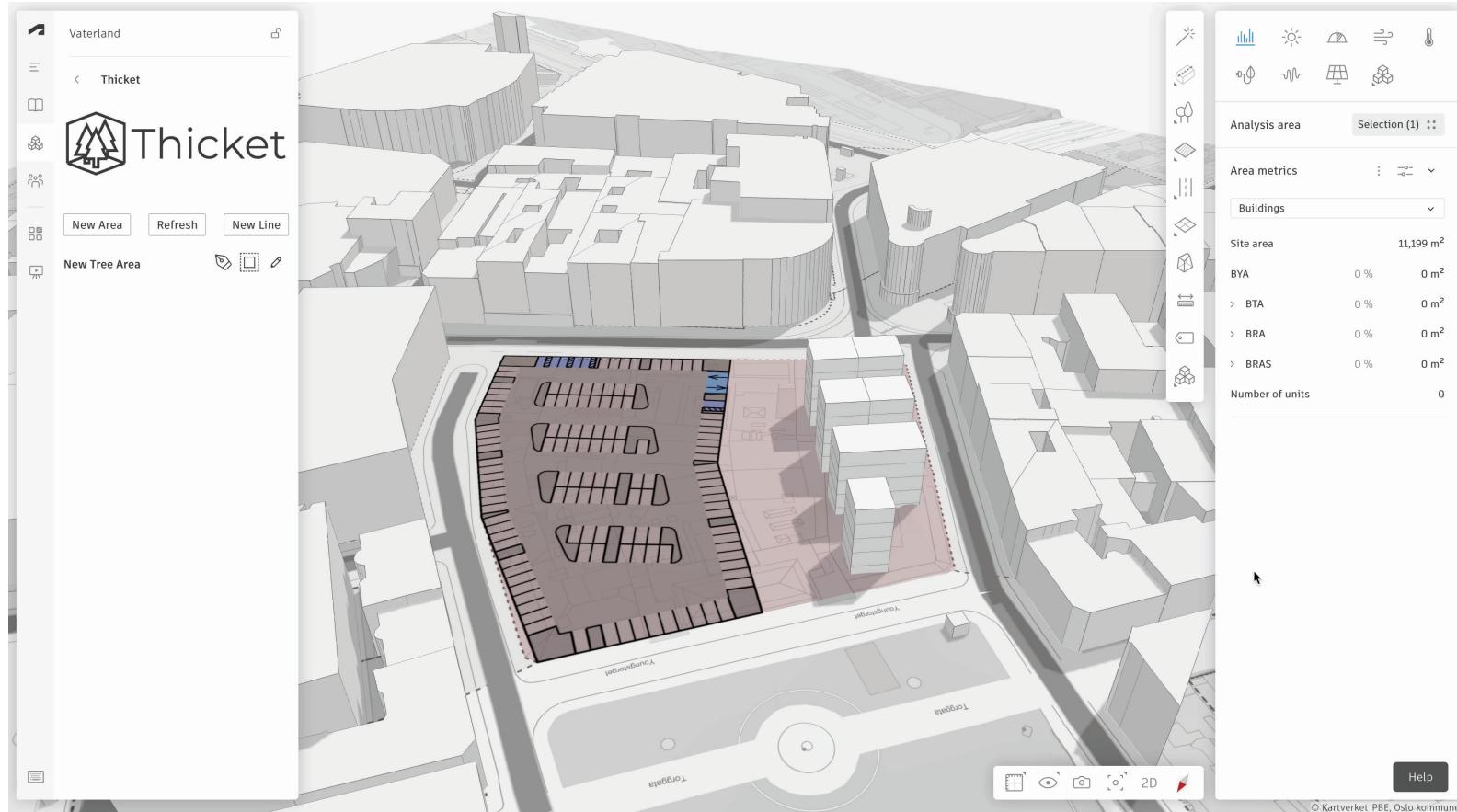




Forma エクステンション例

Optional subtitle goes here

Thicket by Nathaniel Green



Outdoor Area

The screenshot displays the Forma software interface, specifically the 'Outdoor Area' feature. On the left, a sidebar lists various extensions: Vaterland (selected), aa yarn dev (BETA), Codesign Connection (BETA), Design your buildings on iPad easily and analyse them in Forma., Dynamo Player (BETA), Automate tasks and create custom workflows. Powered by Dynamo., Dynamo Player (Test) (BETA), Embedded AcadWeb STG (BETA), Embodied carbon (PREVIEW), Assess the embodied carbon of your buildings. Created in collaboration between Autodesk and E HDD. Please note: This analysis is marked as a Technology Preview. This means that it is a pre-release version, under evaluation and provided as a trial version. You agree to use it at your own risk; we do not recommend using it for business critical tasks, as you may experience a loss of data, inaccuracy, and significant missing features for which Autodesk bears no responsibility., and EvolveLAB Veras | 1.6.4.0 (BETA). The main workspace shows a 3D architectural model of a building complex with a large green lawn and several trees. A purple outline highlights a specific area of interest. The right panel contains performance metrics and graphs. The 'Exclude area' section shows a target of 70% BTA (3923 m²) achieved at 201% / 7873 m². The 'Outdoor area' section shows a target of 100% for April 5, with a current achievement of 201% / 7873 m². A graph tracks 'Sunlit' values over time, showing a peak of 165 at 14:00, a dip to 90 at 16:30, and a low of 45 at 19:42, with a target of 100% and a time of 16:12. The bottom right corner includes a 'Road noise' section and a 'Help' button.

Vaterland

Extensions

+ Add extension

aa yarn dev BETA

Codesign Connection BETA

Design your buildings on iPad easily and analyse them in Forma.

Dynamo Player BETA

Automate tasks and create custom workflows. Powered by Dynamo.

Dynamo Player (Test) BETA

Embedded AcadWeb STG BETA

Embody carbon PREVIEW

Assess the embodied carbon of your buildings. Created in collaboration between Autodesk and E HDD. Please note: This analysis is marked as a Technology Preview. This means that it is a pre-release version, under evaluation and provided as a trial version. You agree to use it at your own risk; we do not recommend using it for business critical tasks, as you may experience a loss of data, inaccuracy, and significant missing features for which Autodesk bears no responsibility.

EvolveLAB Veras | 1.6.4.0 BETA

Veras® is an AI-powered visualization app for Forma®, Revit®, SketchUp®, Rhinoceros®,

Exclude area

None

Outdoor area

Target % m²

Target Area types Area

70 % BTA 3923 m²

Achieved 201% / 7873 m²

Sunlit outdoor area

Target

100 % April 5

Time Interval

11:30 - 20:00 1

Interval

Achieved 201% / 7873 m²

165

90

45

Target: 100%

Time: 16:12

Sunlit %: 14%

Shadow Time

00:00

Road noise BETA 60 dB

© Kartverket PBE, Oslo kommune

Help

ization.

Veras by EvolveLabs

The screenshot displays the Veras by EvolveLabs software interface, which integrates a 3D city model with a rendering and visualization tool.

Left Panel (Plex-Earth Activation):

- Tal 1, 80331 München, Germany
- Plex-Earth
- Welcome to Plex-Earth! Enter your Activation Code: _____
- Activate
- Don't have an activation code yet? Request one right now!

Middle Panel (EvolveLAB Veras):

- Expires 3/12/2024 TRIAL VERSION BUY NOW
- EXPLORE COMPOSE REFINE
- Timber Autumn Realistic (prompt strength: 65 | geometry autumn | prompt strength: 65 | geometry override: 0 material override: 100 | Nature)
- Width: 1024 Height: 1024
- Render Time: 16.639s
- RENDER button

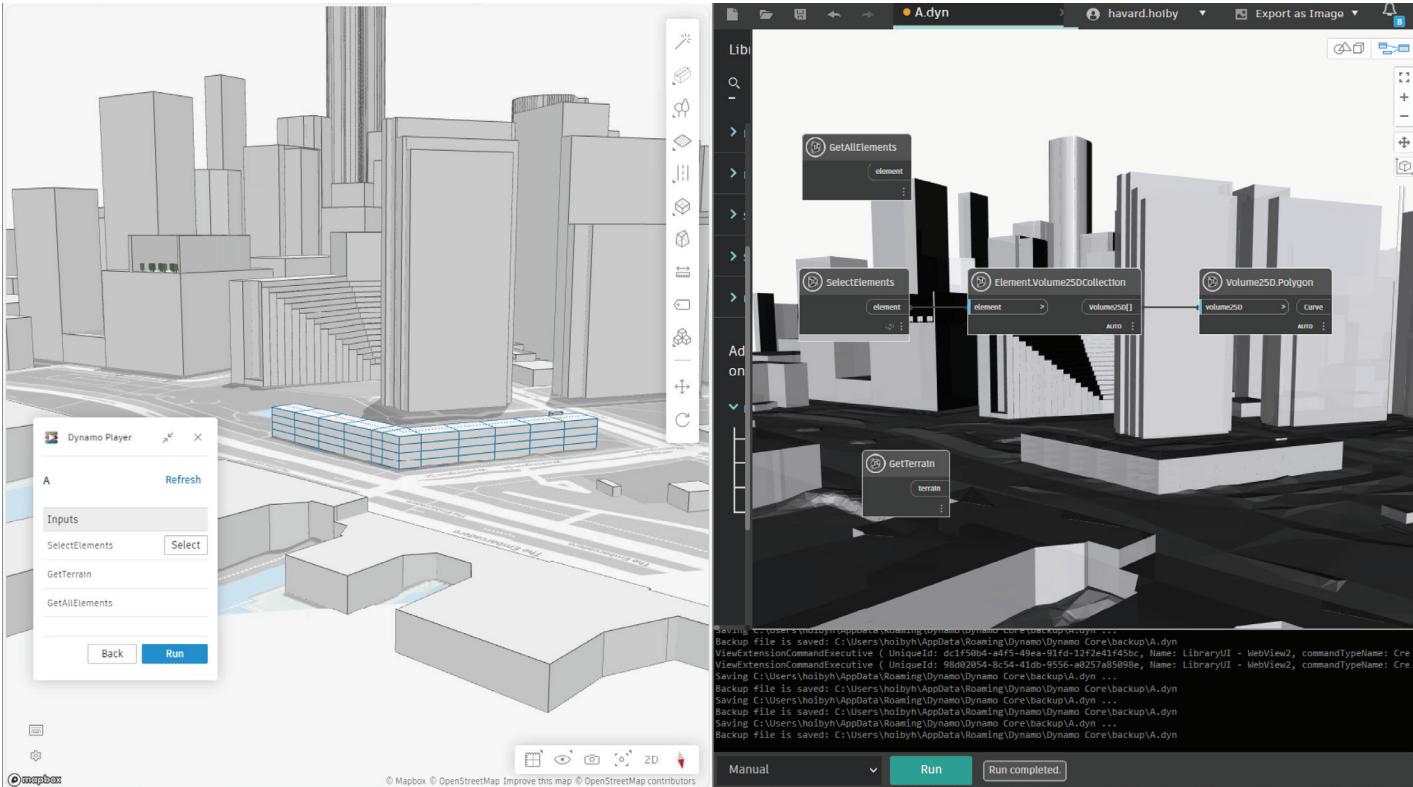
Right Panel (3D City Model and Shadow Study):

- Shadow study
- Date: June 15
- Time: From 08:00 To 20:00
- Frequency: Every hour
- Size: Large (2048x1536)
- Preview
- Export Images

Bottom Right Corner:

- Help
- Mapbox © OpenStreetMap Improve this map Bayerische Vermessungsverwaltung

Dynamo Player



ShapeDiver

The screenshot displays the ShapeDiver software interface, which includes a 3D urban model of a city area, a left sidebar for managing proposals and layers, and a right sidebar for analysis metrics.

Proposals:

- Proposal 52 (Today, 23:49)
- Proposal 33 (Today, 09:27)
- Proposal 1 (17 Apr)
- Proposal 51 (17 Apr)

Layers:

- Generic
- Terrain
- Existing
 - Site limits
 - Buildings
 - Generic
 - Roads
 - Property boundaries

Analysis area: Selection (1)

Area metrics:

Buildings	Site area	11,199 m ²
BYA	0 %	0 m ²
BTA	0 %	0 m ²
BRA	0 %	0 m ²
BRAS	0 %	0 m ²
Number of units	0	

Help

© Kartverket PBE, Oslo kommune

TestFit

The screenshot displays the TestFit software interface, which is a 3D urban planning and design tool. The main view shows a detailed 3D city model with buildings, roads, and terrain. A specific area is highlighted with a purple boundary, representing a proposed site limit.

Proposals:

- C Proposal 52 Today, 23:49
- C Proposal 33 Today, 09:27
- A Proposal 1 17 Apr
- A Proposal 51 17 Apr

Layers:

- Site limits (selected)
- Buildings
- Generic
- Roads
- Property boundaries

Analysis area: Selection (1)

Area metrics:

Buildings	Site area	11,199 m ²
BYA	0 %	0 m ²
BTA	0 %	0 m ²
BRA	0 %	0 m ²
BRAS	0 %	0 m ²

Number of units: 0

Site Limit:

Edit base to make changes

Name: Site limit 5a5
Area: 11198.6 m²

Help

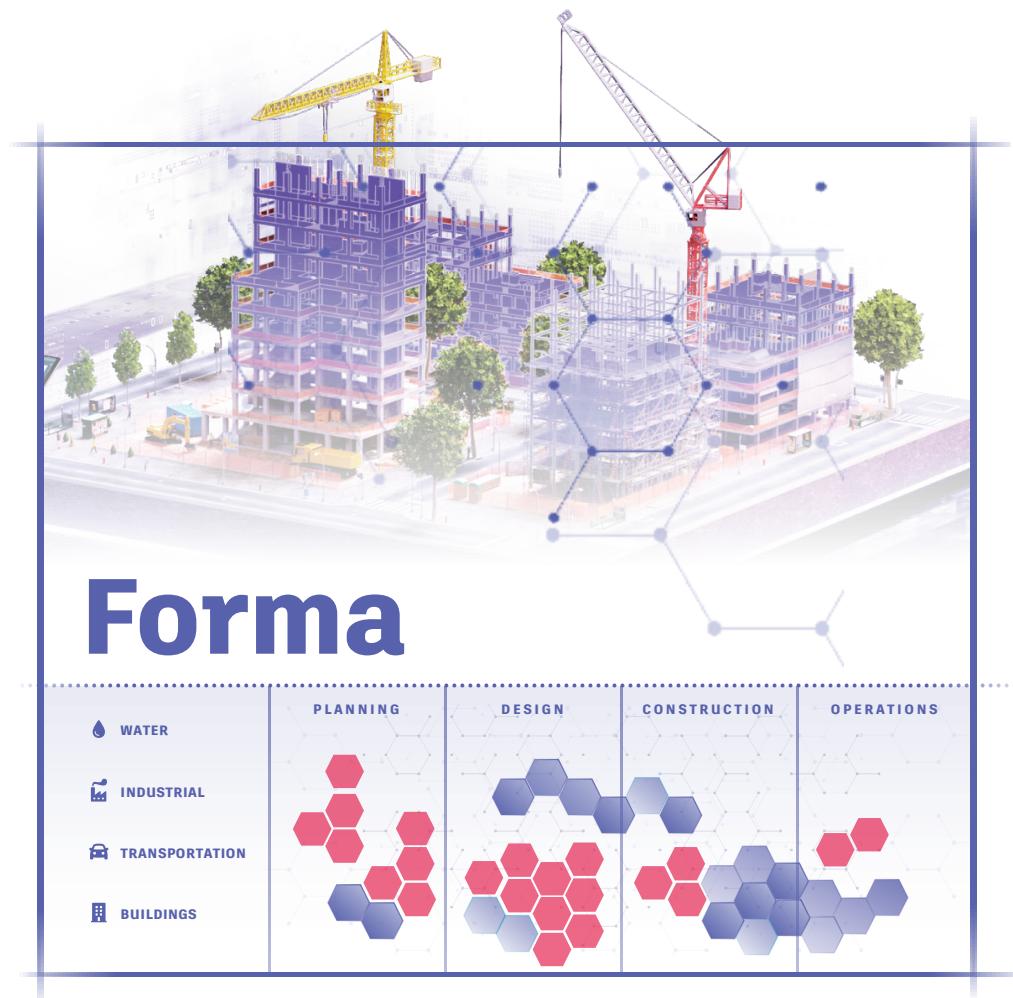
Kartverket PBE, Oslo kommune

Autodesk Forma の サードパーティのビジョン

オープンなプラットフォームの構築には村が必要

オートデスクが作るツールだけではなく、サードパーティ製のツールも組み合わせてワークフローを構築していく

- Autodesk サポート
- 3rd Party サポート



API ドキュメント

The screenshot shows a web browser window displaying the Autodesk Forma API (Beta) documentation. The header includes the Autodesk logo, a search bar, and a 'Sign in' button. The navigation bar features links for Solutions, Getting Started, Documentation, Success Stories, Community, Support, Pricing, and App Store. The main content area has a sidebar on the left with sections for Overview, Embedded Views, Working with Forma, and API Reference. The main content includes a 'Welcome to Forma' section, a beta notice, and details about the Forma API's capabilities and developer support. A 'Feedback' button is visible on the right side.

Forma API (Beta)

Beta

Version 1

Documentation / Forma API (Beta) / Overview

Welcome to Forma

THIS API IS IN BETA AND THIS DOCUMENTATION IS INTENDED FOR BETA USERS ONLY

Autodesk Forma helps planning and design teams deliver projects digitally from day one. Use conceptual design capabilities, predictive analytics, and automations to make solid foundations for your projects.

- Unlock efficiencies with intuitive project setup, design automations, and fluid connectivity with Revit
- Use data-driven insights in real-time to make fast, smart design decisions that reduce risk and improve business and sustainability outcomes
- Improve collaboration and secure buy-in by using data and visuals to tell a compelling design story that can help you win more bids

For further insights into Autodesk Forma as a product, check out our [product overview](#).

Forma API for developers

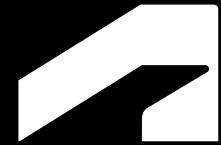
Our vision for Forma as the future of AEC cloud software is highly dependent on a thriving ecosystem of contributors across all disciplines and use cases in the industry.

In order to achieve this, we now provide functionality that allows you as a software developer to build extensions on top of Forma. Whether your expertise lies in parametric design, carbon offset modeling or compliance with local zoning regulations, we want to ensure that you have access to the necessary tools which enable you to engage your customers and create business value through our platform.

The documentation provided on these pages will give you a starting point on how you can extend Forma capabilities with your own solutions. There are two types of functionality you can utilise to create extensions:

- Rich APIs and SDKs for writing generalised functionality exposed through *embedded views* within Forma

Feedback



Autodesk Construction Cloud API アップデート

ACC/BIM 360 API の構成

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
- Naming standard
- Permissions^{*3}
- PDF export^{*3}

Shared Services

- Data Connector
- Model Properties
- Relationships
- Admin^{*3}
- Issues^{*3}
- Locations^{*3}
- Parameters^{*1,4}
- AEC Data Model^{*1,4}

Platform API

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

*1) ACC only, *2) BIM 360 only, *3) Not compatible or partially compatible, *4) Separate API product

ACC API ロードマップ

~2024 Q1

2024 Q2/3

2024 Q4/Q1+

2025 Q2~



追加完了

- Submittals/提出物 read GA
- Docs file description/注記 read
- Automatic region routing for all ACC specific API
- Parameters collections
- Cost budget-contract link
- BuildingConnected (BC) write
- TradeTapp read



最近追加

- AEC Data Model
- Submittals/提出物 write
- Sheets – pdf export
- Files – dwg/rvt 2D export to pdf
- Cost – external relationships
- BC- create invite, webhooks



近い将来

- Markup/Issues pushpin
- Admin user's projects/products/ Roles.
- Data Connector – multiple projects, activities beyond 1 yr
- Parameters custom lists
- Cost – batch create cost items, taxes, sub items.
- TradeTapp flag proposals CRUD
- AEC Data Model custom properties read/write, geometry extraction/read (private beta)



将来

- Secure Service Account
- Webhooks (admin, issues)
- Reviews public
- Attributes project level
- File description write
- Model aggregation
- Alignment
- Design Collaboration packages/settings
- Cost get distribution items

オーストラリア リージョンのサポート

- ACC のみ, BIM 360 は未サポート
- 全ての ACC エンドポイントが自動リージョンルーティングに対応
 - US リージョンのエンドポイントは全てのリージョンで利用可能
 - いくつかのエンドポイントではオプションのリージョンヘッダが必要
- ⚠ • リージョンの値が **APAC** (ベータ版) から **AUS** に変更
 - リクエスト: APAC と AUS の両方が機能しますが、APAC は非推奨となります。
 - レスポンス: APAC と AUS いずれかの値が戻ります。





モジュール毎

ACC/BIM 360 API の構成

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
- Naming standard
- Permissions^{*3}
- PDF export^{*3}

Shared Services

- **Data Connector**
- Model Properties
- Relationships
- Admin^{*3}
- Issues^{*3}
- Locations^{*3}
- Parameters^{*1,4}
- AEC Data Model^{*1,4}

Platform API

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

*1) ACC only, *2) BIM 360 only, *3) Not compatible or partially compatible, *4) Separate API product



Admin

Admin



- API 動作の変更

- テンプレートからの ACC プロジェクト作成で、明示的に管理者を割り当てなくても、テンプレートのプロジェクトメンバーが自動で追加！



- Getting started >> **Tutorials >> “ACC Administrator”**

New!

- NodeJS
- .NET version (coming soon)

- ロードマップ

- GET user projects
- GET project roles
- GET project companies
- Webhooks



The screenshot displays two main sections of the Autodesk Construction Cloud (ACC) web interface:

- Project Directory:** This section lists all projects in the account. It includes a search bar, a button to "Add" a new project, and a table showing 185 current projects. The columns in the table are Name, Members, Companies, and Project Type. One project, "00 Design Files", is shown with 0 members, 1 company, and is active.
- Projects:** This section shows a list of active projects. It includes a sidebar with navigation links: Account Admin, Sample Account, Projects, Members, Templates, Library, Settings, Apps, and BIM 360 admin. The main area shows a table of projects with columns Name, Number, and Type. Projects listed include "000Woods", "001_CDE_ITALY", "003_CDE_ITALY", and "00-ADSK Docs".

Admin: チュートリアル

Getting started >> Tutorials >> “ACC Administrator”

- NodeJS
- プロジェクトの作成 w/ & w/o テンプレート
- ユーザーの追加
- CSV からインポート

.NET version (coming soon)

The screenshot shows the Autodesk Platform Services interface. On the left, there is a sidebar with a tree view of "Developer Advocacy Support" containing various project entries. The main area is titled "PROJECTS" and displays a table of project data. The table has columns: id, accountId, addressLine1, addressLine2, adminGroupId, businessUnitId, city, classification, companyCount, constructionType, contractType, country, createdAt, currentPhase, and deliveryM. There are 369 rows of data. Below the table, a modal window titled "Sheet 1" shows a detailed view of a specific project row, including fields for name, addressLine1, addressLine2, city, and construction. At the bottom right, there is a "UsersTemplate" tab with a preview of a CSV file.

id	accountId	addressLine1	addressLine2	adminGroupId	businessUnitId	city	classification	companyCount	constructionType	contractType	country	createdAt	currentPhase	deliveryM												
c5f0efaf-a3fc-4352- a3fc0-4212- 8d1fb0596d8c	489c5e7a- c6f0-4212- 3529a6121210b	The Fifth Avenue	#301	121041571	-	New York	production	1	Renovation	Design-Bid	US	2021-10- 27T17:52:00.000Z	-	Design-												
d311cc99- 4082-4344- 98cd5308850	489c5e7a- c6f0-4212- 81f3- 3529a6121210b	The Fifth Avenue	#301	121044415	-	New York	production	1	Renovation	Design-Bid	US	2021-10- 27T18:12:00.000Z	-	Design-												
f92afcff-accc- 41f9-a6f6- d094e8080007	489c5e7a- c6f0-4212- 3529a6121210b	The Fifth Avenue	#301	121056757	-	New York	production	1	Renovation	Design-Bid	US	2021-10- 27T18:52:00.000Z	-	Design-												
b34a0837- 9248-4bc2- b171- d3800151a0b6	489c5e7a- c6f0-4212- 81f3- 3529a6121210b	The Fifth Avenue	#301	121041901	-	New York	production	1	Renovation	Design-Bid	US	2021-10- 27T17:55:14.776Z	-	Design-												
86641a0b- 82c2-4645- 855d- 5099bf3391d	489c5e7a- c6f0-4212- 81f3- 3529a6121210b	The Fifth Avenue	#301	121053285	-	New York	production	2	Renovation	Design-Bid	US	2021-10- 27T19:11:52.192Z	-	Design-												
Showing 1 to 5 of 369 rows	1	2	3	4	5	...	74	...	1	2	3	4	5	...	74											
UsersTemplate	Sheet 1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	UsersTemplate	Sheet 1	1	2	3	4	5	...	74
name	addressLine1	addressLine2	city	construction	1	email	firstName	lastName	companyId	roleIds	products:insight	products:docs	products:projectAdministration	products:buildSpecs	products:build	products:cost	products:cost	1	2	3	4	5	...	74		
Bootcamp Sample Project #001	The Fifth Avenue	#301	New York	Renovation	2	sample1@example.com	John	Doe	administrator	administrator	administrator	administrator	administrator	none	none	none	none	sample1@example.com	Sheet 1	1	2	3	4	5	...	74
Bootcamp Sample Project #002	The Fifth Avenue	#301	New York	Renovation	3	sample2@example.com	Jane	Doe	administrator	administrator	administrator	administrator	administrator	none	none	none	none	sample2@example.com	Sheet 1	1	2	3	4	5	...	74

SDK: URL

SDK

- **NodeJS NPM**
https://www.npmjs.com/package/@aps_sdk/construction-account-admin
https://www.npmjs.com/package/@aps_sdk/construction-issues
- **Nuget パッケージ**
<https://www.nuget.org/packages/Autodesk.Construction.AccountAdmin/1.0.0-beta1>
<https://www.nuget.org/packages/Autodesk.Construction.Issues>

Github リポジトリ for SDK:

- <https://github.com/autodesk-platform-services/aps-sdk-node>
- <https://github.com/autodesk-platform-services/aps-sdk-net>



Data Connector

Data Connector



• Data Connector API

New!

- 複数プロジェクトのサポート
 - projectIdList
 - projectStatus – filter by Status: active/archived/all
 - To Do: ドキュメント公開待ち
- 1日(24時間)あたり 24 API リクエスト制限



schemas	assets_asset_custom_attribute_values.csv
admin_account_services.csv	assets_asset_permissions.csv
admin_accounts.csv	assets_asset_statuses.csv
admin_business_units.csv	assets_assets.csv
admin_companies.csv	assets_categories.csv
admin_project_companies.csv	assets_category_custom_attribute_assignment.csv
admin_project_roles.csv	assets_category_status_set_assignments.csv
admin_project_services.csv	assets_custom_attribute_default_values.csv
admin_project_user_companies.csv	assets_custom_attribute_selection_values.csv
admin_project_user_roles.csv	assets_custom_attributes.csv
admin_project_user_services.csv	assets_status_sets.csv

The screenshot shows the Autodesk Construction Cloud Insight dashboard for a project named "Sample Account - Seaport Civic Center". The dashboard includes sections for Project Address, Weather, Quality Risk, Safety Risk Today, and a map of Boston, MA. On the left, there's a sidebar with links like Risk, Design, Project Controls, Quality, Safety, Commissioning, DAC Dashboard, and Safety & Quality Dashboards. A central panel displays "Project Issues" with a table showing 44 items, including "Flashing at Rd" and "Replace Barrier". Below the dashboard, there's a "Data Connector" section with a "Run extraction" button and a "Schedule" button.

The screenshot shows the Autodesk Construction Cloud Insight dashboard for a project named "Pacific Center Campus". The dashboard includes sections for Open RFIs and Submittals, and Open RFIs by Current Assignment. A central panel displays "Project Controls" with sections for Cost, Schedule, Quality, and Safety. Below the dashboard, there's a "Data Connector" section with a "Run extraction" button and a "Schedule" button.



Parameters

Parameters

リリース済み (2024年5月)



- コレクション間でパラメータを共有 (POST parameters:batch-share) :MAX50/call
- コレクション間でパラメータの共有削除 (POST Parameters:batch-unshare)
- Blog:** <https://aps.autodesk.com/blog/parameters-apis-batch-share-un-share-parameters-to-from-specified-collection>
- Code sample:** Revit add-in. define shared parameters from parameters service
<https://aps.autodesk.com/blog/revit-parameters-import-sample-latest-aps-parameters-api>
- オーストラリアリージョンは未サポート

Parameters – what's next

ロードマップ

- カスタムのパラメータ値リストの作成(ドロップダウンで値を選択可能なパラメータ)
- プロジェクトレベルのカスタムパラメータサポート
- “standard admin” - アクセスレベルの追加（ライブラリ, テンプレート, その他の標準）
- オーストラリアリージョンのサポート



Build

Submittals (提出物)



- リリース済み (2024年2月). 9 エンドポイント. 読み取りのみ.
 - Scope: Submittal items, item types, packages, spec section, attachments with submittals items, responses.
 - Blog: <https://aps.autodesk.com/blog/autodesk-build-submittals-api-general-availability>



- Write API (2024年8月)
 - POST items (create a submittal item)
 - POST spec (create a spec section)
 - Plus supporting read endpoints
 - Blog: <https://aps.autodesk.com/blog/autodesk-construction-cloud-submittals-write-api-and-updates>

- ロードマップ - 添付ファイルの追加



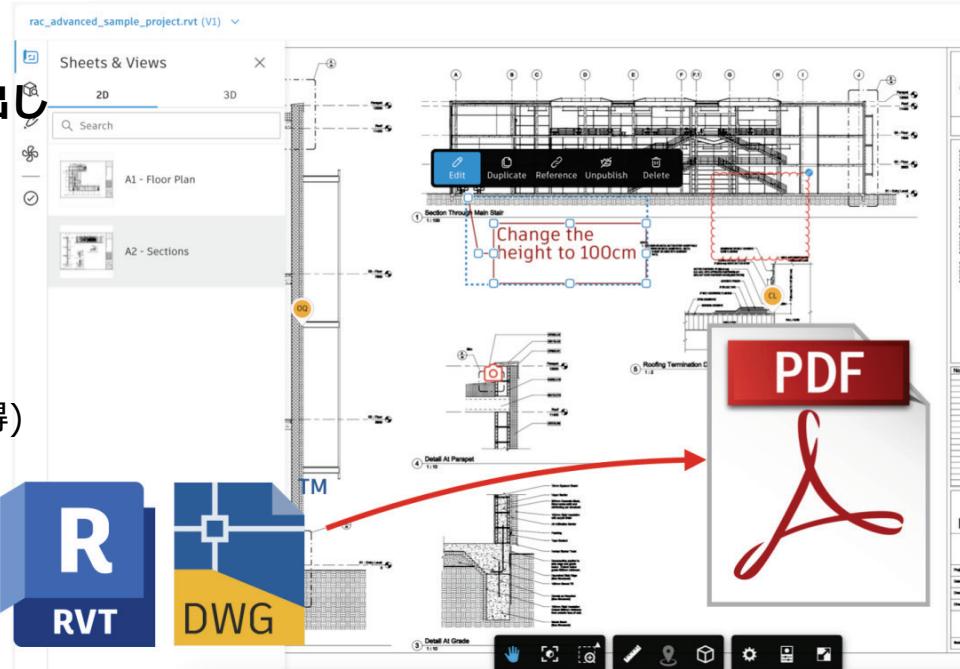
Sheets

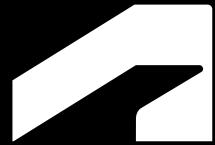
リリース済み(2024年8月)



DWG/RVT 2D ビュー/シートを PDF に書き出し

- Revit 2022 以降のバージョン
- 既存の API (pdf to pdf export) の拡張
 - POST exports (ジョブの登録)
 - GET exports/jobId (ステータス確認と URL 取得)
- マークアップとハイパーリンクのオプション
- APS ベースの書き出し処理
- Blog: <https://aps.autodesk.com/blog/api-exporting-accelerated-sheet-pdf-released>

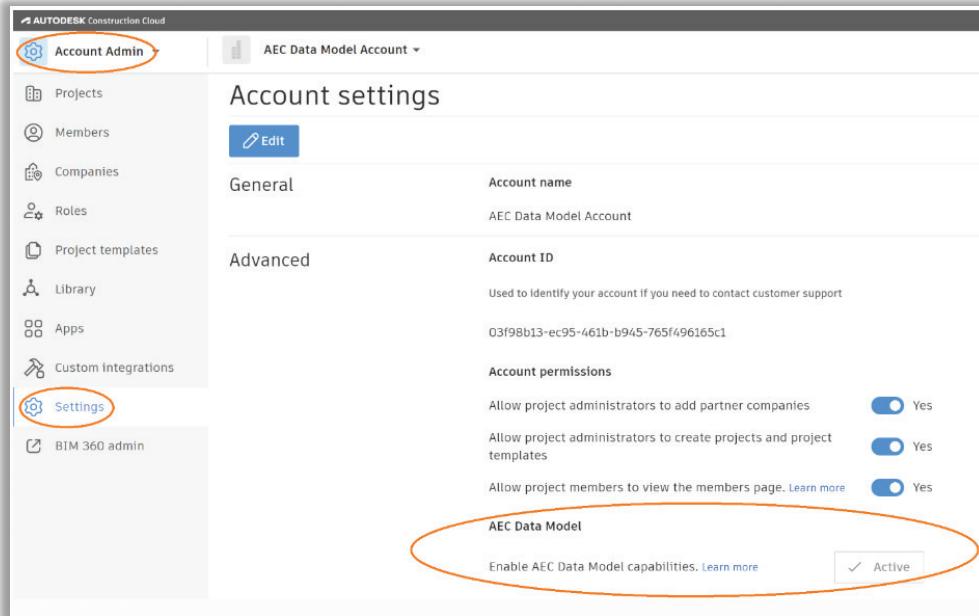




AEC Data Model アップデート

AEC Data Model *New!*

- 2024年6月に GAリリース
- クラウドに保存されたAEC モデルの（粒状）データにアクセス
- Autodesk Docs, US & EU リージョン (AUS TBD)
- Revit 2024 & 2025
- AEC Data Model アクティベーション（アカウントレベル）後、自動的に粒状データが生成されます。



Activate AEC Data Model feature

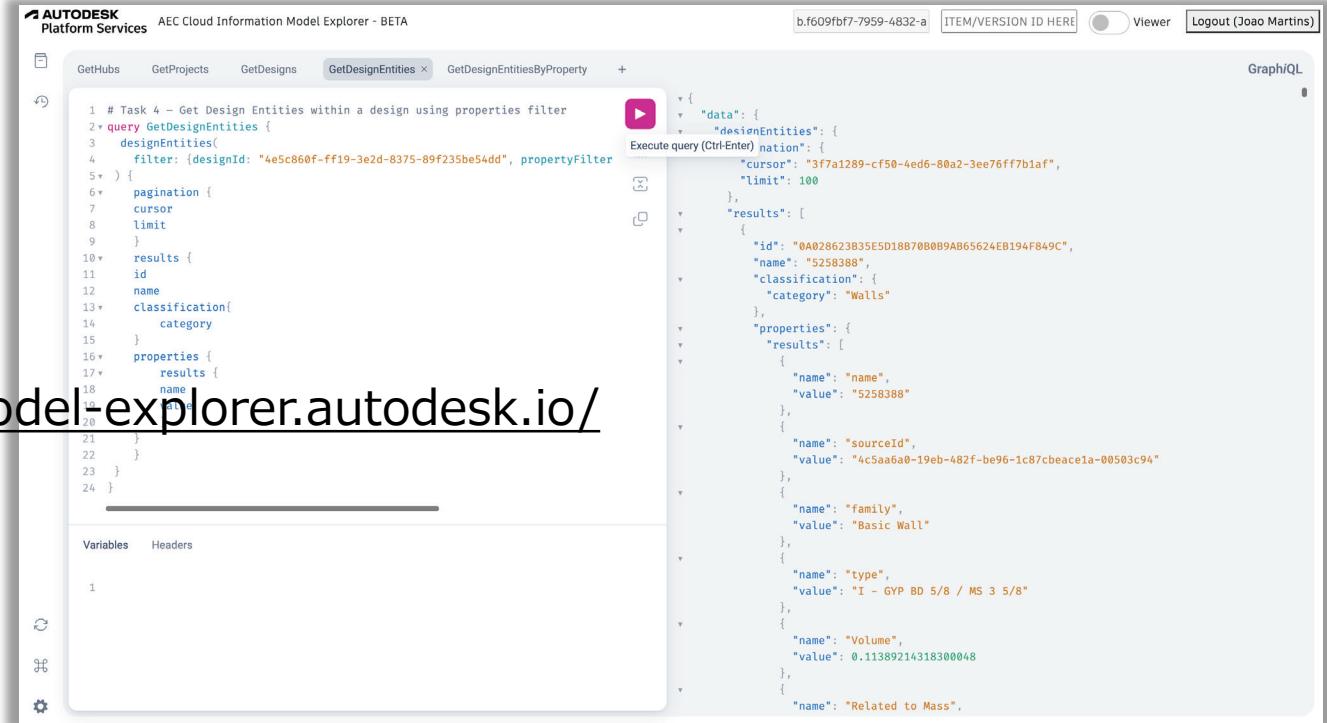
AEC Data Model *New!*

- GraphQL POST <https://developer.api.autodesk.com/aec/graphql>

- 多様なクエリ, e.g.,

- Projects
 - Versions
 - Properties

- Explorer tool →
<https://aecdatamodel-explorer.autodesk.io/>



The screenshot shows the Autodesk AEC Cloud Information Model Explorer - BETA interface. On the left, a code editor displays a GraphQL query:

```
1 # Task 4 - Get Design Entities within a design using properties filter
2 query GetDesignEntities {
3   designEntities(
4     filter: {designId: "4e5c860f-fff9-3e2d-8375-89f235be54dd", propertyFilter
5   ) {
6     pagination {
7       cursor
8       limit
9     }
10    results {
11      id
12      name
13      classification{
14        category
15      }
16      properties {
17        results {
18          name
19          value
20        }
21      }
22    }
23  }
24 }
```

On the right, the results of the query are displayed as a JSON object:

```
{
  "data": {
    "designEntities": {
      "cursor": "3f7a1289-cf50-4ed6-80a2-3ee76fff7b1af",
      "limit": 100
    },
    "results": [
      {
        "id": "0A028623B35E5D18B70B0B9AB65624EB194F849C",
        "name": "5258388",
        "classification": {
          "category": "Walls"
        },
        "properties": {
          "results": [
            {
              "name": "name",
              "value": "5258388"
            },
            {
              "name": "sourceId",
              "value": "4c5aa6a0-19eb-482f-be96-1c87cbeacea-00503c94"
            },
            {
              "name": "family",
              "value": "Basic Wall"
            },
            {
              "name": "type",
              "value": "I - GYP BD 5/8 / MS 3 5/8"
            },
            {
              "name": "Volume",
              "value": 0.11389214318300048
            },
            {
              "name": "Related to Mass"
            }
          ]
        }
      }
    ]
  }
}
```

AEC Data Model API と GraphQL

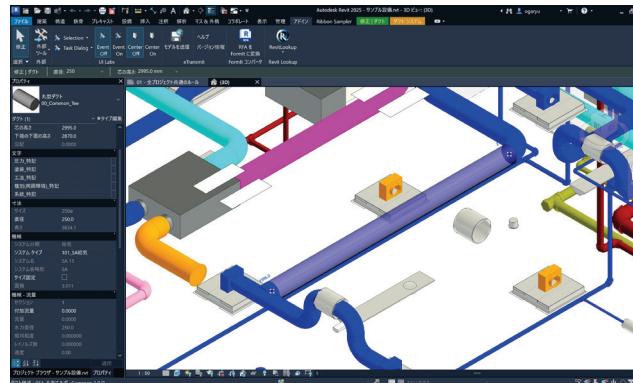
- 1つのエンドポイント
- リクエスト・レスポンスにおけるデータ構造が固定されていない
- 何度もフェッチする必要がない（1回の呼び出しで複数のクエリ）
- リソース効率が良い（不要なデータの削減）



必要としているデータだけを取得可能

モデルの特定バージョンにおける特定のダクト要素の長さ

```
query GetElementsByElementGroupAtVersion {  
  elementsByElementGroupAtVersion(  
    elementGroupId: "YWVjZH*****RMQLBn"  
    versionNumber: 1  
    filter: {query: "property.name.External ID'==706c1fe4-*****"}  
) {  
  results {  
    properties(filter: {names: ["Length"]}) {  
      results {  
        name  
        value  
        definition {  
          units {  
            name  
          }  
        }  
      }  
    }  
  }  
}
```



```
{  
  "data": {  
    "elementsByElementGroupAtVersion": {  
      "results": [  
        {  
          "properties": {  
            "results": [  
              {  
                "name": "Length",  
                "value": 3.8341282903267926,  
                "definition": {  
                  "units": {  
                    "name": "Meters"  
                  }  
                }  
              }  
            ]  
          }  
        }  
      ]  
    }  
  }  
}
```

読みやすく理解しやすい



必要なデータ	使用するフィルター	どの構成タイプ
壁カテゴリの全ての要素	'property.name.category'==Walls	Element
全てのインスタンス	'property.name.Element Context'==Instance	Element
特定のユーザーが編集した要素	metadata.lastModifiedBy.email== <u>example@autodesk.com</u>	Element or Design
面積と長さのプロパティ	names:["Length","Area"]	Property

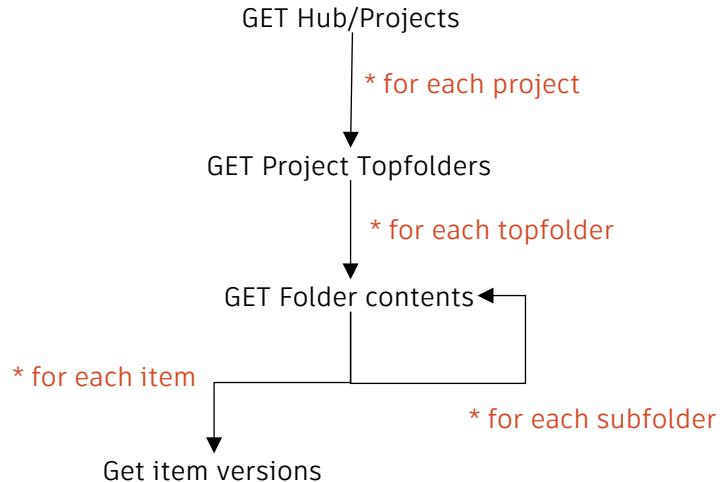
Data Management よりも速い



AEC Data Model API *

```
query {  
  elementGroupsByHub (hubId: "b.03f9...5c1") {  
    results{  
      name  
      id  
      lineage{  
        versions{  
          results {  
            versionNumber  
          }  
        }  
      }  
    }  
  }  
}
```

Data Management API



* Currently only queries Revit 2024 designs

Model Derivative サービス から完全に独立

- 既存の Model Derivative API とは完全に独立したサービス
 - SVF/SVF2 変換とは異なる AEC Data Model の抽出処理
 - つまり、SVF/SVF2 変換を前提とする ACC Model Properties API とも異なる
- Revit モデルを ACC にアップロードすると、自動的に粒状データ（AEC Data Model）にアクセス可能になります。（要設定）
- バックエンドの仕組みは現状、非公開。
- 粒状データは、Revit 固有のデータスキーマではない。



クエリの一例

ACC プロジェクト内で共有パラメータの値に一致する全ての照明器具タイプの一覧を取得

```
1 query GetLightingElementsByProject {  
2   elementsByProject(  
3     projectId: "urn:adsk.workspace:prod.project:818db5b1"  
4     filter: {query: "  
5       'property.name.category'='Lighting Fixtures' and  
6       'property.name.法定耐用年数'='15' and  
7       'property.name.Element Context'='Type'"  
8     }) {  
9       pagination {  
10         cursor  
11       }  
12       results {  
13         name  
14         id  
15         properties {  
16           results {  
17             name  
18             value  
19           }  
20         }  
21       }  
22     }  
23   }  
24 }
```



```
{  
  "data": {  
    "elementsByProject": {  
      "pagination": {  
        "cursor": "YWRjdXJzfJB-NTB-NTA"  
      },  
      "results": [  
        {  
          "name": "LRS6-6600LM",  
          "id": "YWVjZX42SUpGQXdONExWTG5JZXZiQk5GNU1",  
          "properties": {  
            "results": [ ]  
          }  
        },  
        {  
          "name": "K1-LRS11-1",  
          "id": "YWVjZX42SUpGQXdONExWTG5JZXZiQk5GNU1",  
          "properties": {  
            "results": [ ]  
          }  
        },  
        {  
          "name": "K1-LRS11-2",  
          "id": "YWVjZX42SUpGQXdONExWTG5JZXZiQk5GNU1",  
          "properties": {  
            "results": [ ]  
          }  
        }  
      ]  
    }  
  }  
}
```

AEC Data Model – アップデート

- 最新アップデート



- 2つの新しいクエリ

- distinctPropertyValuesInElementGroupById
 - distinctPropertyValuesInElementGroupByName

ElementGroup 内の指定したプロパティ定義に対応する全ての値をリストで取得

- クエリの Rate Limit (ポイント制) : 消費したポイント値がレスポンスに返却
 - ElementGroup フィルターの強化 : fileUrn と name

- 近い将来 (プライベートβ)



- カスタムプロパティの read/write in the Cloud (ACC)
 - ジオメトリの抽出/read (Solid B-rep, IFC snippet)

ドアカテゴリのファミリ名の一覧を取得

- プロパティ定義名 (Family Name) の値のバリエーションを取得 → ドアカテゴリでフィルタリング

The screenshot shows the Autodesk AEC Data Model Explorer interface with a GraphQL query editor and results viewer.

GraphQL Query:

```
query ($elementGroupId: ID!, $name: String!, $filter: ElementFilterInput) {
  distinctPropertyValuesInElementGroupByName(elementGroupId: $elementGroupId, name: $name) {
    pagination {
      cursor
    }
    results {
      definition {
        id
      }
      values(limit: 200) {
        value
        count
      }
    }
  }
}
```

Variables:

```
{
  "elementGroupId": "YWVjZH425UpGQxdONExWTG5JZXzIQ5GNU1IX0wyQ35JVzE1ZXVrTVJB53V2amhtVGxCQ513",
  "name": "Family Name",
  "filter": {
    "query": "property.name.category==Doors"
  }
}
```

Results:

```
[{"value": "鋼製_大枠_片開_小窓付", "count": 58}, {"value": "鋼製_大枠_片開_框", "count": 58}, {"value": "鋼製_大枠_片開_フラッシュ", "count": 31}, {"value": "鋼製_大枠_引違_ガラリ付3", "count": 29}, {"value": "鋼製_大枠_片開_框2", "count": 29}, {"value": "700x2300", "count": 2} ]
```

壁カテゴリの構造マテリアルの一覧を取得

- プロパティ定義名（Structural Material）の値のバリエーションを取得 → 壁カテゴリでフィルタリング

The screenshot shows the Autodesk Platform Services AEC Data Model Explorer interface. At the top, there are navigation tabs: GetHubs, GetProjects, GetElementGroupsByProject, GetElementsFromCategory, GetElementsByFilter, <untitled>, <untitled> x +, fileVersionUrn here, Viewer, Voyager, and Sign Out (Ryuji Ogasawara). On the right, there is a Graph/QL button.

The main area contains a code editor with a GraphQL query:

```
1 * query ($elementGroupId: ID!, $name: String!, $filter: ElementFilterInput) {
2 *   distinctPropertyValuesInElementGroupByName(elementGroupId: $elementGroupId, name: $na
3 *     pagination {
4 *       cursor
5 *     }
6 *     results {
7 *       definition {
8 *         id
9 *       }
10 *      values(limit: 200) {
11 *        value
12 *        count
13 *      }
14 *    }
15 *  }
16 }
```

Below the code editor, there are tabs for Variables and Headers. The Variables tab shows the following variables:

```
1 * {
2   "elementGroupId": "YWVjZH425UpGQxDNEwTG5JZXziQk5GNU1IX0wyQ35JVzE1ZXVrTVJB53V2amhtVGQCS13
3   "name": "Structural Material",
4   "filter": {
5     "query": "property.name.category=Walls"
6   }
7 }
```

The right side of the interface displays the results of the GraphQL query, which is a JSON object representing the data returned from the API. It includes fields for data, pagination, and results. The results field contains an array of objects, each representing a value and its count. The first few objects in the results array are:

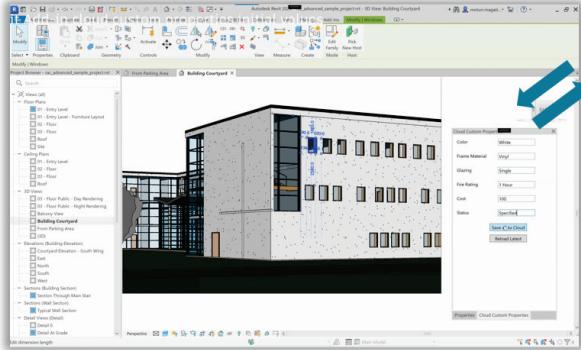
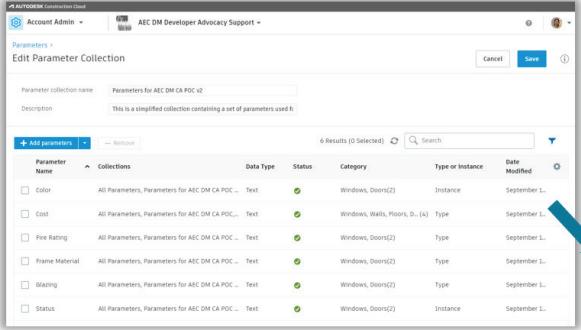
- { "value": "既定の内壁", "count": 1 }
- { "value": "コンクリート-現場", "count": 1 }
- { "value": "コンクリート-現場打ち", "count": 3 }

At the bottom of the interface, there are several small icons for navigating between tabs and sections.

AEC Data Model – What's Next

カスタムプロパティ Read/Write

Parameters Service: param definition



Revit add-in: cloud custom properties

AEC Data
Model
custom
properties

The screenshot displays multiple Autodesk platforms integrated with the AEC Data Model:

- Integration w/Assets:** Shows the 'Assets' interface with items like 'M_Fixed [199640]' and 'Windows'.
- Integration w/Cost Mgmt:** Shows the 'Cost Management' interface with a 'Budget' table and a 'Quantity takeoff from AEC Data Model & Integration with ACC Cost Management' report.

Central to these integrations is the 'AEC Data Model custom properties' hub, which manages properties like Color (White), Frame Material (Vinyl), Glazing (Single), Cost (100), and Status (Specified) for various components like 'Base FRP 2.20mm' and 'Frame Concrete 50mm'.

Integration
w/Cost Mgmt

カスタムプロパティ Read/Write

What can we do?

パラメタサービス

- ACC パラメータサービスの
パラメタコレクション
- UI と API どちらでも。



The screenshot shows the 'Edit Parameter Collection' interface in Autodesk Construction Cloud. The collection name is 'Parameters for AEC DM CA POC v2' and the description is 'This is a simplified collection containing a set of parameters used for...'. The table lists six parameters: Color, Cost, Fire Rating, Frame Material, Glazing, and Status, all of which are of type Text and have a status of 'Active'. The table includes columns for Name, Collections, Data Type, Status, Category, Type or instance, Date Modified, and a gear icon for settings.

Parameter Name	Collections	Data Type	Status	Category	Type or instance	Date Modified	Actions
Color	All Parameters, Parameters for AEC DM CA POC ...	Text	✓	Windows, Doors(2)	Instance	September 1...	
Cost	All Parameters, Parameters for AEC DM CA POC,...	Text	✓	Windows, Walls, Floors, D... (4)	Type	September 1...	
Fire Rating	All Parameters, Parameters for AEC DM CA POC ...	Text	✓	Windows, Doors(2)	Type	September 1...	
Frame Material	All Parameters, Parameters for AEC DM CA POC ...	Text	✓	Windows, Doors(2)	Type	September 1...	
Glazing	All Parameters, Parameters for AEC DM CA POC ...	Text	✓	Windows, Doors(2)	Type	September 1...	
Status	All Parameters, Parameters for AEC DM CA POC ...	Text	✓	Windows, Doors(2)	Instance	September 1...	

App #1: Revit Add-in からクラウドにパラメータを保存

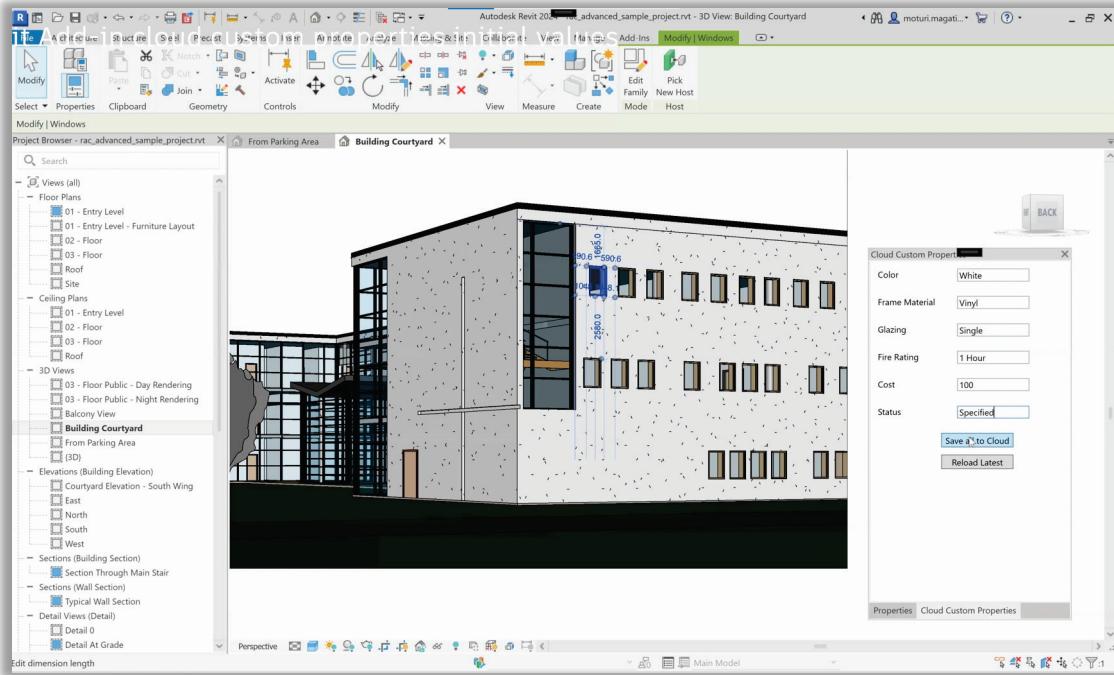
AEC DM custom properties. What can we do?

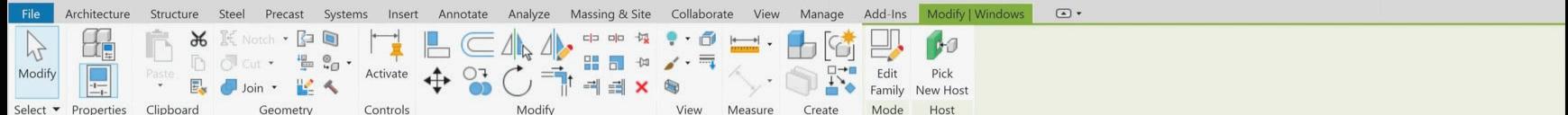
カスタムプロパティをクラウド上の AEC Data Model に追加。

ファイルには保存されません。

Revit のアドインを通じて、カスタムプロパティをドッキングパネルで表示・編集。

AEC Data
Model
custom
properties





Modify | Windows

Project Browser - rac_advanced_sample_project.rvt

Search

Views (all)

Floor Plans

- 01 - Entry Level
- 01 - Entry Level - Furniture Layout
- 02 - Floor
- 03 - Floor
- Roof
- Site

Ceiling Plans

- 01 - Entry Level
- 02 - Floor
- 03 - Floor
- Roof

3D Views

- 03 - Floor Public - Day Rendering
- 03 - Floor Public - Night Rendering
- Balcony View

Building Courtyard

- From Parking Area
- (3D)

Elevations (Building Elevation)

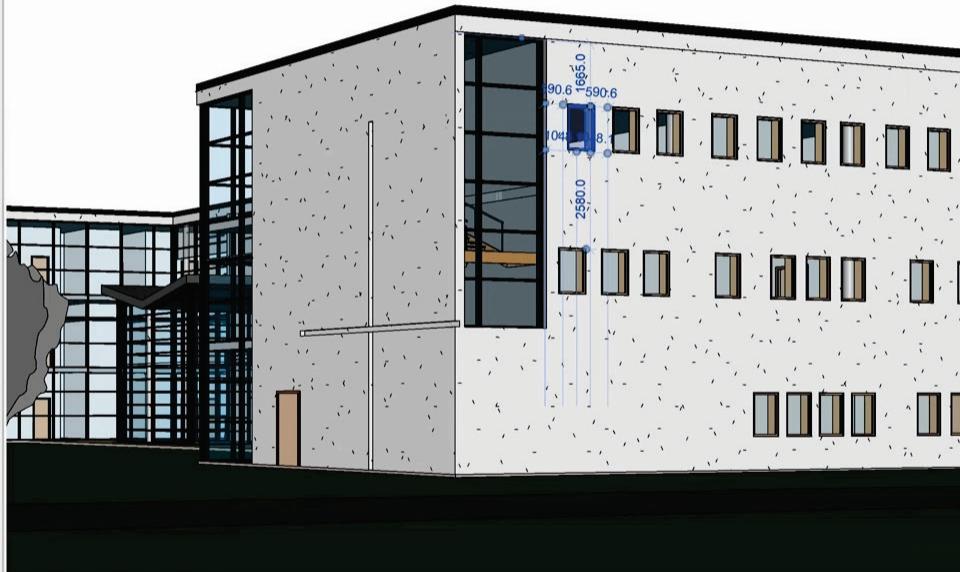
- Courtyard Elevation - South Wing
- East
- North
- South
- West

Sections (Building Section)

- Section Through Main Stair
- Sections (Wall Section)
- Typical Wall Section

Detail Views (Detail)

- Detail 0
- Detail At Grade



Properties	
	M_Fixed 0915 x 1220mm
Windows (1) Edit	
Constraints	
Level	03 - Floor
Sill Height	915.0
Identity Data	
Image	
Comments	
Mark	28
Phasing	
Phase Created	New Construction
Phase Demolished	None
IFC Parameters	
IFC Predefined Type	
Export to IFC As	
Export to IFC	By Type
ifcGUID	0H1nVTTAv6LhM6_nm...
Other	
Head Height	2135.0
Properties help	
Apply	
Properties Cloud Custom Properties	

Edit dimension length

Perspective

Main Model



Type here to search



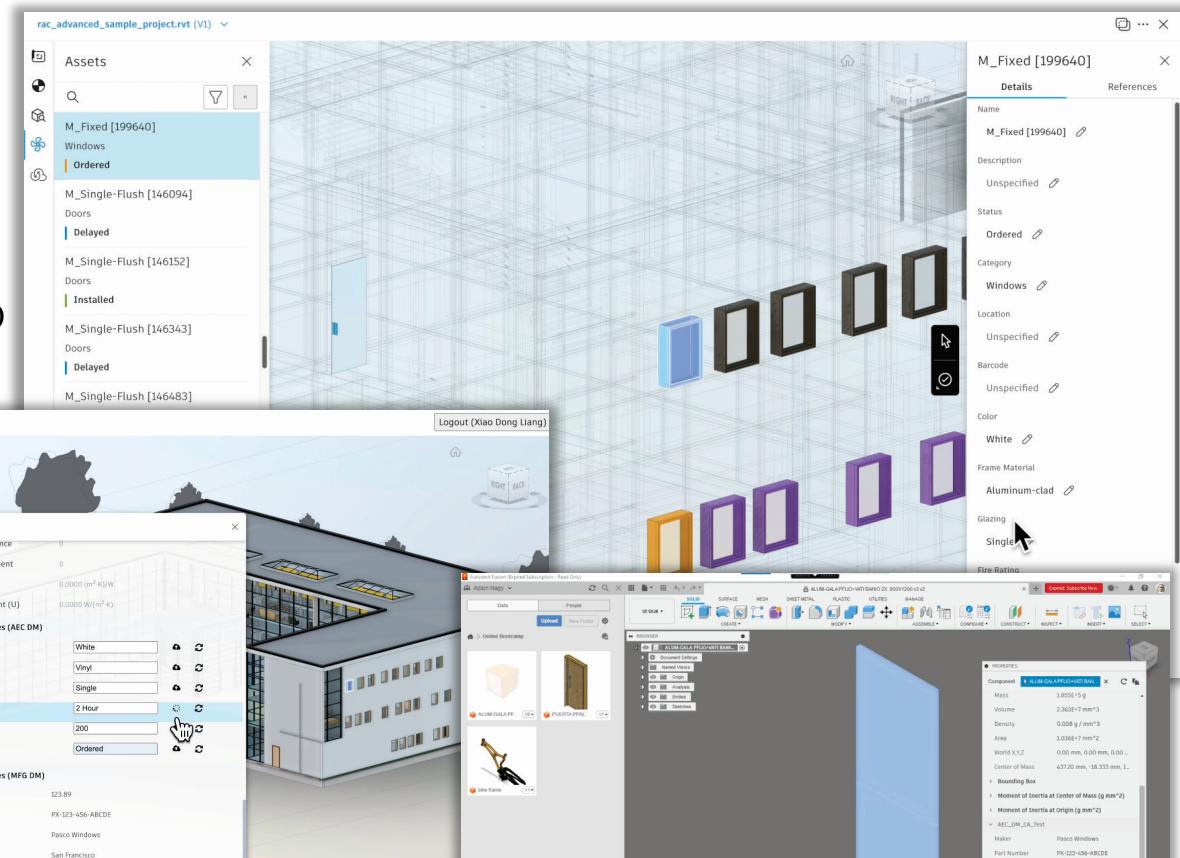
App #2: Assets モジュールと統合してパラメータを更新

AEC DM custom properties. What can we do?

アセットモジュールと統合。

AEC Data Model にアクセスし、カスタムプロパティの値を変更。

Manufacturing Data Modelとの統合も。



Integration with
ACC Assets

Group 1 AEC Data Model Custom Attrib... Files - Autodesk Build X +

localhost:8080

AUTODESK Platform Services AEC Data Model Custom Attributes Manager Logout (Xiao Dong Liang)

- ☐ AEC DM Developer Advocacy Support
- ⊕ AEC DM DAS Test Project
- ⊕ AEC DM CA Demo
- ⊕ DAS Project
- ☒ AU AEC DM Custom Properties
 - ☒ Project Files
 - ⊕ Fire Rating Example Catalog.xlsx
 - ☒ rac_advanced_sample_project.rvt
 - 2024-09-11T08:03:54.000000...
- ⊕ Component Library Project 3eae1059-...

The screenshot shows a 3D rendering of a modern building with a glass facade and a central entrance. A cursor is positioned near the bottom right corner of the building's white-painted facade. The interface includes a sidebar on the left listing project files and a toolbar at the bottom with various icons for navigation and management.

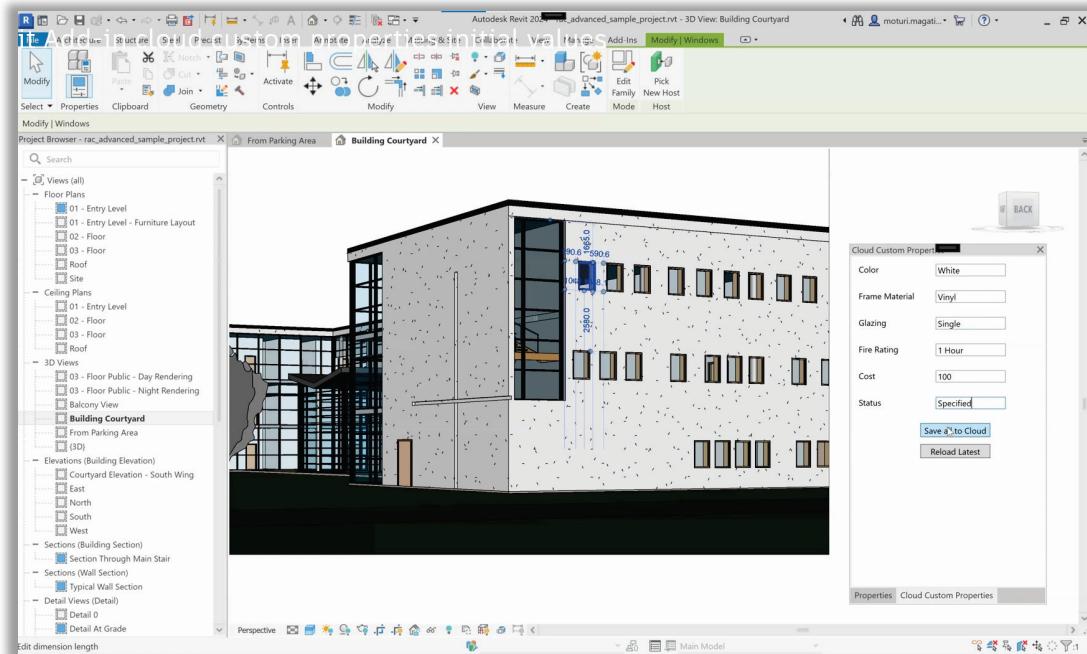
App #3: Revit Add-in で最新の値を取得

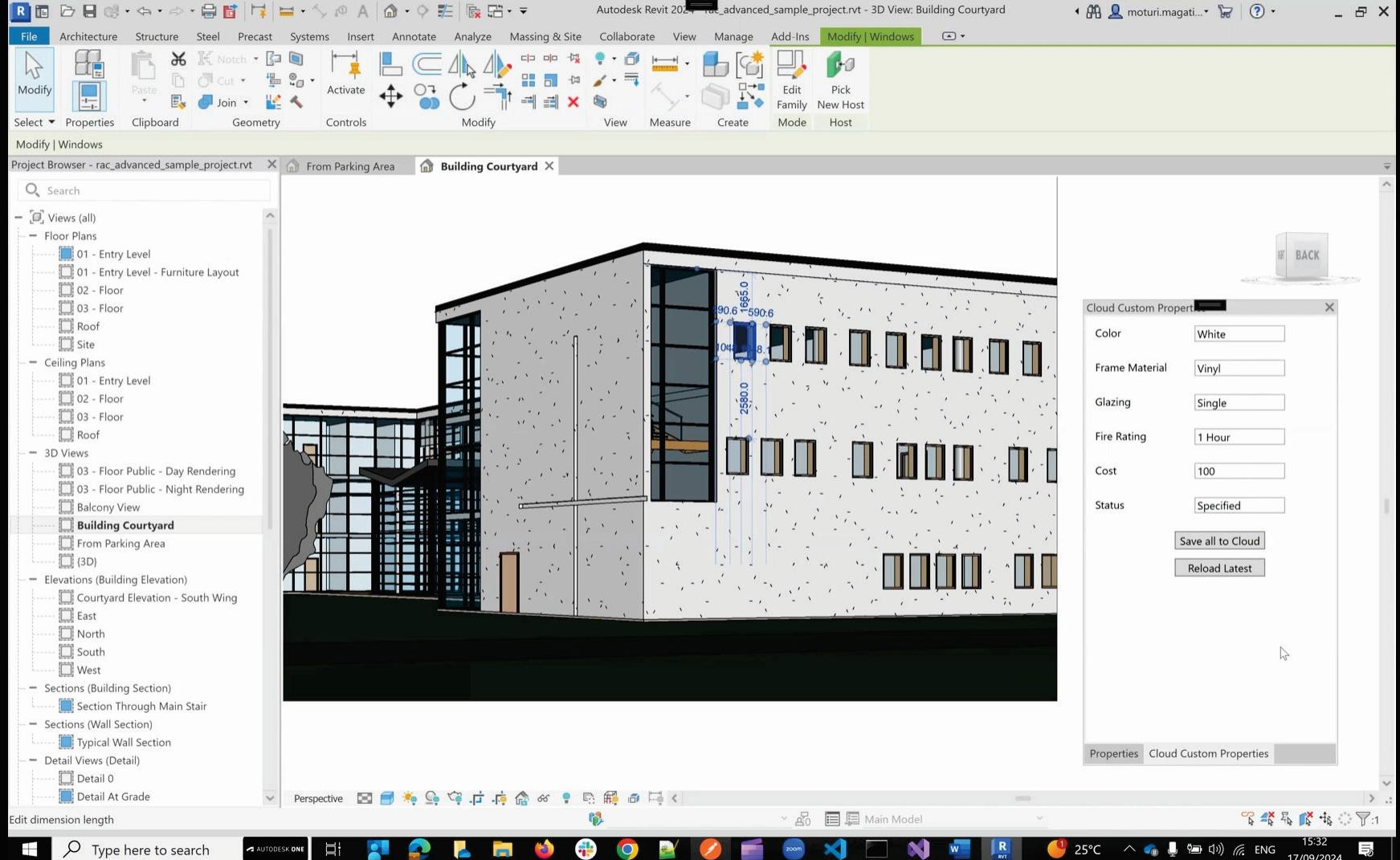
AEC DM custom properties. What can we do?

共同作業者の編集したデータを確認。

プロパティの最新の値を取得。

Revit モデル内にデータを保存するのではなく、あくまでクラウド上の AEC Data Model に保存します。





API ドキュメント

AUTODESK Platform Services

Solutions ▾ Getting Started Documentation Success Stories Community ▾ Support ▾ Pricing App Store ▾

Sign in

AEC Data Model API

Version 1

Developer's Guide

- Overview
- Onboarding to AEC Data Model
- About GraphQL
- Regions Supported
- > API Essentials
- > Filtering Options
- Pagination
- AEC Data Model Rate Limits
- About AEC Data Model Explorer
- Known Limitations
- FAQ

Step-by-Step Tutorials

Code Samples

API Reference

Documentation / AEC Data Model API / Developer's Guide

AEC Data Model API

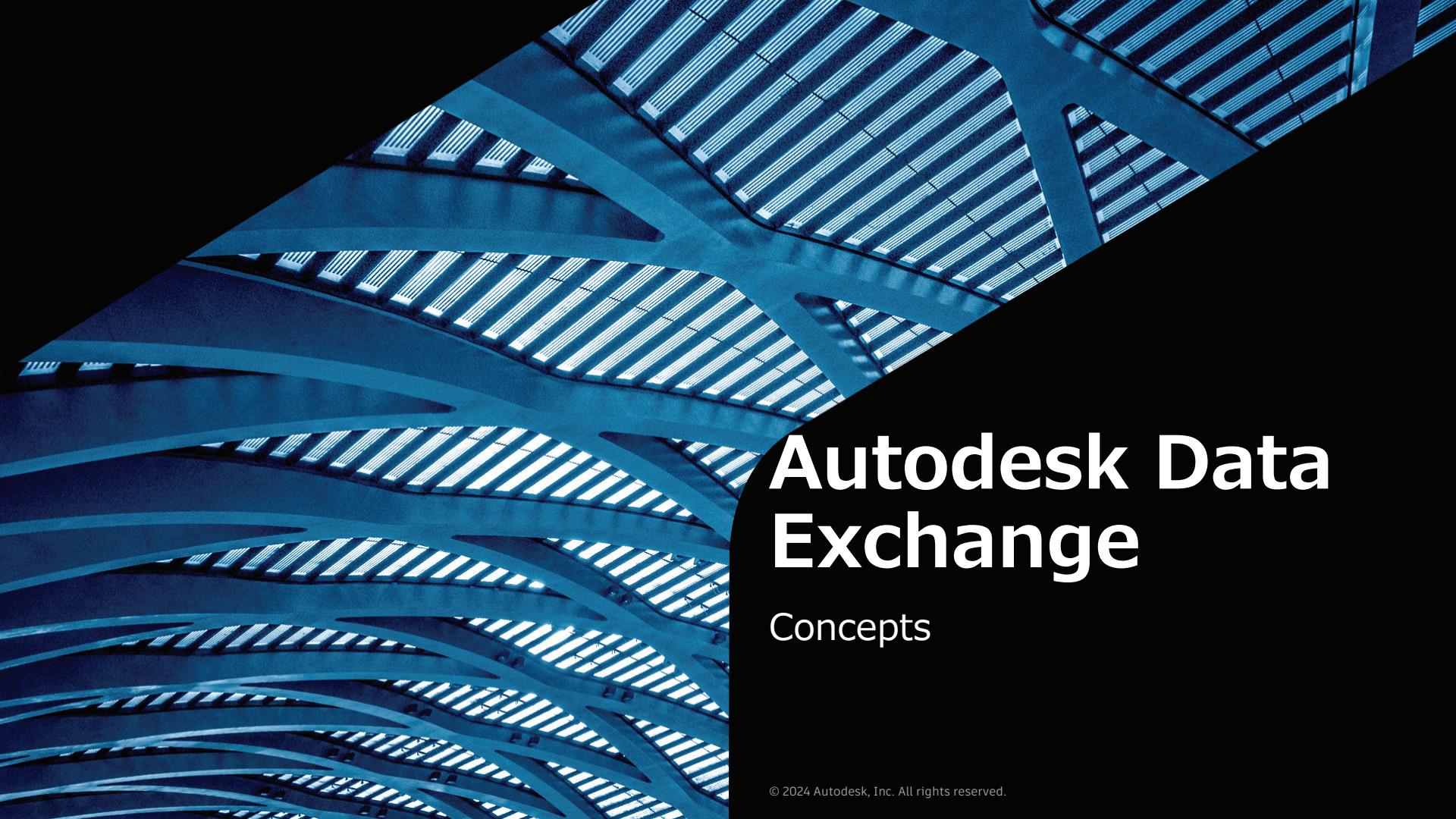
The AEC Data Model API is a GraphQL-based API that provides the ability to directly interact with granular AEC data in the cloud without the need of building custom plug-ins for the desktop authoring tools like Revit, Civil 3D, Plant3D and other AEC connected design applications.

At launch, the API is read-only for querying elements and their properties data from published Revit 2024 and later version models.

The value of the AEC Data Model extends beyond providing granular data. It offers an intuitive and consistent data navigation experience through tailored APIs within the AEC domain. With these APIs, you can seamlessly explore your Hub, Projects, Folders, Files, and delve deep into detailed AEC data, including elements and parameters.

学習リソース

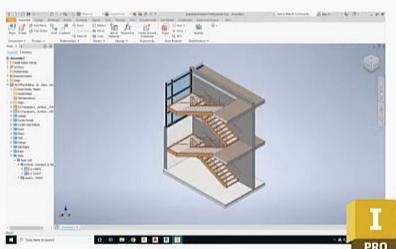
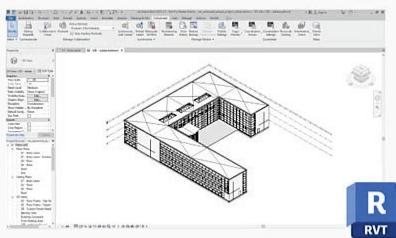
- **AU Class SD3680. Tuesday, Oct 15 4:30 PM - 5:30 PM PDT**
"Expert Use of the AEC Data Model API: A Technical Deep Dive into Enhancing Your Data Potential and Efficiency in AEC Projects". By Zhong Wu, Mike Engel, Joao Martins
- **Blog:** <https://aps.autodesk.com/blog/aec-data-model-api-technical-resources>
- **Github:**
 - <https://github.com/autodesk-platform-services/aps-aecdatamodel-explorer>
 - <https://github.com/autodesk-platform-services/aps-aecdatamodel-dashboards>
 - <https://github.com/autodesk-platform-services/aps-aecdatamodel-samples> (a collection of basic queries examples)
- **Live "AEC Data Model Explore" tool:** <https://aecdatamodel-explorer.autodesk.io/>

The background of the slide features a complex, abstract pattern of blue and white curved bands. These bands are composed of numerous thin, parallel white lines, creating a sense of depth and motion. They overlap and curve in various directions against a solid black background.

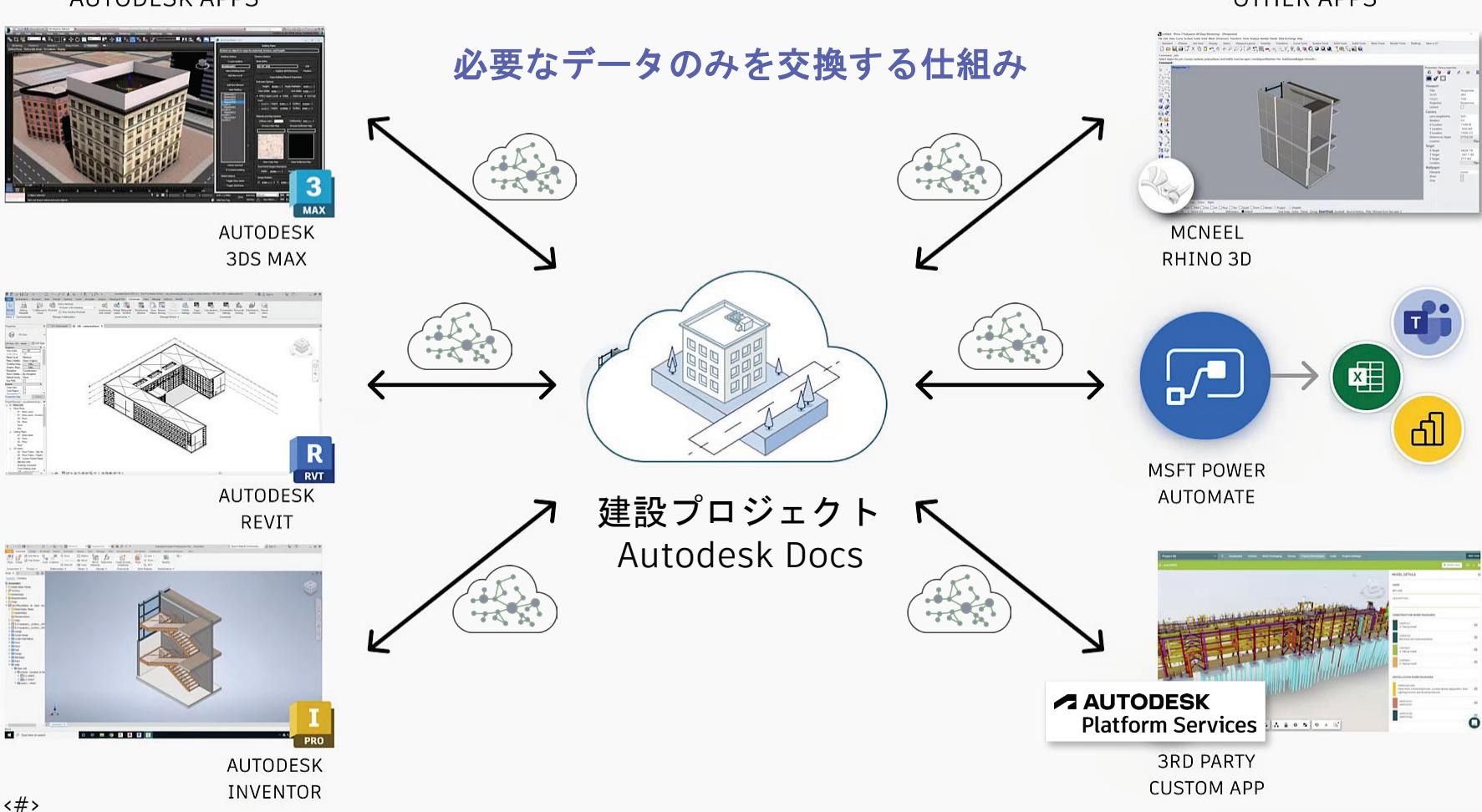
Autodesk Data Exchange

Concepts

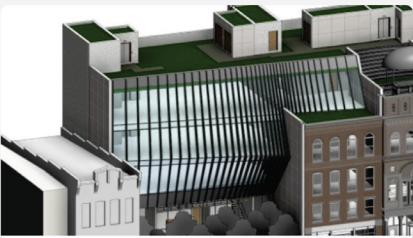
AUTODESK APPS



必要なデータのみを交換する仕組み



オートデスク製 Data Exchange コネクター

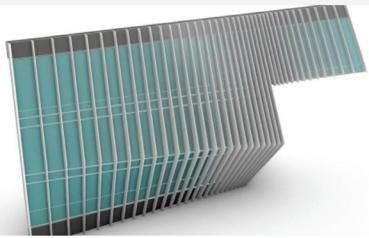


Revit Connector

Use the Revit Connector Beta to send BIM data, such as geometry and parameters, from Revit. Plus, receive geometric data in Revit.

Supported version(s): Revit 2024

[Get the Connector](#)

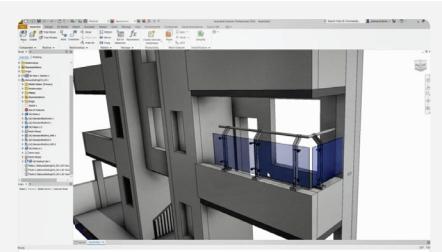


Rhino Connector

Try out the Rhino Connector Beta to send data from Rhino. Easily exchange geometry, objects and parameters supported appl

Supported vers

[Get the Conn](#)



Inventor Connector

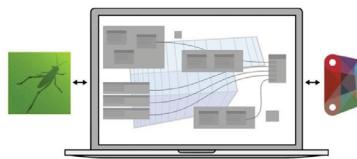
Use the connector to bring geometry data into Inventor no download required, as it comes



Navisworks Connector

This connector helps coordinate designs across different applications and leverages tools like Clash Detection, Search Sets, and Timeliner effectively within Navisworks.

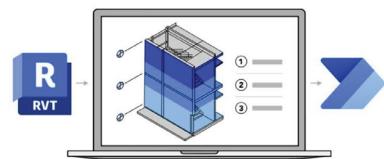
[Get the Connector](#)



Dynamo connector

Leverage Dynamo to include custom business logic and automate exchange of data between Autodesk and non-Autodesk applications.

[Get the Connector](#)



Power Automate connector

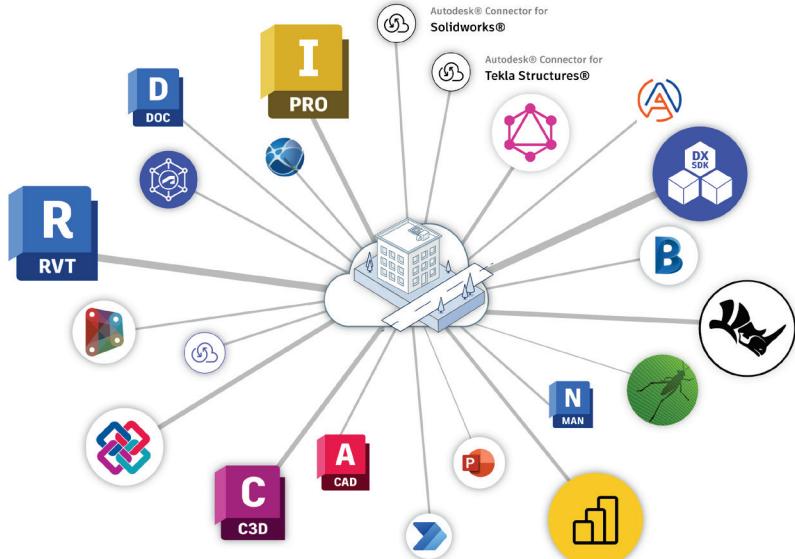
Add the Connector to your Autodesk Construction Cloud account and get started by using Power Automate's no-code web interface.

[Get the Connector](#)

Data Exchange .NET SDK (Beta)

Autodesk Data Exchange .NET SDK を使用すると、開発者は相互運用性を拡張できます。サードパーティ開発者はオートデスクとオートデスク以外のアプリケーションの両方のコネクタを構築できます。

- ・データ交換の作成と更新
- ・データ交換のロード、アンロード、管理
- ・ACC ハブ、プロジェクト、およびフォルダをナビゲートして、データ交換とそのデータを取得する
- ・データ交換内のプロパティ定義のリストを取得する
- ・データ交換の特定のバージョンを取得する

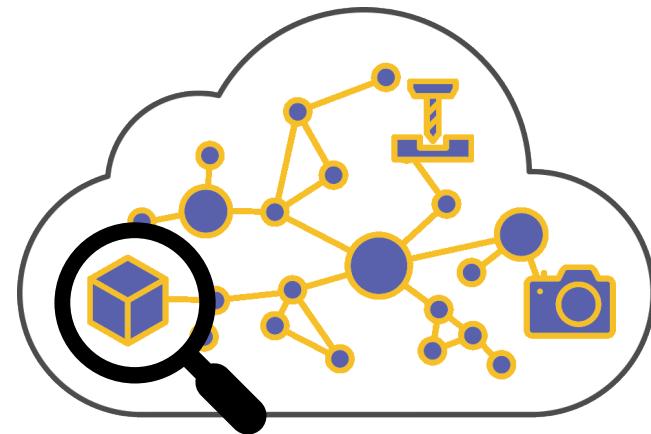


Data Exchange GraphQL API (Beta)

Data Exchange GraphQL API を使用すると、ACC に保存されているデータ交換にアクセスできます。

データ交換の要素とプロパティ データを読み取り、フィルターを適用して、特定の要件に応じて結果を絞り込むことができます。

- ACC ハブ、プロジェクト、フォルダに移動して、データ交換と、要素、プロパティと値などの詳細なデータを取得します。
- GraphQL クエリを通じて必要なデータのみを取得します。
- データ交換内のプロパティ定義のリストを取得します。
- データ交換の特定のバージョンを取得します。
- 注:現在、最新 -1 から最新バージョンまでのデータの取得のみに制限されています。



.NET SDK API ドキュメント

The screenshot shows the official documentation for the Autodesk Data Exchange .NET SDK. At the top, there's a navigation bar with links for Solutions, Getting Started, Documentation, Success Stories, Community, Support, Pricing, and App Store. A search icon and a 'Sign in' button are also present. Below the navigation, the main content area has a header for 'Data Exchange .NET SDK' with a 'Beta' badge and 'Version 1'. A red banner at the top of the content area states: 'Beta SDKs are subject to change, so avoid using them in production environments.' The main content is titled 'Overview' and includes a brief description of the SDK's purpose: 'The Autodesk Data Exchange SDK (.NET) is a client-side component designed to build quick integrations into Data Exchange services. Additionally, it offers an optional UI component, which can be used to create connectors for applications. These connectors enable end-users to easily create and consume exchanges that are specific to their applications.' It also mentions that you can build Connectors for both Autodesk and non-Autodesk applications, including custom enterprise applications using the prebuilt components of the SDK. The SDK can be further extended to build custom Connectors for a more distinct requirement. At the bottom, there's a diagram illustrating the integration process, showing various icons like a globe, a smartphone, a fingerprint, and a database interacting with a central cloud icon labeled '<SDK>'.

GraphQL API ドキュメント

AUTODESK Platform Services

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Data Exchange GraphQL

Beta

Version 1

Documentation / Data Exchange GraphQL / Developer's Guide

Beta APIs are subject to change. Please avoid using them in production environments.

Data Exchange GraphQL API

A Data Exchange is a representation of the geometrical design data that has been broken down into granular objects and stored on a cloud system. Data Exchanges allow you to access design data at a granular level and share it in a neutral format with different stakeholders, projects, and applications to create interoperable and collaborative workflows.

Data Exchanges are created using Data Exchange Connectors. These Connectors could be running inside an Autodesk product such as Revit, Civil 3D, and Inventor.

Feedback



Make Anything