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OVERVIEW

ODA Architecture SDK is a vertical extension based on Drawings SDK. It provides full access to Autodesk® Architectural DWG objects which are available in AutoCAD® Architecture.

In vanilla drawings we use Lines, Arcs and Circles, to illustrate the design. But in ODA Architecture, lines, arcs and circles are replaced by intelligent walls, doors and windows, known as AEC Objects.

AEC objects are viewport dependent, which means that visual representation of an object is different in plan and 3d view. If you rotate a drawing in a 3d view, objects will automatically render their 3d representation and a user will be able to see a 3d architectural model. If rotated in the top view, the same objects will automatically render as “plan view” and the drawing will turn into a plan. Engineers don't need to draw and support a 3d view and a plan view separately. They create a drawing with intelligent objects only once and it will automatically generate plan and model views.

AEC objects are style-based. A style is assigned to any AEC object.

One style can be assigned to many objects at once. It controls behavior and visual representation of an object to which it was assigned. Once the style is changed, all objects with the same style will change accordingly.

AEC objects can have a relationship and interact with each other intelligently. For example, a window has a relationship to the wall that contains it. If you move or delete the wall, the window reacts accordingly. If you move the window, the wall will automatically cut the hole for the window in its new position.

In addition, intelligent AEC objects maintain dynamic links with construction documents and specifications, resulting in more accurate project deliverables. When someone deletes or modifies a door, for example, the door schedule can be automatically updated. Spaces and areas update automatically when certain elements are changed, calculations such as square footage are always up to date. Associative dimensions automatically recalculate their numbers and position when a user changes the object to which the dimension was attached.

KEY CAPABILITIES

■ Read

ODA Architecture SDK provides read access for all AEC objects in dwg through a cross platform C++ API and .NET wrappers. Architecture SDK uses dwg file format to load and save the objects. We have supported all format versions since ADT 2000

■ Write

ODA Architecture SDK saves dwg files that are 100% compatible with AutoCAD Architecture, ensuring seamless interoperability between applications. Architecture SDK offers write support to the latest format version only

■ Create & Edit

Architecture SDK provides C++ classes and API which allows to create or manipulate all AEC objects. .NET API is also available

■ Visualize

Architecture SDK provides rendering support for all AEC objects. Visualize architectural objects on any platform using any device

■ Publish

Publish architectural objects to rich, functional 3D PDF, or standard 2D PDF using the Drawings and Visualize SDKs

■ Cross platform

Architecture SDK is provided for Windows, Linux, MacOS and mobile platforms as C++ compiled binaries. .NET wrappers for .NET Framework, .NET 5 and .NET 6 are also available

■ Licensing

ODA Architecture SDK is a part of the basic subscription and is provided without any additional fees

WHAT'S NEW 2022

ODA Architecture SDK is a mature project in a maintenance state. All AEC objects and their functionality is already implemented. Team efforts are concentrated on different improvements and bug fixes.

■ Corner windows

Significant improvements, fixed all major issues

- ❑ Fixed problems with alignment of window parts in case when the corner window is attached to walls with different widths
- ❑ Custom block is an arbitrary geometry which can be attached to a window. A number of problems with alignment of such geometry were fixed
- ❑ Flip and other modify commands were modified to support corner windows

■ Endcaps

Endcap is a geometry which can be assigned to wall ends or opening sides. Using endcaps a user can control the shape of an opening or a wall at its ends

- ❑ Endcap geometry offset was invalid in some cases. Issues related to endcap position were fixed and a test set was created to prevent such problems in future
- ❑ Wall 3d geometry was not properly cut in case when end cap geometry was shifted by x-axis outside of the opening. Such cases were fixed

■ Grip points

Grip points are UI features which allow modification of entity geometry

- ❑ Manual winder style for stairs was implemented and grip points which allow modification of each tread were added
- ❑ Grip points for modifying free form mass elements geometry were implemented
- ❑ AEC radial grid grip points were implemented

■ Walls

Fixed a set of issues related to invalid cleanup geometry in different scenarios. Fixed below component geometry for cases when the wall bottom coincident to the global cut plane.

■ Property sets

Visual Basic condition operator support was added to formula properties.

■ Slabs

Slab body is now properly cut when soffit exists. Fixed soffit transform for cases when soffit has an offset. Improved soffit and slab bodies recalculation performance.

■ Railings

Fixed handrails geometry and offset in specific scenarios.