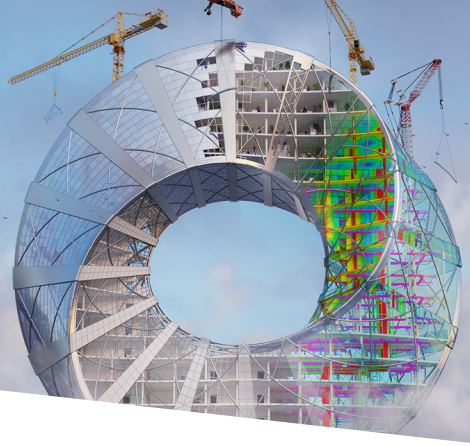
NVIDIA

SOLUTION SHOWCASE



NVIDIA Omniverse™ is a game-changing virtual platform built for collaboration and real-time photorealistic simulation. Project teams can now maximize productivity, enhance communication, and boost innovation while collaborating on the same 3D model from anywhere.

Built For

- Business decision-makers in AEC
- Architects
- ArchViz specialists
- Designers
- VDC managers

Platform Features

- Compatible with top industry design and visualization software
- Scalable, works on all NVIDIA RTX™ solutions, from the laptop to the data center
- Multi-GPU enabled
- Open standards, built on Pixar's Universal Scene Description (USD)
- Cloud-native

Compatible With

- Top industry software applications including Autodesk Maya, Autodesk Revit, McNeel Rhino with Grasshopper, Trimble SketchUp, Adobe Substance Designer, Adobe Substance Painter, and Epic Games' Unreal Engine 4, with many more to come such as Autodesk 3ds Max, Blender and GRAPHISOFT Archicad.

POWERING A NEW ERA OF COLLABORATION AND SIMULATION IN ARCHITECTURE, ENGINEERING, AND CONSTRUCTION (AEC)

> *"At KPF, we're constantly testing new applications that help us to engage with our clients. We see NVIDIA Omniverse as an application that will enable our real-time and collaborative requirements in one platform, changing the way we progress as a sustainable design practice."*
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> — **Cobus Bothma,** Director, Applied Research, KPF

Challenges in the AEC Industry

When designing buildings, collaboration and communication of design intent rank high among the many challenges project teams face. These become even more difficult when team members are remotely located and geographically dispersed. The need to translate and composite data from different software tools, datasets, and other project contributors complicates matters and slows down the design process. Today, there's a growing demand for more efficient team collaboration during design, faster iteration on high-fidelity renders, and the expectation of accurate simulation and photorealism. NVIDIA Omniverse delivers unique capabilities to address each of these needs.

AEC Use Cases for Omniverse

- **Initial Concept Design** - Architects and designers can create and quickly iterate on initial ideas for building designs.
- **Competition and Bid Submissions** - Teams can iterate on ideas swiftly to drive innovation, with the ability to create compelling photorealistic renders faster, in order to meet deadlines and win new projects.
- **Client Presentation** - Clients, owners, and developers can view beautiful, photoreal visualizations from almost any device, allowing teams to convey ideas effectively with stunning realism.
- **Global Collaboration** - Globally dispersed project teams with a broad range of disciplines can now collaborate and communicate easily, reducing the likelihood of design flaws and delays to agreeing on design decisions.
- **Speedy Design Reviews** - Simple presentation of accurate visualizations and enhanced team collaboration reduce the number of review cycles, keeping projects on track and accelerating the path to design approvals.

An Open Platform Built for the Future

NVIDIA Omniverse is an open, cloud-native, multi-GPU enabled platform for virtual collaboration and real-time photorealistic simulation. The full-stack platform based on NVIDIA RTX is a powerful culmination of NVIDIA's core graphics, compute, and AI technologies.

Pixar's Universal Scene Description (USD) is the foundation for Omniverse. The open-source 3D scene description and file format is easily extensible, simplifying design workflows and the interchange of assets between different AEC software tools.

With open standards from USD and leading-edge acceleration from NVIDIA RTX technology, the Omniverse platform harnesses both broad support for third-party software vendors across industries and the power of unique NVIDIA technologies.

These include ray tracing, simulation, and MDL—a library of physically based materials for AEC design work.

The Omniverse stack is designed for maximum flexibility and scalability. The platform can scale at any organizational level, integrate with any IT infrastructure, and support the building of custom apps and extensions.

Platform Overview

The Omniverse platform consists of five key components:

CONNECT

Opens the portals that allow content creation tools to connect to the Omniverse platform and save USD and MDL content. With Omniverse, users continue to work with their preferred industry software applications.

NUCLEUS

Allows users to store, share, and collaborate on project data and provides the unique ability to collaborate live across multiple applications. Nucleus works on a local machine, on premise, or in the cloud.

KIT

The powerful toolkit for developers to create new Omniverse Apps and extensions. Kit Extensions are plug-ins to Omniverse Kit that extend its capabilities for developers to enhance their workflows and UI.

SIMULATION

Powered by core NVIDIA technologies that simulate the world including NVIDIA® PhysX®, Flow, Blast, and Rigid Body Dynamics.

RTX RENDERER

An advanced, multi-GPU renderer based on NVIDIA RTX that supports both real-time ray tracing and ultra-fast path tracing.

Accelerating Workloads

Seamless Collaboration

Project teams are unified on a single, interactive platform, even when simultaneously working with different software applications, to rapidly develop architectural models in real time.

Design to Ray-Traced in One Click

Teams can produce beautiful, physically accurate visuals with minimal effort—no data preparation or model data decimation needed.

Faster Time to Approvals

Contributors can iterate quickly and explore more designs with the ability to render models with RTX ray-traced quality. Teams, clients, and contractors can view the high-fidelity model on any device, anywhere.

"At Foster + Partners we are very keen on interoperability and have developed bespoke software aiming for seamless data-exchange workflows. We've been testing NVIDIA Omniverse and think it has the potential to be part of the solution toward collaborative design processes." — Foster + Partners

Omniverse App for Architecture, Engineering, and Construction

Omniverse View is an application built on Omniverse Kit that powers seamless collaborative design and immersive visualization of architectural and engineering projects and photorealistic rendering.

View unifies the architectural design pipeline and provides ultimate flexibility in project review and ease of iteration with live synchronization between different software applications being used simultaneously.

Industry-specific features such as sectioning, sun studies, and easy painting-in of landscape or hardscape are included.

Omniverse Connectors

Omniverse Connectors are plug-ins to top industry software applications and microservices. Today, Omniverse connects to Maya, Revit, Rhino including Grasshopper, and SketchUp, with many more in the pipeline.

Autodesk 3ds Max
Coming Soon

GRAPHISOFT Archicad
Coming Soon

Autodesk Maya

McNeel Rhino with Grasshopper

Autodesk Revit

Trimble SketchUp

Epic Games' Unreal Engine 4

System Requirements

Element	Minimum Specifications
OS Supported	Windows 10 64-bit
CPU	Intel i7, AMD Ryzen
CPU Cores	4 or higher
RAM	16 GB or higher
Storage	500 GB SSD or higher
GPU	Any RTX GPU
VRAM	6 GB or higher
Min. Video Driver Version	455.28 (Linux), 456.71 (Windows)

Note: Omniverse is built to run on any RTX-powered machine. For ideal performance, we recommend using Quadro RTX™ 5000, GeForce RTX™ 2080, or higher.
For latest drivers, visit here

Image courtesy of KPF

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Learn more: **www.nvidia.com/omniverse**

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