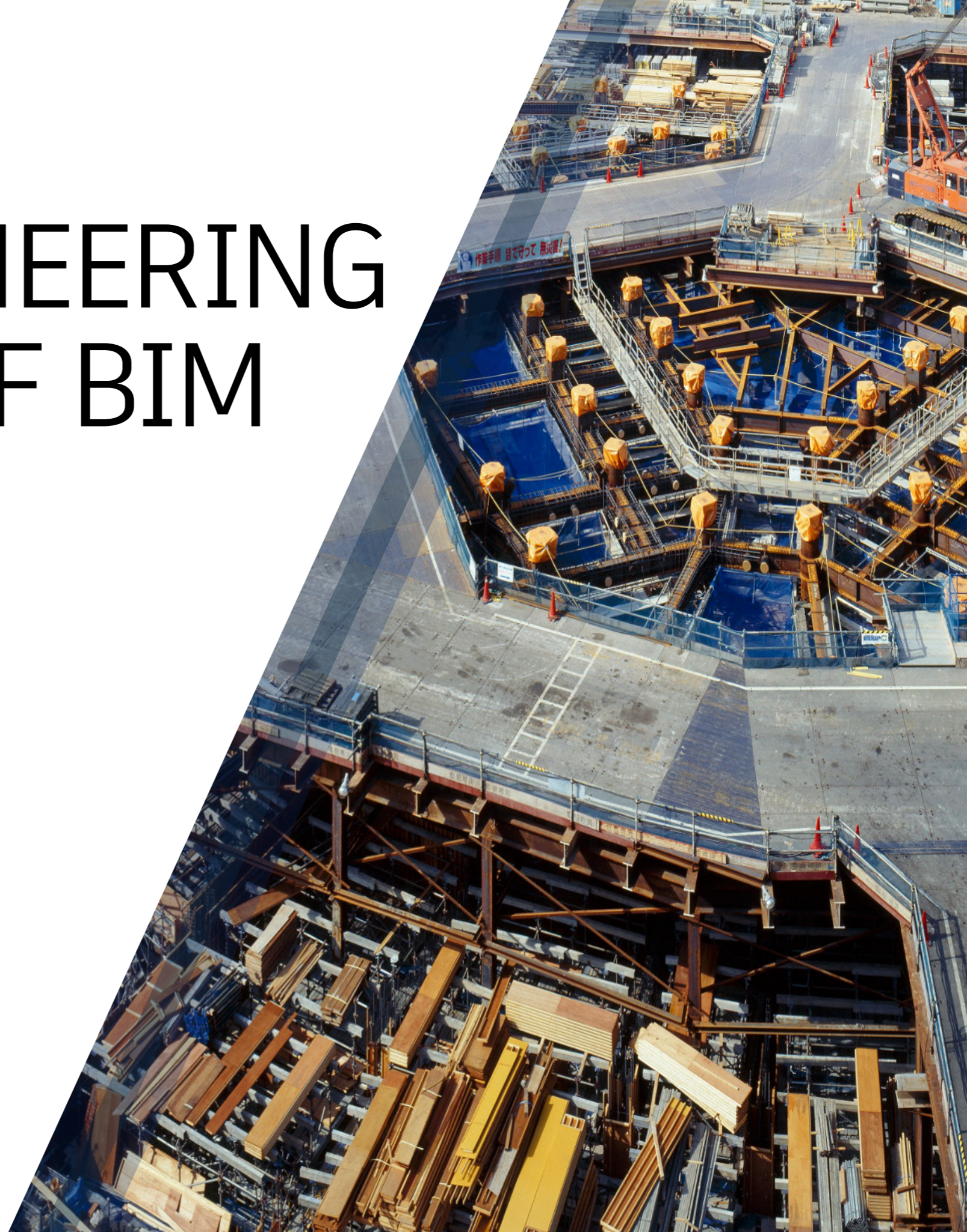


CIVIL ENGINEERING BENEFITS OF BIM

Helping Civil Engineers
do more with BIM



CIVIL ENGINEERING BENEFITS OF BIM

WHAT'S INSIDE:

1 BENEFITS

Keep constructability top-of-mind

Improve project margins

Make better project decisions

Communicate more effectively

2 MAKE THE MOST OF BIM

Make your BIM software work for you

3 THE AEC COLLECTION

What's included in the AEC collection

CIVIL ENGINEERING BENEFITS OF BIM

BENEFITS

KEEP CONSTRUCTABILITY TOP-OF-MIND

Put the tools in the AEC Collection to work and enhance the value you deliver to all phases of the project, from conceptual design through construction. Develop a more positive direction of your project and reduce construction risk by considering design concepts in the context of the real and unique project conditions.



Capture existing conditions

Start your project by rapidly creating a large-scale, intelligent, 3D model of your project's real-world environment. With the AEC Collection you can easily aggregate large amounts of existing data, including reality capture data, 2D CAD, and raster data. Then incorporate GIS data to enhance accuracy and fine-tune your model into high-definition 3D meshes that can be optimized for detailed design and engineering work downstream.

InfraWorks, ReCap, Civil 3D



Move from concepts to detailed design

Quickly conduct the preliminary conceptual layout for your project, and then transition to detailed design to add greater precision to your design model. For transportation projects, use these tools to effectively design roadway alignments and easily add turn lanes, intersections, and overpasses. Use specialized analysis tools to check parking lot spacing and road styling to help determine lot counts for better preliminary subdivision layout concepts. This workflow also facilitates better planning, design, and structural analysis of bridge structures.

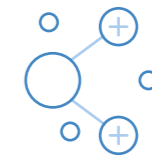
InfraWorks, Civil 3D, Revit, Structural Bridge Design



Perform analysis and simulations on designs

Make better design decisions with tools for sight distance, flood simulation, dynamic site analysis, and more. Model different types of intersections and roadway configurations, and simulate traffic at different times of day to find road design alternatives that perform best. More effectively determine if you need to widen roadways while increasing bridge clearances, provide for better storm water management, buffer around a landfill site, accommodate new development, and incorporate light-rail corridors and connections.

InfraWorks, Civil 3D, Revit, Navisworks, Vehicle Tracking



Improve interdisciplinary coordination

With a shared model, designers, owners, and contractors have a central place to work through the tradeoffs that impact design constructability and costs. Owners stay engaged in the process through the shared model, and contractors can use the model to create an informed bid while minimizing cost surprises. Construction sequencing can help team members discuss and walk through various approaches to design construction. With more efficient coordination, compromises can be worked out prior to pouring any concrete.

InfraWorks, Civil 3D, Revit, Navisworks, 3dsMax

IMPROVE PROJECT MARGINS

The tools in the AEC Collection enable efficiencies that traditional technologies and processes can't match. Improved planning helps you determine which design scenarios achieve optimal outcomes. With a better understanding of quantities across the entire project, it becomes much easier to determine quantity takeoffs and calculate costs. A model-based approach simply helps make it easier for you achieve cost savings throughout the full life of an asset.



Improve understanding of project impact

Every infrastructure project competes for scarce resources. With BIM, you can more effectively prioritize how dollars are invested in a project. What's more, you're now able to shift your emphasis from cost-centric to consider outcomes and project value - singling out critical design approaches, and prioritize new projects based on social, economic, and environmental impacts and objectives.

[InfraWorks](#), [Civil 3D](#), [Revit](#)



Review design alternatives

Designers and civil engineers need access to tools that facilitate the modeling of different design scenarios before final design and plan documentation. With the AEC Collection, evaluating project schedules and design alternatives can be easily exercised, helping to determine the most efficient and cost-effective design approach with the least community impact.

[InfraWorks](#), [Civil 3D](#)



Reduce errors and omissions

Errors and omissions can cause expensive delays and rework in any infrastructure project. BIM tools and processes help you more effectively identify, inspect, and report on interferences in a 3D project model. BIM helps you to better anticipate potential problems with your project before construction, and reduces risks of project cost and schedule overruns during construction.

[Civil 3D](#), [Navisworks](#)



MAKE BETTER PROJECT DECISIONS

Establish a “big picture” view of your project with a model that’s a rich, real-world representation of your project’s environment. Compelling visualizations and simulations provide a more integrated approach between design and analysis, helping you to balance the demands of geographic and financial constraints, geometric guidelines compliance, and safety management. BIM tools and processes help you make better design decisions throughout the project lifecycle.



Design in a real-world context

Using an intelligent 3D project model, rapidly produce conceptual designs of your infrastructure and evaluate different options in planning and preliminary design phases based on a real-world view of your project. Use advanced tools such as component roads, cross section views, and super elevation, for more advanced road design; and expanded bridge design features like component-based bridges and line girder analysis to enhance accuracy and precision as you advance your model to detailed design.

InfraWorks, Civil 3D, Revit, Structural Bridge Design



Smarter design decisions

Tools in the AEC Collection enable you to establish a rich contextual setting of your model, explore various design options, and perform analysis and simulations with vivid visualizations. Improve delivery on your project design objectives and outcomes, mitigate the risks of cost and schedule overruns during construction. Better predict the performance of yet to-be-finished infrastructure assets, and finalize detailed design and documentation in a collaborative and multidisciplinary manner.

InfraWorks, Civil 3D, Revit, Structural Bridge Design



Support multidisciplinary workflows

Prepare better technical and financial project proposals by enabling team members to collaborate on a common BIM environment and shared design model that facilitates better coordination across multiple locations and disciplines. In the case of bridge projects, bridge engineers and designers can lead the process and work directly with the model to define the bridge components. Using this same model data, structural engineers can analyze the girders of the superstructure and other bridge structural design in detail. Finally, the completed model can be used to create detailed documentation for review, bidding, and construction of the bridge and related roadways.

InfraWorks, Civil3D, Revit, Navisworks

COMMUNICATE MORE EFFECTIVELY

Produce compelling visuals of your design to better tell the story of the project and extend the value of that design model beyond communicating for approvals and into construction. Get project team and stakeholders on the same page, and ensure that the public has a clearer understanding of the project's impact.



Win work and reach approvals faster

Compelling visualizations can do a lot of the heavy lifting when it comes to winning more business and getting approvals more quickly. 3D renderings, AR/VR “walk-throughs”, and animated construction simulations have far greater impact than traditional 2D drawings, and can significantly enhance how your project is perceived. With visuals that reflect your project within the perspective of the actual environment, you can facilitate better understanding of your desired outcomes, more easily sell your design ideas, and get to ‘yes’ much more quickly.

[InfraWorks](#), [Navisworks](#), [3dsMax](#)



Get the public on board

Infrastructure projects affect the general public, and they typically have one overriding concern: how the proposed project will impact them on a day-to-day basis. They have questions like: “What will the project look like?”, “How long will it take?”, and “How will the construction phase impact me?” Now, there are tools that simplify how you convey the impact of infrastructure projects to the general public, and help them to better understand your design intent as well as where tax or bond dollars are going.

[InfraWorks](#), [3dsMax](#)



Maximize team and project efficiencies

An intelligent 3D model provides for more than just compelling visualizations to help win a bid. The model becomes essential to the ongoing design-build process of your project. With a BIM model of your project, you can exercise 4D/5D analyses and simulations to review and communicate project details, schedules and logistics - enabling more effective collaboration and coordination among project team members from design through construction.

[InfraWorks](#), [Civil 3D](#), [Revit](#), [Navisworks](#)

CIVIL ENGINEERING BENEFITS OF BIM

MAKE THE MOST OF BIM



MAKE YOUR BIM SOFTWARE WORK FOR YOU

The AEC Collection is the most cost-effective and flexible way to access not only AutoCAD Civil 3D and InfraWorks, but other Autodesk tools and services that let you expand the functionality of these core civil engineering tools and your capabilities using them.



Get software updates as soon as they're released

Now you can be sure that you're always working with the latest, most optimized version of your software to innovate and expand your design capabilities. Your Autodesk desktop app will notify you when a new update is available from Autodesk. You retain control of which software updates you choose to roll out, to whom, and when.



Use previous software versions

You'll be able to download and use previous releases of most Autodesk software. This is a valuable option when you're working on project files created with an earlier version of software.



Get help when you need it

Let us help you resolve issues quickly. You'll have access to:

- Senior Autodesk support specialists
- Moderated community support forums
- E-learning opportunities and exclusive training webcasts



Manage your software more easily

Subscribing to Autodesk software helps you to stay focused on designing and creating, without worrying about your software. Easy-to-use administrative tools allow you to simply and effectively manage software licenses, seats, and usage, all from your Autodesk Account.

CIVIL ENGINEERING BENEFITS OF BIM

THE AEC COLLECTION



WHAT'S INCLUDED IN THE AEC COLLECTION



AutoCAD and CAD vertical applications

As a common CAD platform used throughout the industry, this suite of AutoCAD products allows you to access and create documentation and share with all members on the project team.



Revit

Cloud connected BIM software for conceptual design, analysis, and planning.



3ds Max

Modeling and rendering software to create stunning scenes for design visualization and engaging virtual reality experiences.



Recap Pro

Reality-capture and 3D scanning tool to better understand existing conditions and verify as-built conditions.



Structural Bridge Design

Integrated tools for loading, analysis, and code checking of bridges.



Navisworks Manage

Project review software with advanced coordination, 5D analysis, and simulation tools.



AutoCAD Map3D

Model-based GIS and mapping software to help enrich your map data.



AutoCAD Plant 3D

BIM for Plant to facilitate production of P&IDs that can be easily integrated into 3D plant design models.



Vehicle Tracking

Analysis and design software to evaluate the movement of people and vehicles on transportation or site design projects.



AutoCAD Civil 3D

BIM software that enhances civil infrastructure design and construction documentation.



InfraWorks

Cloud connected BIM software for conceptual design, analysis, and planning.

LEARN MORE

For more information, visit the [product center](#) to explore all the products included in the AEC Collection or contact an Autodesk Reseller.

Ready to see how the AEC Collection could enhance your infrastructure workflows.

LET'S TALK



