

Top 10 Reasons

AutoCAD Civil software is the better AutoCAD® software for civil engineering design and construction documentation.

1. Surveying and Coordinate Systems

Survey functionalities are fully integrated into AutoCAD® Civil software. They include:

- Direct import of raw survey data
- Least squares adjustments
- Coordinate system settings and transformations,
- Editing of survey observations
- Automated creation of survey figures and surface creation.

These functionalities provide a more consistent design environment enabling you to use points, survey figures, and surfaces throughout the design process without having to manually translate coordinate systems or transfer data from a survey package to your civil engineering design software. Survey data introduced into a project will cause design elements to update automatically.

2. Surfaces, Grading, and Dynamic Relationships

AutoCAD Civil includes terrain shaping tools that support large surface models while maintaining dynamic relationships to source data, including contours, breaklines, corridor models, and grading objects. Use surfaces as references for creating profiles, sections, and corridors. Any change to the source data results in automatic updates to surfaces and references, helping you save time and reduce errors.

The powerful daylighting and grade projection tools included in AutoCAD Civil can be used to generate surface models for any type of grading projection. Easy-to-use graphical and tabular grading manipulation tools help you develop any surface. Solve challenging design problems using grading capabilities that remain dynamically linked to corridor models and alignments/profiles.

3. Parcel Layout with Intelligent Topology

Generate parcels by converting existing AutoCAD® polylines or by using flexible layout tools to automate the process. Use the intelligent topology to manage parcels so that a change to one parcel is automatically reflected in neighboring parcels.

4. Intelligent Pipes Layout

Use rules-based tools to lay out sanitary and storm drainage systems. Make changes to pipes and structures using graphical or numerical input, and conduct interference checks. Plot and complete final drafting of the pipe network in plan, profile, and section views. And, share pipe network information, such as invert elevations, size, slope, and type with external analysis applications or AutoCAD Civil 3D software.

5. Criteria Based Geometric Design

Quickly lay out dynamic plan and profile alignment geometry with local design criteria that you specify or use the integrated AASHTO design standards. These constraints remain in place when using interactive “best fit,” PI-based (point of intersection) or highly flexible element-based layout approaches.

6. Intelligent Corridor Modeling

Create intelligent models of roads and other transportation systems using the corridor modeling functionality in AutoCAD Civil. Corridor modeling combines horizontal and vertical geometric constraints with customizable cross sectional components called subassemblies to create a dynamic model of various types of transportation systems. Use the subassemblies included with AutoCAD Civil—ranging from travel lanes, sidewalks, and ditches to complex lane components—or create your own to match local design standards. Directly use alignments, profiles, survey figures, feature lines, and AutoCAD polylines to define corridor transitions and elevation constraints. AutoCAD Civil also provides an interactive intersection builder that helps to create complex models through intersecting streets that remain dynamic as your designs change. Corridor models can ultimately be used to create proposed surfaces, earthwork volumes, material totals, cross sections, and more.

7. Team Coordination – Synchronizing Design Changes

Your entire team can work from the same consistent, up-to-date model. Team members can stay coordinated through all phases of the project, from survey to construction documentation. Using AutoCAD external references, data shortcuts, and Autodesk® Vault software, project team members can share individual model elements, such as surfaces, alignments and pipes, while working off the same instance of a design object for multiple design tasks. Design changes are synchronized using one model that can result in multiple updates across several drawings—and they are automatic.

8. Dynamic Earthwork Calculations and Mass Haul Diagrams

The fully integrated mass haul and earthwork features in AutoCAD Civil aid contractors and engineers in planning the movements, amounts, and placements of material during construction. As designs are changed, AutoCAD Civil can quickly generate mass haul diagrams to help analyze the distance over which cut and fill can balance the amount and direction of material to be moved, and the identification of borrow pits and dump sites.

9. Styles, CAD Standards, and Production Drafting

CAD and design standards are an important component of a project. Use the extensive library of country-specific CAD styles included with AutoCAD Civil to help control virtually every aspect of drawing display. Colors, linetypes, contour increments, and labeling are controlled by styles. AutoCAD Civil

provides a framework for customizing your own styles and standards to meet the specific needs of your organization. Automatically generate construction documents using the styles-based drafting environment to automate the creation of drafting while maintaining drafting standards. Use xrefs and data shortcuts to generate drafting across multiple drawings. When the model changes, the construction documentation is automatically synchronized to reflect the update.

10. Data Compatibility and Interoperability

Accessing and importing data from disparate sources is critical to civil engineering projects. With AutoCAD Civil, you can easily import and export data between CAD and GIS platforms, including industry-standard formats such as DWF, Google Earth™, LandXML, DGN, and SDF.

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