Autodesk®
MEP Engineering Solutions

Engineer for energy efficiency.
Reduce Economic Pressure

Today’s mechanical, electrical, and plumbing (MEP) engineering professionals face a number of industry trends. Some of the challenges MEP professionals confront include increased price pressure and budget constraints, rising costs of materials, and an industry movement toward building information modeling (BIM) and sustainable design.

Autodesk® MEP Engineering Solutions provide integrated tools to help MEP engineers better manage design processes and more efficiently and effectively deliver high-performance MEP designs. Autodesk MEP Engineering Solutions help engineers, designers, and drafters to better assess and improve efficiencies in new and existing building projects. By utilizing the power of BIM and integrated analysis, engineers are better able to optimize designs, visualize intent, and simulate and analyze design options, helping to deliver on time and on budget.

Embrace Technological Process Change

In order to remain competitive in today’s market, engineering firms must be forward thinking and innovative. As competition increases, MEP professionals need to retain existing clients while expanding their business and attracting new clientele. As architects, construction managers, and general contractors continue to embrace BIM, MEP engineering firms that are BIM-ready will be better positioned to increase business by winning work with BIM-enabled partners.

Autodesk MEP Engineering Solutions provide tools that help manage existing design processes through BIM, enabling engineering professionals to more quickly evaluate design options and perform analysis, and more smoothly collaborate with design stakeholders.

Improve Environmental Impact

Buildings are one of the largest contributors to greenhouse gas emissions. However, buildings also offer MEP professionals the opportunity to take a leadership role—as buildings present one of the most cost-effective means for improvement, which can help owners meet established goals for sustainability and energy efficiency.

Autodesk MEP Engineering Solutions—which range from discipline-specific advanced design tools for drafting and documentation, to BIM solutions with integrated analysis capabilities—help MEP professionals make better informed decisions for building design and performance.

Autodesk MEP Engineering Solutions can help improve building performance and enhance predictability and reliability for new design and system retrofit projects.

Autodesk MEP Engineering Solutions help MEP engineers, designers, and drafters better manage their work and improve efficiencies from design through the building lifecycle.
Autodesk MEP Engineering Solutions range from advanced MEP design and analysis software for building information modeling to more widely adopted general drafting, documentation, and detailing software. These solutions help support the complete MEP engineering workflow, from design and analysis through construction documentation. Autodesk MEP Engineering Solutions help improve productivity, accuracy, and coordination for mechanical, electrical, and plumbing engineering design and documentation, resulting in the following:

**Detailed Design**
In the early stages of a project, MEP professionals can benefit from coordinated, data-rich information created through the BIM process to facilitate detailed design and analysis. Autodesk MEP Engineering Solutions help engineers to communicate a common understanding of design intent to vital stakeholders and create a design that better meets established performance requirements, helping to deliver the project on time with more accurate documentation and greater visibility into constructability. Users can automate construction detail drawings with discipline-specific tools that better support the entire MEP engineering design process.

**Sustainable Design with Building Performance Analysis**
Improving building performance has long-term benefits. Autodesk MEP Engineering Solutions help engineers make better informed decisions and minimize errors to fit a project’s sustainability strategy, utilizing the building information modeling process with more realistic, real-time design scenarios. Autodesk® Revit® MEP software enables MEP professionals to perform energy analysis, evaluate system loads, and produce heating and cooling load reports for a project. Enhanced support for gbXML (green building extensible markup language) enables engineers to extend BIM to further analysis with Autodesk® Ecotect® Analysis software and the Autodesk® Green Building Studio® web service as well as with third-party partner analysis applications.

**Improved Productivity and Accuracy of MEP Documentation**
Project teams often struggle with remaining productive while dealing with inefficient manual drafting tasks and document coordination. Inefficiencies with manual workflows are compounded when project teams have difficulty seamlessly sharing design and construction documentation with extended members of multidisciplinary teams. Autodesk MEP Engineering Solutions, including Revit MEP and AutoCAD® MEP software, provide project teams with a comprehensive end-to-end solution to help produce higher-quality, more accurate MEP designs and documentation faster with greater accuracy.

**Digital Fabrication of MEP Design**
As the AEC industry continues to adopt a model-based design approach, project stakeholders continue to look for ways to streamline their processes. AEC professionals want to leverage information created during the design phase for use in the fabrication of MEP components. With the smoother integration of duct and piping fabrication partner tools that support the Autodesk MEP Engineering Solutions, redrawing models for fabrication may no longer be necessary. Using design models in the fabrication of sheet metal, plumbing, and piping helps make it easier to create shop drawings while promoting greater accuracy. By extending MEP designs to fabrication via the integration of partner solutions, MEP professionals can benefit from a smoother process from design to construction.

**Optimized Collaboration and Coordination from Design to Construction**
Architects, structural engineers, and mechanical, electrical, and plumbing engineers can more effectively collaborate and interact based on workflow and project requirements. Using Autodesk MEP Engineering Solutions, project teams can stay more coordinated by working with a single source of project information. Real-time data management options provided within the software automatically synchronize all changes to design elements in the project model, helping team members to collaborate as well as better understand and resolve potential clashes prior to construction.

**Renovation and Retrofit for Better Performing Buildings**
Today’s complex existing buildings require leading-edge systems engineering to optimize performance in both efficiency and use. As the industry places an increased focus on existing buildings for improvement measures, communicating potential design improvements and design changes among mechanical, electrical, and plumbing engineers and their extended teams is crucial. The Autodesk MEP Engineering Solutions purpose-built analysis and optimization tools enable engineers to receive feedback about their MEP systems designs in real time, resulting in better performing systems throughout the building lifecycle.
Autodesk MEP Engineering Solutions support the complete MEP engineering BIM workflow, from design and analysis through construction documentation.

**Design and Documentation**

**Autodesk Revit MEP**
Purpose-built for building information modeling, Autodesk Revit MEP software provides design and analysis tools to help optimize building systems and enable MEP engineers to make better design decisions for efficiency and sustainability.

**AutoCAD MEP**
AutoCAD MEP software is the AutoCAD® software for mechanical, electrical, and plumbing designers and drafters. Creation and coordination of construction documents is more efficient with the AutoCAD MEP intuitive systems drawing and design tools.

**AutoCAD**
Now with 3D free-form design tools, parametric drawing capabilities, and PDF import, AutoCAD delivers the power and flexibility for MEP professionals to take documentation and design further. Work faster with automation, management, and editing tools that minimize repetitive tasks and help to support your MEP documentation needs.

**Sustainable Design and Analysis**

**Autodesk Ecotect Analysis**
Autodesk Ecotect Analysis software is a comprehensive conceptual building performance tool that covers a wide range of simulation and analysis functions, such as solar radiation, shading, and daylighting. With modeling, visualization, and analysis features, Ecotect Analysis helps MEP engineers and designers better understand how a building systems design will operate and perform.

**Autodesk Green Building Studio**
Autodesk Green Building Studio web service provides whole-building energy, water, and carbon emission analysis for MEP engineers and designers, extending the value of BIM through analysis to help make better informed decisions for building performance.

**Collaboration**

**Autodesk Navisworks Manage**
Autodesk Navisworks Manage software enables project teams to integrate, analyze, and communicate design and construction information as well as tools to identify interference and assess design accuracy, providing insight and predictability while reducing risk and improving quality of MEP projects.

**Autodesk® Buzzsaw®**
Autodesk Buzzsaw collaborative software service helps MEP engineering firms and other project stakeholders centralize and coordinate project-related documents and data. With automatic uploading and downloading of project updates to design team members’ desktops, Buzzsaw helps project teams to stay coordinated and up to date.
Autodesk BIM software facilitates an improved way of working collaboratively, using a model created from coordinated, and consistent design information. This process enables earlier decision-making, better documentation, and the evaluation of alternatives for sustainable design or improvements using analysis before construction begins.

BIM is an integrated process that uses intelligent, digital design information so users can explore a project’s key physical and functional characteristics digitally—before it is built. Visualize and simulate real-world performance, appearance, and cost. BIM helps deliver projects faster, with reduced environmental impact.

**Better Informed Decision Making**
Autodesk BIM solutions for mechanical, electrical, and plumbing engineers help MEP professionals make better decisions earlier in the design process by more accurately visualizing building systems and performing analysis to better predict performance before the systems are built. BIM helps engineers resolve design conflicts more quickly through clash detection and keeps project documentation updated and coordinated—even as design changes are happening.
The BIM approach was critical for incorporating high performance engineering strategies that maximize energy savings and ensure comfort of those who will utilize this facility.

—Steve Gentilini
Executive Vice President
Dunham Associates