

Faritdinov Jur'at

*Senior lecturer of the Department of General Professional Sciences, Faculty of
Tourism, Alfraganus University
Tashkent, Uzbekistan.*

AUTOCAD AND ARCHITECTURE. AUTOCAD PROGRAM CAPABILITIES

Abstract: Modern buildings, new buildings reveal the beauty of the city. Nowadays, it becomes easy to know in advance, from the types of buildings and their equipment, finishing works and construction materials, to what the finished condition will be. For this, of course, new modern training programs are being created. One of the most commonly used programs is AutoCAD.

This article explains AutoCAD, which is the most popular graphics program in the field of architecture, and its capabilities in the field of construction, modern buildings and structures. Modern architecture, beautiful buildings and modern buildings are clear evidence that the country is developing.

Key words: AutoCAD, modern buildings, training program, [AutoCAD Architecture](#), AutoCAD Electrical, Autodesk, 3D model, 2D model.

Introduction. As is known, science is developing very rapidly today. As our President said, the development and progress of the country certainly depends on education. That is why in our country. Attention to science is increasing day by day.

Main part. Architecture, construction, creativity are considered a sign of the country's prosperity, and the modern approach to it is a positive process. Currently, all sciences are closely related to computer technologies. In particular, the field of architecture and design is in the leading positions. Of course, human life is no longer imaginable without computers. Because every innovation, new information and science is clear and understandable with the help of modern technologies.

Based on the requirements of the time, from the design and construction of architectural buildings to decorative works, computer graphics are being used. And this, in turn, causes the computer graphics programs to become more complex and updated.

Today, there are many computer graphics programs, which differ significantly from each other in the field in which they are used. Each specialist chooses a convenient graphics program for himself.

In this article, I would like to provide information about one of the graphics programs that is currently gaining popularity and is widely used in the construction industry and architecture, the AutoCAD program.

AutoCAD graphics software is a graphics program developed by the American company Autodesk. Autodesk has a large number of software products (AutoCAD, ArchiCAD, AutoCAD Electrical, 3D Max, Design Review), which are widely used all over the world, embodying the latest technologies. Among the company's software products, AutoCAD occupies an important place. It is the main one, and the rest of the programs are based on it. It has very high graphics capabilities and can perform both simple and complex tasks. AutoCAD is a two- and three-dimensional computer-aided design and drawing system developed by Autodesk.

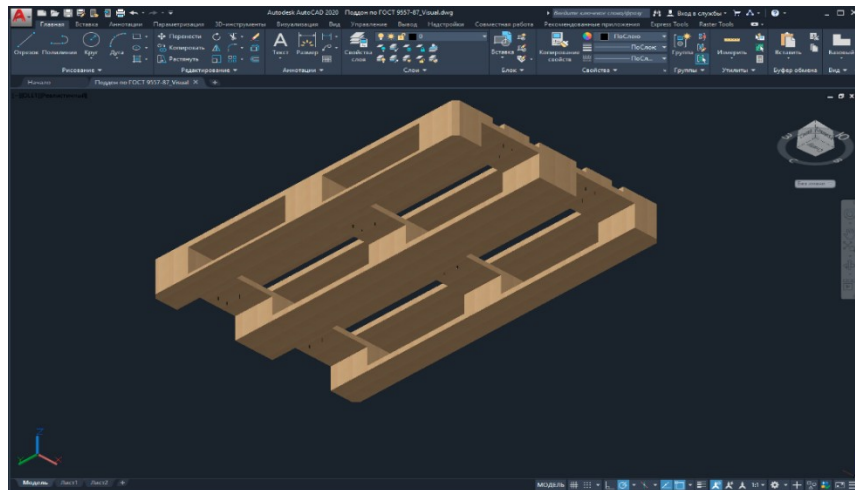
The first version of the system was released in 1982. AutoCAD and special programs based on it are widely used in mechanical engineering, construction, architecture and other industries. The program is available in 18 languages. The level of localization varies from full adaptation to translation of only reference documents.

The constant development of the system, taking into account user complaints and suggestions, eliminating certain shortcomings, and integrating with products of other companies (especially Microsoft) led to the wide popularity of this program all over the world. The widespread distribution of this program in Russia began with its 10th version. It worked as part of the MS DOS operating system. Later, versions 12-13 worked on this system and were gradually transferred to the Windows (Windows 3.1 or Windows - 95) operating system. Version 14 was completely transferred to the Windows operating system. In 1999, the 15th version of AutoCAD was released, which was called AutoCAD - 2000 among users. Version 16 of AutoCAD (AutoCAD - 2004) was released in March 2004, and now the company does not guarantee its proper operation on the WINDOWS - 95, 98 operating systems. The reason is that more advanced operating systems were needed to fully utilize the capabilities of this program. To date, AutoCAD versions 2006, 2007, 2008, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024 have become widely popular among users:

- WINDOWS 2000;
- WINDOWS XP (Professional Edition);
- WINDOWS XP (Home Edition);
- WINDOWS NT 4.0 (Service Pack 6 or higher) requires installation on operating systems.

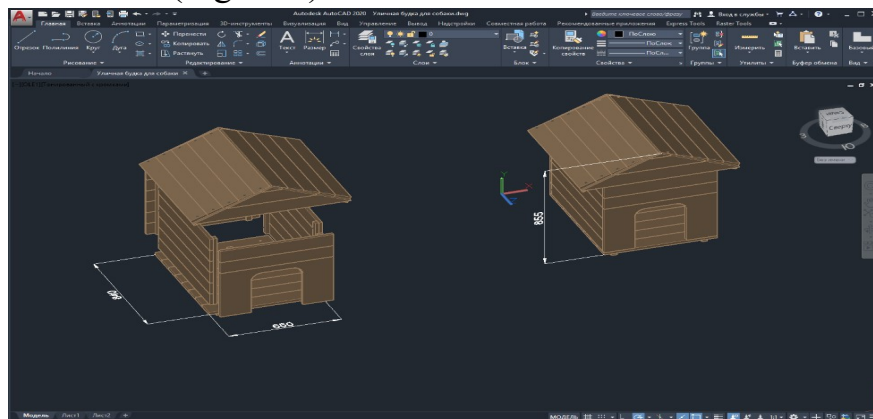
AutoCAD is one of the top choices for drafters, engineers, designers, and artists, maximizing overall productivity with its powerful modeling tools.

With its freeform drawing tools and other advanced features that provide users with 3D design concepts, you can draw and manipulate a variety of surfaces and objects in a computer environment. (Figure 1).



1-fig. 3D model created using AutoCAD software

Another feature of the program is the automatic document generator, which is very useful for engineering projects. An indispensable technical drawing and drafting tool for architects, engineers, and designers, AutoCAD is a professional graphics and design program that allows you to create all types of drawings that you can draw with paper and pencil, as well as create a preview of them in a computer environment (Figure 2).



There are special programs based on AutoCAD:

AutoCAD Architecture - a version designed for architects and containing additional tools specifically for architectural design and drafting, as well as tools for creating construction documents.

AutoCAD Electrical- Designed for electrical control system designers, it includes standard tasks and high-level automation features.

AutoCAD MEP- focuses on the design of engineering systems for construction projects: plumbing and sewage systems, heating and ventilation, electricity and fire safety. It builds a three-dimensional parametric model, based on which it generates drawings and technical specifications.

AutoCAD Map 3D - It is designed for professionals implementing projects in the fields of transport construction, energy supply, land and water use, and allows you to create, process and analyze design and GIS data.

AutoCAD Raster Design - image vectorization software that supports optical character recognition (OCR).

AutoCAD Structural Detailing - is a tool for designing and calculating steel and reinforced concrete structures that supports building information modeling technology. The main objects are beams, columns, slabs, reinforcing bars, etc.

AutoCAD Mechanical - designed for design in mechanical engineering and is characterized by libraries of standard components (over 700 thousand elements), component generators and calculation modules, tools for automating design tasks and documentation, and the ability to collaborate.

AutoCAD P&ID - This is a program for creating, editing, and managing piping and instrumentation diagrams.

AutoCAD Plant 3D - tool for designing technological objects.

AutoCAD Plant 3D AutoCAD P&ID- combines.

Conclusion. The AutoCAD program creates many opportunities in the field of architecture and construction. It allows you to create 3D and 2D models of the object being built or equipped, from a small element to the finished one. This opportunity makes the work of the builder, architect, designer easier, allows them to start work with a clear goal, and ensures good results.

References

1. AUTOCAD RIVOJLANISH BO'YICHA TADQIQOTLAR. Mirzayev Sodikjon Olimovich. Andijon davlat pedagogika instituti dotsent v.b.
2. AUTOCAD DASTURINING UCH O'LCHAMLI LOYIHALASH IMKONIYATLARI. «МОДЕЛИРОВАНИЕ» PANELI BUYRUQLARI. «ВИЗУАЛЬНЫЕ СТИЛИ», «ВИД» PANELI BUYRUQLARI VA ULARNING IMKONIYATLARI Sadatov SH.
3. “КОМПЬУТЕРДА LOYIHALASH (Auto CAD dasturi asosida)” O.SH.Suvonov.
4. “Компьютерная графика” AutoCAD 2013/2014 Т.И Кириллова, Поротникова
- 5.“КОМПЬУТЕРДА LOYIHALASH” о'quv-uslubiy majmua Samarqand – 2023.
6. Иллюстрированный самоучитель СОЗДАНИЕ ПРОЕКТА В AUTOCAD «ОТ ИДЕИ ДО ПЕЧАТИ» Меркулов Алексей.

7. “Компьютер grafikasi” T. Rixsiboyev, X. Rixsiboyeva, S. Tursunov, F. Alimov, U. Hodjayeva.
8. <https://www.scribd.com/document/655432939/1-mavzu-Autocad-dasturi>
9. <https://tech3d.pro>
10. <https://tech3d.pro>