

# Importance of cad in civil engineering

[Engineering](#)



Computer aided drafting is widely used in the civil engineering field because of its ability to plan sites a lot easier than hand drawings. It can help design a lot of things that engineers would hand draw their design plans which could take a while. Computer aided drafting makes this process faster and easier. It can also lay out sites, roads, sidewalks, bridges and other engineering items. There are constant upgrades to computer aided drafting being made every year to improve the system and help civil engineers. CAD Compared to Hand Drawing In the world of construction, material, labor, equipment, time and money are some of the most important factors.

A speedy well planned site could decrease the construction cost drastically. Up until 1971, there was no way to use a computer and all site drawings had to be done in hand. This was very time consuming and would usually delay the rest of the construction process. During that year, a program was developed, COROLLA was one of the first site layout applications for the computer but still had its faults. Other tools for the computer were designed but most had major faults and none gained wide acceptance by the civil engineering industry.

But by 1987, Autocrat was developed and sold to computers everywhere. (Goddaughters, Moslem & Alkalis, 2006) Now that computer aided drafting has been introduced to the home computer, work can be done anywhere and it is a lot speedier than its hand drawn counterpart. Autocrat is also more accurate than hand drawn designs. Site layout related elements can be systematically identified and organized into certain object libraries. This helps by making the site layout problems more comprehensible and easier to read for the engineers and associates of the engineers.

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A lot of the impel calculations a civil engineer had to do while hand drawing, computer aided drafting could do in a matter of seconds with the push off button. (Goddaughters, Moslem & Alkalis, 2006) Due to the dynamic input button, drawings that would have taken an engineer a long time to create are now done with ease and less time consummation. The CAD database is also full of other tools that can help an engineer get the Job done in a quick and effective way. An engineer can also save the file anywhere on his or her computer as if it was a Microsoft word document.

This would allow the engineer to go back anytime to be able to find and edit the site. (Goddaughters, Moslem & Alkalis, 2006) Products of CAD Computer aided drafting has been used over the years for more than Just site layouts. Different engineers use computer aided drafting for different reasons. Civil engineers typically use this tool for site design and layouts. Civil engineers have many tools to help them with this. They can grade or level any set of land, with Just a simple input. Roads, sidewalks and bridges can also be created using this tool.

Civil engineers actually have their own civil computer aided drafting program called Civil Autocrat. With this tool, an engineer would be able to design their entire site, including access roads, car entrances, site boundaries, and contour lines. Contour lines are lines that connect to points of the same height below or above sea level. (Goddaughters, Moslem & Alkalis, 2006) Computer aided drafting has a lot more uses then Just what civil engineers use it for. Mechanical engineers can create complex parts for objects. These are usually designed on Autocrat and used for various uses.

Mechanical engineers can actually create 3D and 2D models of objects that can be used to accurately create the object that was portrayed in the drawing. Sectional views are views from different sides of the object and different viewpoints and are drawing is done and labeled, it can be sent to a machine which will actually create a handheld mold of the object. This would then be used to create the object and then the object would be sent to stores for public use. (Ounce, Chicks, Ivan & Lanai, 2009) Computer aided drafting also has an architectural piece to it too.

Architectural engineers can use this program to construct buildings and houses with extreme precision. One of the things that all engineers focus on the most is safety. Civil engineers have to create roads and bridges safe enough to drive on. Mechanical engineers have to create objects that are safe to use and can be used by the public without any incidents.

Architectural engineers have to create houses that are stable enough for a family to live in. With Autocrat, engineers can be more accurate with a lot less problems therefore being safer for the public to use. (Goddaughters, Moslem & Alkalis, 2006) Upgrades for CAD

Every year that passes, technology continues to get more advanced and spread all over the world. Same thing is true for computer aided drafting. It continues to grow, expand and new tools are coming out every year to help create the best experience for engineers everywhere. SOCIAL is one of these many tools, it helps create drafting sectional views of objects. Aligned sectional views for 3D object created in Autocrat can be obtained from using this tool. (Ounce, Chicks, Ivan & Lanai, 2009) There are many construction

projects that have a really bad performance because of faulty sign and/or incomplete construction planning.

Fourth dimensional computer aided drafting is one of the brand new method that has been used to help with construction planning. Two of the most important focuses of AD computer aided drafting is site planning and workplace analysis. A AD computer aided design system was made for scheduling and site utilization in 2006. (Kim, Kim, Park & Kim, 2011) Most of the AD CAD systems that are out there are used for plant and building projects that use AD objects. There really isn't a AD computer aided design system for a civil engineer's use.

Research is being done to try to develop a design system for schedule data for civil engineering project that are in the field of transportation. Some examples of these are highway paving, railways and earth work. (Gang, Peon, In conclusion, computer aided drafting is used all over Moon, Kim & Gang, 2013) the world and every type of engineer can benefit of it.

Computer aided drafting is widely used in the civil engineering field because of its ability to plan sites a lot easier then hand drawings, it can help design a lot of engineering supplies, and is constantly upgrading.

Compared to hand drawing, computer aided drafting has been proven to be quicker, easier, and more accurate. Civil, mechanical and architectural engineers all benefit from using computer aided design and they all use it for a different purpose. The past couple years engineers have seen a lot of technological changes and computer aided drafting is one of the most improved technologies in the field. Therefore, Autocrat is one of the top tools

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being used in the civil engineering field right now and it continues to improve. References CAD system for horizontal works in civil engineering projects.