

Computer-Aided Design (Cad)/Computer-Aided Manufacturing (Cam) Encyclopedia Article

Computer-Aided Design (Cad)/Computer-Aided Manufacturing (Cam)

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Computer-Aided Design (Cad)/Computer-Aided Manufacturing (Cam)

In the area of computer software, the trend has been to make difficult and tedious manual tasks easier to perform. One such area where this is most prevalent is computer-aided design and computer-aided manufacturing. More commonly referred to as CAD/CAM, these two areas of computer software have made life easier for thousands of designers, architects, and draftspeople all over the globe.

Thousands or tens of thousands of highly technical and accurate drawings and charts are required for the many design specifications, blueprints, material lists and other documents used to build complex machines. If the engineers decide structural components need to be changed, all the plans and drawings must also be changed. Prior to CAD/CAM, human designers and draftspersons had to change them manually, a time consuming and error-prone process. When a CAD system is used, the computer can automatically evaluate and change all corresponding documents instantly. Using interactive graphics workstations, designers, engineers and architects can create models or drawings, increase or decrease sizes, rotate or change them at will, and see results instantly on screen. CAD use is particularly valuable in space programs, where many unknown design variables are involved. Previously, engineers depended upon trial-and-error testing and modification, a time consuming and possibly life threatening process. However, when aided by computer simulation and testing, a great deal of time, money and possibly lives can be saved. Besides its use in the military, CAD is also used in civil aeronautics, automotive and data processing industries. CAM, commonly utilized in conjunction with CAD, uses the computer to communicate instructions to automated machinery. CAM techniques are especially suited for manufacturing plants, where tasks are repetitive, tedious or dangerous for human workers. While the use of CAD/CAM systems enables the production of better, less expensive products, workers stand to lose their livelihoods due to the increased acceptance of automated systems.