TEN REASONS WHY YOU SHOULD USE CAD RATHER THAN MANUAL DRAFTING

CAD tools are used widely across the industry. But why are they so popular? Why is CAD used rather than manual drafting? The full form of CAD is Computer Aided Design (or Drawing). There are many reasons why CAD is used rather than manual drafting. Ten of the most important among them are discussed below.

**Three Dimensional Modelling:** Creating 3D models manually is a difficult and time-consuming job. 3D CAD packages have many powerful features for creating the 3D models easily.

**Easy of Modification:** Modifying the CAD geometry is fast and efficient. Modifications are automatically updated on all related files.

**Easy of Reproduction:** Draftsmen used to take days to complete a drawing by manual drafting, and reproducing the drawing meant recreating the drawing from the beginning. CAD allows a design to be reproduced easily, standard parts can be incorporated without the need for redrawing and multiple copies are easily printed.

**Computer Aided Manufacturing (CAM):** The 3D CAD geometry is used as input for the CAM packages including 3D printing. The manually created drawings cannot be used directly for CAM.

**Computer Aided Engineering (CAE):** The 3D CAD geometry is used as input for the CAE packages. The CAE packages can simulate the loading conditions and tell whether the CAD geometry can withstand the real loading or not. The drawings created manually cannot be used for CAE.

**Simulation of Mechanisms:** The 3D CAD geometry can be used for simulating mechanisms. The functionality of a machine can be checked without investing in prototype building. Manually created drawings cannot be used for mechanism simulation.

**Database Creation:** The CAD files can be used to create a PDM (Product Data Management)/PLM (Product Lifecycle Management) database. Once created, the CAD database can be accessed through a wide area network. The drawings created by manual drafting can only be stored locally.

**Logical:** CAD models or geometry are connected using programmed logic connections. Clashes in geometry are automatically checked minimising impractical designs. The drawings created by the manual drafting method have to be checked manually.

**Ease of Collaboration:** Manually created drawings must be printed and posted or couriered to other designers working on a project. This is costly and time-consuming. CAD documents can be easily stored, sent and accessed electronically.

**Access Control:** Some of the drawings and design documents are very crucial for a company’s business, and such drawings should not be accessible to all. CAD enables the use of access controls including setting of the access level each CAD document. Strict access control and maintaining confidentiality is more difficult for the manually created drawings.