IOP Conf. Series: Earth and Environmental Science **1396** (2024) 012037 doi:10.1088/1755-1315/1396/1/012037

A comparison between CAD system and building information modelling (BIM)

M Mamdouh [1], O Moursy [2], AA Hassan [3] and VF Gerges [4]

[1] M.Sc. Student, Officer in the Egyptian Armed Forces, Egypt. Email: civil.one98@gmail.com.
[2] Professor, Dept, Of Civil Engineering, Military Technical College, Cairo11865, Egypt. Email: Osama.morsi@gmail.com.
[3]Assistant Professor, Dept, Of Production Management and Quality, Military Technical College, Cairo11865, Egypt. Email: Abbas.Hassan@mtc.edu.eg.
[4]Assistant Professor, Dept, Of Construction Engineering, Faculty of Engineering- Egyptian Russian University, Cairo11829, Egypt. Email: Venees-Faied@eru.edu.eg.

Abstract. Building Information Modeling (BIM) has gained widespread recognition as a collaboration process in the construction industry, leading to increased investment by construction companies across all construction stages. in recent years, engineers and project managers have encountered various challenges. These challenges include communication gaps among stakeholders and decision-makers, frequent design changes during implementation resulting in repetitive work, increased project costs, delays, and compromised project quality. This research proposes a methodology that compares BIM technology with traditional CAD methods by applying both systems to the same project. It aims to highlight the problems associated with the traditional system and demonstrate how BIM resolves them. Clash detection, for instance, addresses implementation issues and reduces the need for rework. Studies have shown that BIM significantly reduces errors and omissions in documents by up to 64%, repetitive work by up to 43%, project costs and project duration. Considering these advantages, it is highly recommended to incorporate Building Information Modeling (BIM) technology in all construction projects.

Keywords: Building Information Modelling (BIM); Clash Detection; Communication, Coordination, Design Changes.