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LIFE CYCLE ASSESSMENT OF STEEL BUILDING COMPARISON WITH CONCRETE BUILDING

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Abstract

This paper focuses on Life cycle cost analysis which is currently a valuable tool in the construction industry. LCCA is an evaluation technique by which economy is decided based on consideration of all associated costs involved with the structure during its service life. Calculations for life cycle cost of steel as well as R.C.C. buildings were carried out. These calculations include initial investment cost, operational cost, maintenance & repair cost, rent and rates of sand, at various locations. M.S. Excel program for estimation has been prepared. Identical technical specification and rates have been considered for the common items of both steel and concrete options. As it is well known that during past few years the industry have been experiencing shortage of natural sand. As the rates of sand have been increased from last 2 to 3 years continuously, the total cost has also been increased. LCA for cost of sand in Amravati (M.S.) and Mumbai (M.S.) have also been calculated. This paper presents the result of LCA for Comparison of steel as well as R.C.C. building. Comparison for rates of sand at Amravati and Mumbai (M.S.) has also been given. Finally the study reveals that steel as a construction material can significantly reduces the LCA of building. This paper attempts to promote the use of steel sections in construction Industry.

Keywords : Life Cycle Cost Analysis , Discount rate, Initial Construction cost, Maintenance & Repair Costs, Industrial building