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Abstract: The main aim of this research work is to develop an expert system approach to cost smoothing model in reinforced concrete office building project procurement. An econometric model which incorporates exigency escalator and inflation buffer, with entropy threshold for a typical reinforced concrete office building, useful at tendering and construction stages of building projects was developed in this study. As built and bill of quantity value of twenty (20) building projects initiated and completed within 2008 and 2009 were used at random. Elemental dichotomies within the context of early and late constructible elements with speculated prediction period was used, taken into consideration the present value of cost. This attributes would enable a builder or contractor load cost implication of an unseen circumstance even on occasion of deferred cost reimbursement with the aid of average entropy index developed for each project elements. The model was further validated with new samples and discovered to be of high Eigen and contingency coefficient values. The model could help in cost smoothing at different stages of reinforced concrete office building which could further aid cost overrun prevention.