



## **Safety Management System; An Evaluation of construction safety factors by using Analytic Network Process (ANP)**

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### **Abstract :**

In worldwide, a lot of decision problems cannot be planned in form of hierarchically as they include the communication dependence on high fundamentals level on an element of lower-level (Saaty, 1996). The model of AHP does not allow reliance's among attributes at one level of hierarchy, nor does it allow inter-dependence among characteristics in levels of higher and subordinate (Lee and Kim, 2001, and Cheng et al., 2005). Thus, Saaty (1996) extends the Process of Analytic Network (ANP) which makes possible consumers to believe dependencies and interdependencies among all of characteristics together contained by one level of particular as well as in addition levels of transversely.

The most important ANP purpose is measured as its capacity to identify the associations in a structure of network or the interdependence degree of its attributes (Lee and Kim, 2000). Considering by Meade and Sarkis (1998) and Cheng and Li (2004), inter-dependence can take place in a number of ways:

(1) Elements of noncurrent are associated (i.e). (In each lope arc within the same level analysis), (2) uncorrelated stages are linked, and (3) the two levels confidence is two-way (i.e. two way arrows or arcs in the middle of levels). The ANP process is treatment inter-confidence competent between elements through achieving the composite weights by a super-matrix development. The changing of super-matrix is relative to weights of significance in entity matrices to structure a latest in general matrix by the familiar eigenvectors relation significance weights (Meade and Sarkis, 1998). Here, the method of ANP is working to extend the weightings of the Safety Management System measures due the controlling systems of building.

The first focus of this paper is to develop framework of concepts of Analytic Network Process (ANP) on Construction safety Management system. This study is an attempt to defining Network Process between safety factors and optimizing safety effectives.

**Keywords;** Safety Management System, Construction Management, Analytic Network Process (ANP), safety factors,