

**SOFTWARE DEVELOPMENT: Interactive space frame
analysis**

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SYNOPSIS

The development of microcomputer program called "SFRAME " for the analysis of three dimensional frame is presented herein. The program analyse the frame with response to the specified loading condition based on finite element method. Frame deformations (i.e.deflection and rotations) and forces (i.e axial,moments, torsion and shear) are computed and can be displayed on the screen efficiently or printed as hardcopy. The program is developed for the IBM or compatible personal computer systems and is written in BASIC and FORTRAN languages.

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1.1 OBJECTIVE AND SCOPE OF WORK

The main objective of the project is to develop a general purpose pre processing, processing and post processing program that are interactive, menu driven and user friendly. The developed program is called "SFRAME" which are capable of analysing the space frame subjected to the uniform distributed loads and/or nodal loads. Load applied can be laterally or horizontally. A highly computer graphic facilities is used to define the frame model and loading condition for the analysis computation.

SFRAME program consist of several menu which allows the user to input frame configuration and load data in computer interactive and aided mode. A modified version of SAP IV (Bathe,KJ et. al,1974) is used for the analysis segment. The response output can be obtained on the screen or via the printer. The output data and results are convenient and well organised.

The program is developed for the IBM and compatible microcomputer systems. Programs were developed using microsoft QuickBASIC (version 4.0) compiler. QuickBASIC proved to be a valuable tool, since it combined many programming features of FORTRAN and