BANPOTE JAROENSATHAYATAM : A SIMPLIFIED ANALYSIS OF LATERAL LOAD
DISTRIBUTION IN RECTANGULAR FRAME TUBE.   THESIS ADVISOR : PROF. THAKSIN
THEPCHATRI. Ph.D.   107 PP.

This research presents a simplified analysis of lateral load for non-
uniform frame tube.  The analysis is also applicable to symmetrical and non-
symmetrical lateral load.  The load distribution on a frame tube is first
assumed to be represented by a concentrated load at the top together with a
distributed load, in the form of a polynomial, through out the height of the
building.  This first approximation is obtained by relating the deflection and
rotation at any reference level to any particular lateral load component and
torsional load component respectively.

The afore mentioned relationship may be obtained by employing a
continuum approach.  First the discrete structure is replaced by an equivalent
orthotropic.  By means of simplifying assumptions regarding the principle
mode of deformation in the structure, the strain energy is expressed in terms
of the warping displacement, lateral displacement and twisting angle.  The
principle of minimum potential energy and the Ritz method are then applied
to yield a set of algebraic equations for determining the undetermined
constants in the assumed displacement functions and twisting angle functions.
By making use of the equilibrium and compatibility equations at any desired
set of reference levels, the desired equations are found in matrix form and
the loads on the frame tube together with the responses may be determined.

The results obtained from this method agree reasonably well with
solutions obtained by other researchers.