

CHAPTER IV

CONCLUSIONS

A simple and approximate method has been presented for the analysis of symmetrical rectangular framed-tube structures subjected to a uniformly distributed torque. The method is suitable for use in the preliminary design of these highly redundant structures without the need to carry out expensive computer analyses. Numerical examples given have demonstrated the versatility and accuracy of the method. For the assumed displacement functions given in this study satisfactory results have been obtained even for framed-tubes of relatively small stiffness factors. The maximum axial force in the corner column for the framed-tubes studied is underestimated by about 26 %. Most of the predicted shear forces in the interior columns and spandrel beams, with the exception of the members in the upper top stories and the corner columns, err by less than 25 % while the twisting angle at the top story is overestimated by less than 10 %. Reasonable agreement in the bending moments in the corner columns is obtained in general except at the first story. Results for the axial forces in the columns are worse for columns in the interior of the frame panel as well as the upper stories. Shear forces in the corner columns and in stories near the top are less reliable. However, this is not very significant at the preliminary design stage.