#### View metadata, citation and similar papers at core.ac.uk

March 1966

#### Brief 66-10097

# NASA TECH BRIEF



NASA Tech Briefs are issued to summarize specific innovations derived from the U. S. space program and to encourage their commercial application. Copies are available to the public from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151.

## **Computer Program Simplifies Selection of Structural Steel Columns**

#### The problem:

The selection of appropriate steel columns and base plates for the construction of a multistory structure is usually a tedious process. A method is required whereby the designer can rapidly select the size of steel columns which fulfill the American Institute of Steel Construction (AISC) specifications for a particular application.

#### The solution:

A computer program that will determine the size of steel columns and base plates required for given axial loads at points of lateral support. The program produces an easily followed printed record containing the size of section required at a particular elevation, the stress produced by the loads, and the allowable stresses for that section.

#### How it's done:

To use the program, a data deck containing the specifications from the AISC manual is entered into the computer, together with code data pertaining to the yield stress and the modulus of elasticity of the steel to be used, the allowable bearing stress for the concrete, elevations, and loading. The computer then prints an output table which includes the elevation of each load application, the load data, the size of column section needed for that elevation, the actual and allowable stresses on that section, and the size of base plate required.

### Notes:

- 1. The program, available from the address below, has been written in the FORTRAN language for use on the IBM 7094 computer. It can be modified for use on other machines with little difficulty.
- 2. The original program was written at the time that the 1963 AISC specifications were in effect. Later specifications should have minor (if any) influence upon the program format.
- 3. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer AEC-NASA Space Nuclear Propulsion Office U.S. Atomic Energy Commission Washington, D.C., 20545 Reference: B66-10097

#### Patent status:

No patent action is contemplated by NASA.

Source: G. S. Vissing of the AEC-NASA Space Nuclear Propulsion Office, Cleveland, Ohio (NU-0044)

Category 01

This document was prepared under the sponsorship of the National Aeronautics and Space Administration. Neither the United States Government nor any person acting on behalf of the United States Government assumes any liability resulting from the use of the information contained in this document, or warrants that such use will be free from privately owned rights.

