RoundCol000104-.xlt

From Techno Consultants Ltd

An Excel Template for the Design of Reinforced Concrete Circular Columns Using BS8110

Loading the Template on to your computer

RoundCol is supplied as an Excel 97 Template. Copy its file into Microsoft Office folder for its templates. Generally the path to this folder is:

C:\Program Files\Microsoft Office\Templates

To load and use the Template, in Excel 97 choose:
File, New and the select the file RoundCol000104-

If you receive an Excel Warning about running Macros and are prompted for whether to load them, answer YES to *Load* and *Enable* Macros. **RoundCol** incorporates VB Macros and to allow your computer to use them is vital for its operation.

Features

1. The columns can be braced or Un-braced. A click of the respective radio button makes the Column braced or Un-braced.

2. Up to six loading cases can be considered for the design of each column.

3. Each **RoundCol** data file can hold design information for up to 200 columns. The file size, when maximum, is about 600 KB.

4. A pull down combo box displays a scrollable list of all user descriptions for each column. This permits re-display and re-design of each column with ease and rapidity at a later stage.

5. Auto analysis checks the design of all columns by one click of a command button. If required, the results for each column can also be printed by the Auto analysis.

6. Fail-codes for the design check of each column and its 6 loading cases are shown in red cell pattern. The use of red pattern makes the failing columns apparent at a glance. The Fail-codes are also shown in the "Store" worksheet, after the Auto analysis of all columns as a batch.

7. When designing un-braced columns, floor displacement can be also be specified for each column. As described in Clause 3.8.3.8 of the code, this deflection is used for calculating the deflection induced moment in the column design.

8. By the click of a radio button, the end connection for each column can be specified as being ***Rigid***, ***Semi-rigid*** or ***Pinned***. For un-braced columns, the top connection can also be a ***Free*** connection. The above 4 connections respectively represent type 1, 2, 3 and 4 end connections described in Section 3.8.1.6.2 of the

code. These connections help establish the factor for effective column height from Table 3.19 and 3.20 of the Code.

9. **RoundCol** is a one-page document for the design of all Circular columns using BS8110. The screen and output layout has been so arranged that the user or a checking authority can check all results by hand calculations.

10. The program uses an interactive technique to calculate moment capacities of a column section corresponding to its balanced failure load and applied axial loads for each of its six loading cases.

11. The column shape and position of reinforcing bars are plotted in a diagram. This diagram also shows the position of neutral axis and the extent of the concrete compression zone.

12. **RoundCol** incorporates the use of default values for new columns. The user can set these to any desired values. They are f_{cu}, γ_{mc}, γ_{ms}, diameter of column, number of steel bars, cover to the centroid of steel, column height and the area of steel reinforcement bars.