

RC8007-.XLT

An Excel Template from Techno Consultants Ltd for The Design of Concrete Section for Retaining Aqueous Liquids

Introduction

RC8007 is an Excel 97/2000 Template for the design of concrete sections retaining aqueous liquids using BS 8007 and, where necessary, BS 8110.

It has 3 parts for design on an A4 size page layout. The 1st part helps check serviceability limit state. The 2nd part assesses ultimate moment and shear capacity to BS 8110. The 3rd part deals with the reinforcement requirements to control the spacing and width of surface cracks.

Loading the Template on to your computer

RC8007 is supplied as an Excel 97 Template, having .XLT as its filename extension.

To load RC8007 on to your computer, copy this file into Microsoft Office folder for its Templates. Generally the path to this folder in Excel 97 is:

C:\Program Files\Microsoft Office\Templates

If you are using Excel 2000, the path to this folder is:

C:\Windows\Application Data\Microsoft\Templates

To load and use the Template in Excel 97 or Excel 2000, choose:

File, New and then select the file [RC8007010108-.xlt](#)

If you receive an Excel Warning about running Macros and are prompted for whether to load them, answer YES to Load and Enable Macros. RC8007 incorporates VB Macros and to allow your computer to use them is vital for its operation.

Features

- The file size is under 300 KB. At 3 KB/second, the download time would be about 2 minutes.
- Comprehensive documentation and sketches to explain the method of design are included within the template for ready reference and use.
- The design formulae used in the calculations are shown on the screen and in the printed output. The user and the checker can therefore verify template output by hand calculations.
- On the spot display of background design information on the screen by moving the mouse pointer over cells.
- Instant data validation and help-information display to avoid and reduce input errors.
- Reinforcement Type: Grade 460 Deformed Type 1 or Grade 250 Plain Round bars
- Partial safety factor for steel strength: 1.05 or 1.15.
- Concrete grade: C30, C35 or C40
- Section overall depth: 150 mm to 1000 mm.
- Design crack width: 0.1 mm or 0.2 mm
- Restraint factor for thermal & shrinkage movement: 0 to 0.5

- Concrete Cover: 40 mm or more.
- Bar size: 8 mm to 40 mm
- Bar spacing: Bar-size + 20 mm to the lesser of 300 mm or Section Depth
- Formwork for walls and suspended slabs: Steel or Plywood
- Temperature Falls: T1 (Range 5 to 70 deg C) between the hydration peak and ambient plus T2 (Range 0 to 80 deg C) due to seasonal variations.
- Interactive Estimation of Temperature T1 for concreting in the UK. Based on the information in Appendix A.3 of BS 8007, this feature allows change of OPC Contents, Section Thickness, Type of Section and Formwork for this estimation.
- Surface zones for concrete cracking control: Walls, Suspended slabs, Top of ground slabs or Bottom of ground slabs
- Database facility within the RC8007 file to keep information for up to 500 sections via worksheet STORE. Using a reference number in the range 1001 to 1500, each section can be retrieved, changed and re-designed with ease at a later time.
- Auto Analysis facility via two columns in the Worksheet STORE. One column allows selection for analysis and the other selection for printing. All SELECTED sections can therefore be analysed and or their results printed by a mouse click.
- After Auto Analysis, the database in worksheet STORE also keeps design information on Applied Loading, Calculated Strengths and Thermal Steel Requirements for each section. The worksheet cells showing inadequate strength or reinforcement becomes red in colour. The adequacy of each section therefore becomes obvious at a glance.
- The worksheet STORE is a visible Database of up to 500 sections. New data can be generated and existing one examined and or modified using usual spreadsheet features.
- The template has virtually no user interface. The A4 size Printed Output matches the Screen Display. Knowing the use of Excel 97 and the ability to verify the output as a designer is sufficient for using RC8007.
- Shaded cells in the spreadsheet mean "User Input" and un-shaded cells "Spreadsheet Results". This permits easy checking at a glance both by the user and the checker of RC8007 output.