

Design Memorandum

TO: All Design Section Staff
FROM: Bijan Khaleghi
DATE: April 16, 2009
SUBJECT: Computer Generated Design Calculations

This memorandum supersedes the memorandum issued on May 16, 2008.

Computer-generated design calculations may be used instead of longhand calculations. The calculation sheets shall be formatted similar to WSDOT STD calculation sheets for longhand designs. The header for electronic calculation sheets shall carry WSDOT logo along with project name, S.R. number, designer and checker's name, date, supervising engineer, and sheet numbers. All computer-generated or longhand design calculations shall be initialed by the designer and checker. Checker's initial may not be necessary if separate check calculations are provided. Output from commercial software shall be integrated into design calculations with a cover sheet that includes the WSDOT logo along with project name, S.R. number, designer and checker's name, date, supervising engineer, and sheet numbers. Consultant submitted design calculations shall comply with the above requirements.

A sample calculation sheet for using MathCAD or Excel is shown below for guidance. These templates could be modified for larger prints, adjusting cell width or other reasons. Code and other references used in developing calculations shall be specified. In general, when using Excel spreadsheet, enough information and equations shall be provided/shown in the spreadsheet so that an independent checker can follow the calculations.

Design calculations prepared by the Bridge Design Office or Consultants need not be sealed and signed. Design calculations are considered part of the process that develops contract plans which are the final documents.

To download the Excel file or the MathCad template, right-click on the file name and select "Save Target As..."

Excel file [05-2008.xlt](#)
MathCad template [05-2008.xmcd](#)

Background:

This memorandum is to further reinforce WSDOT QA/OC policy and to establish uniformity between computer-generated and longhand design calculations.

Clarification was made on April 16, 2009 by George Twiss, the Department of Licensing Executive Board Director that design calculations need not be stamped. Design calculations are considered internal work to develop contract plans. WAC 196-23-020 requires that only the final documents be stamped. The final documents are: contract plans, as-built drawings, reports and stand-alone calculations. Bridge Special Provisions submitted to the Region Plans Offices and PEO's for AD Copy are signed and stamped.

If you have any questions regarding these issues, please contact Eric Ferluga at 705-7179, J.C. Hsieh at 705-7215, or Bijan Khaleghi at 705-7181.

cc: Mohammad Sheikhzadeh, Bridge Construction - 47354

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Washington State
Department of Transportation

Bridge & Structures Office
Design Calculations

Project _____ Sheet No. _____ of _____ Sheets
S.R. _____ Design _____ Date _____ Check _____ Date _____ Supv _____





WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
BRIDGE AND STRUCTURES OFFICE

Project _____ Sheet No. 1
SR _____ Made By _____ Chk'd by _____ Date 4/18/09 of Sheets 1

Code Reference
