These two programs are simple Excel programs to solve some of the equations in the book "***Filament Winding, Composite Structure Fabrication***" by S.T. Peters, W.D. Humphrey and R.F. Foral, published by SAMPE, Azusa, CA, 2nd Edition, 1999.

Suggestion: Before you use these programs I suggest that you make a reference copy. Even though I have protected the formulas, there seems to be other ways of destroying a program, and they may not always be free on the website. When using the analysis programs you should have the printout of the **pdf** files at hand. All the programs use U.S. (old "Imperial") units for input and output. We invite your comments.

To use the **Netting** program simply enter the single page spreadsheet and fill in the necessary input parameters. Inputs are highlighted in green and are all in US units. The data that is in the program at the start is the demonstration calculations from the book pp. 5-49 to 5-50. You should have the necessary information for your pressure vessel and the input parameters for different fibers can be obtained from many sources, including the Filament Winding book, pp 2-3 to 2-8. Or, you can e-mail me and I will send to you.

If you are interested there is also a program for determining the time and cost to filament wind an arbitrary shape. Let me know if you are interested.

The **DOME** contours for an isotensoid dome can be determined from the inputs into the green shaded area of the **DOME** spreadsheet. There are only two inputs, wind angle on the case, α (degrees) and case radius (inches). The default data that is resident there is for an ASTM designed test vessel that has been discontinued in 1999. After you enter the necessary data the program will make the calculations and prepare a graph of the dome shape.

The final program is **BOSS** which requires more inputs into a highlighted area as with the other programs but is simple and short. There is a solved problem on the progrm which is shown in the technical support file and is the problem solved in the book, pp6-16 to 6-20. The pdf file also containstwo design curves for determining the weight or volume of lar boss along with historical data and recommendations for stress ratioo. As with the other design aids presented here, you should verify the design with finite element analysis

The general procedure for designing a pressure vessel is to determine the amount of gas (or otherwise) to be contained the pressure, proof or burst, and factors of safety, then to use the three enclosed programs to arrive at a preliminary design. The next steps would incorporate laminate analysis and finite element analysis to arrive at a safe, effective design.