

## Trial Design Problems

By Paul Fratessa

One of the blessings of having a national magazine shared by several organizations, all interested in advancing the structural engineering profession, is that it gives to the profession, among other things, a platform to exchange points of view. Articles on technical issues, unusual projects, and business matters and ethics have a lasting benefit to the profession.

Not as often do we publish the special secrets of how design is actually accomplished at the grass roots level.

How are codes interpreted, what assumptions are made in executing a design, what load factors are used for various conditions and what are the design procedures and practices utilized by various offices and individual professionals?

**“...the special secrets of how design is actually accomplished...”**

SEI's Design Practices Committee started an effort (named the 'trial design problems') to explore those subjects in a manner non-threatening to people who wished to participate. The response was interesting. The committee found that assumptions made when solving problems vary widely within an office and throughout the country, and are not necessarily regional differences. The use of computer solutions in these problems (short focused problems) led to substantially different solutions than simple hand calculations and, in one problem, the computer solutions all contained errors. These types of differences have led to a restructuring of the effort to encourage more participation, interaction and opportunity for learning.

The committee adopted goals to investigate how the practicing engineer interprets and applies current adopted codes, to investigate the adequacy of design procedures used in problem solutions, to investigate the consistency of engineering judgment used in design and in the development of design solutions,



to provide educational information based on the results of trial design findings, and to promote dialog among practicing engineers and between practicing engineers and code writers.

To implement the renewed program, the Design Practices Committee will publish the availability of the trial design problems on the SEI website and invite participation in the solution. These are short focused problems. These solutions will be collected, reviewed and then a “model solution” and a white paper on the

general findings will be published. Once published, the profession will be invited to comment on the solution and the white paper.

It is recognized that the “model solution” will be only one possible solution, but will represent the solution with the most commonality. It will also give the profession something to reflect upon and, if appropriate, to offer comments on.

Perhaps you have heard the comment “it's never done that way” from a professional in your office, or outside of your office. Perhaps that person is right, but perhaps not completely correct. There might be another approach equally correct or even more accurate. In either case, it does not hurt to reflect on the design process and stay current. Interaction with colleagues through the trial design program is a step in that direction, and it is a confidential process.

You are invited to participate in the trial design program. Consider having your entire office participate, send the full results to SEI, and then perhaps internally analyze what your own office does. Read the results of the problem through the white paper and reflect on the issues. Hopefully participation will improve design practices in professional offices.

*Paul Fratessa is past Chair of the Design Practices Committee of the Business and Professional Activities Division of SEI. He recently retired.*

*Read more on the Trial Design Program on page 16 of this issue.*

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