ABSTRACT

Integration of Software in Structural Engineering Education

In the workplace today, software is typically used by the structural engineer to analyze and design most elements of a structure. There is a wide variety of software available to the structural engineer, allowing the engineer to analyze and design micro, macro and even all elements of a structure. In fact, it is common today for consulting firms and contractors to use multi-discipline software that inputs the project, including the structure, in a three dimensional model and through the use of add-on software and/or third party software analyze and design the structure. In addition, the software aides other disciplines such as architectural and mechanical engineering in the performance of their designs. This type of system aides in the check for interferences between disciplines as well as within disciplines and provides a wealth of information about the project. As educators, how do we, or for that matter do we, bring this software to the classroom or laboratory. It allows our students to solve complex problems and potentially makes them more marketable. However, if all we teach is the software, who answers the question “Do the results make sense?” As of today and it may change in the future, the computer does not have a professional engineering stamp and the software provider implicitly states that it shares no liability and make no guarantees concerning the use of the output from its software. Is it possible to make tens of thousands of input entries and have no mistakes? This discussion presents the author’s view on how to balance the use of software with the “archaic” methods of our ancestors in teaching structural engineering courses.

Keywords: Structural Engineering, Software, Education