



Apps – Boon or Bane?

By John A. Mercer, P.E., SECB

Volumes of new apps are exploding on iTunes for the iOS iPhone, iPod or iPad, and in the Android Market for the Android OS. Currently restricted to my smartphone for Android apps, the iPhone, iPod, and iPad seem to have a more extensive selection.

This discussion on apps will focus on their usefulness in the structural engineering community. Each engineer will have to make his or her own decision on the user friendliness or appropriateness of an app. The article is not intended to recommend or endorse one app over another.

The Boon

One of the benefits of apps for your smart phone or tablet is the convenience of having a tool at your fingertips that doesn't require you to be at a desktop computer in your office.

Some apps have a WOW factor that the structural engineer can use to woo their clients and help them understand the relationships of structural elements that have been designed by more sophisticated software programs. These apps can be categorized as interpretive utilities that allow the structural engineer to do a fly through of a structure, illustrating a three dimensional image of a building model and all of its structural components.

Fortunately, we have some of the materials associations, structural steel, wood, reinforced concrete and their derivatives, producing their own utility apps that provide quick checks of material codes for beams and columns. They have developed, tested and endorsed simple beam and column apps that allow the structural engineer to carry a design calculator in his or her pocket with their smart phone or tablet.

To find some of these, simply Google search the key phrase "structural engineering apps" and you will get a list of links to some of the apps that are currently available. Also, go to the appropriate material association web sites to download their latest app creation.

All apps I've reviewed indicate updates and new versions related to improvements and bug fixes. Most have a "star rating". You may wish to be especially careful of those without ratings, unless you intend to spend the time to do your own testing and confirmation of the apps providing correct results. Verifying accuracy should actually be done even if it has been rated. In my experience, I seem to find the bugs in programs as I use them. Keeping a jaundiced eye on the horizon to make sure your solution makes sense is still a good idea.

The Bane

Lest we forget the Hyatt Regency structural failure in the early 1980s...

A hypothetical situation: You are on a project site, and a contractor makes a request for a modification to, or a substitution of, a structural member. You have an app on your smart phone that will allow you to make a quick design code check. What do you do?

- Have you received a written RFI?
- How do you communicate to the remainder of the Build team that there is a possible change in the structure?



- How is this documented?
- Is the simple design code check sufficient?
- Is there an approved change order?
- How does this impact the contract amount?
- How about the construction or delivery schedule?
- How is YOUR liability impacted?

Some apps allow printing to a printer or a PDF file, or emailing your results to yourself. Keeping track of things will require more sophisticated apps. Perhaps a smart app programmer will come up with a universal solution or may already have. We will have to keep an eye peeled for that.

It may be appropriate for STRUCTURE® magazine to print an App Survey similar to the Software Guide they have once a year. There may also be the need for one of our three engineering associations to host a Blog to discuss the merits of certain apps, as well as keep a rating and comment system independent from the iTunes and Market.

It's your world. How would you use an app in your engineering practice? If you find a good one, let us know. ■

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What apps do Structural Engineers use?

Let us know what apps you are using. Fill out our survey at www.STRUCTUREmag.org. There's a button on the homepage that will take you to the mini-survey; or use your QR-Code app and scan this code – it will take you right to the homepage!

