Age of Flower Towers' is a new age plan that won't work

by Randy Bright http://www.tulsabeacon.com/?p=5551

In all the architectural trade journals I receive, I rarely see architectural designs that I like, but for the most part I appreciate the diverse creativity that comes out of the architectural profession.

This is especially true of architecture that would not have been possible even two decades ago. The advances in CADD (Computer Aided Drafting and Design) has given us the ability to design geometrically complex structures, giving birth to curvilinear shapes and forms never seen before in architecture, and new computer programs have allowed engineers to design the complex structural and mechanical systems needed to make those designs possible.

So it is not often that I take the opportunity to poke fun at architecture, but sometimes architecture needs a good dose of reality.

On October 7, the Financial Times website published an article entitled "The Age of Flower Towers." The opening paragraph stated, "The most exciting new tower in the world is under construction in Milan. At 27 stories high, Bosco Verticale is a splinter beside the Shard, the 87-story skyscraper under construction in London. What sets the Milan tower apart is that it will be the world's first vertical forest, with each apartment having a balcony planted with trees. In summer, oaks and amelanchiers will shade the windows and filter the city's dust; in winter, sunlight will shine through the bare branches."

I chuckled a little when I first read the article, especially at the renderings of the tower literally covered from top to bottom with balconies full of trees. It must be a environmentalist's romantic delight to see such a green architectural solution. After all, these are not a few saplings in planter containers, these are full grown, mature trees.

The recognition that people need a connection to nature is a valid one, but their solution was borne out of the belief that mankind can give up the suburbs to high-density living without missing out on nature.

In previous articles, I've stated that I enjoy seeing innovation and risk taking in architecture, but I also believe that solutions must be based on good economics, good technology and good science.

The first problem that I recognized with this project was that the architects and their botanists don't seem to know much about trees, and I can say that from personal experience. I have lived on a heavily wooded five-acre tract for over five years, and I can see all kinds of practical problems that make the vertical forest concept impractical.

Trees may look light and airy, but the truth is that they are very heavy, even without the huge quantity of moist soil they need to sustain them. That means that the balconies must be

structurally designed carry many more thousands of pounds of weight. That extra weight must then be multiplied by the number of balconies and added to the overall weight of the entire structure. The result is that the building must contain more materials such as steel and concrete to carry that weight, not to mention the elaborate watering and drainage systems needed to keep the trees alive.

But shouldn't building "green" do the opposite? Should it not reduce the amount of materials in order to reduce the amount of energy required to produce them? And shouldn't it save those materials for future generations, which by definition what sustainability is supposed to mean? Another problem is that the design assumes the trees to be more-or-less static objects. Trees are actually quite dynamic. Their leaves and limbs capture the wind, placing a terrific amount of torque on their trunks. Securing those trees and transferring the torque load to the building structure takes even more materials. And the higher the building, the more wind.

On my property, I lose several trees to disease and lightning strikes every year. When a tree dies, it needs to be cut down in a controlled fashion so that it falls where it will do the least damage and before it falls down on its own. So when a tree dies on the 27th floor, it will be a major operation to remove and replace a tree.

Even healthy trees drop limbs as they grow. To prevent injuries and deaths on the walkable walks below, someone will have to constantly monitor and maintain the trees. What is that going to cost?

Finally, the speculation is that the trees will "filter the city's dust." I've got news for you. Trees create dust, and in no small amount. As their leaves and branches naturally deteriorate, they break down into fine particulates of organic material.

A solution like Bosco Verticale may be innovative, but it is not practical and it would demand that its inhabitants shoulder a tremendous cost to maintain it in its idyllic design. The unnecessary use of materials and the design for the sake of political correctness make it a bad solution to a problem that doesn't exist. If staying connected to nature is so important, we already have a good solution that has worked well for hundreds of years - the suburbs.

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This entry was posted on Thursday, November 10th, 2011 and is filed under Columns.