

Thoughts on Design

. . . and responsibility.

M.G.(Ron) Britton, P.Eng.

One of the “benefits” in my American Society for Engineering Education membership is a daily news clipping service that identifies articles of interest to Engineering educators. Last August it contained an interesting note regarding hybrids and noise. I was in a hurry so I simply copied and saved the clipping for future reference, after which I promptly forgot it.

A couple of months later I found my self in a discussion about the need to justify design solutions. I recalled the article, and much to my surprise I found the file I had saved. The design solution in question is a device that will make a hybrid that is running on electricity sound like an internal combustion engine. My question is, why?

Well, they claim there is a “reason”. Quoting from the clipping,
“. . . hybrids, which "run only on electricity at low speeds [and] emit no more than a whine around town" present a problem "for the blind -- and pedestrians, and cyclists, and people who simply don't pay attention -- who rely on the familiar rumble of internal combustion to know what's coming down the pike." ”

The question that occurred to me is, is this a problem that needs a solution or a solution that needs a problem?

I'm in no position to debate the merits of this design, but for me the question persists, why?

The tag line from a recent Frontiers of Construction show about Trains of the Future noted that “*Inventors and Engineers will design and construct whatever it takes to make them a reality.*” Is this just another way of saying that being able to do something justifies going ahead?

A very different perspective was presented in the 1929 Encyclopedia Britannica where Alferd Douglas Flinn stated, “*The engineer is under obligation to consider the sociological, economical and spiritual effects of engineering and operations and to aid his fellowmen . . .*”. This clearly places a level of responsibility on the engineer beyond the simple acceptance of being technically able to do something. But some would say this is just old fashioned and unrealistic.

And then we have Canon 2 of our Code of Ethics which states “*Each practitioner shall regard the physical, economic and environmental well-being of the public as the prime responsibility in all aspects of professional engineering and professional geoscientific work.*” Once again, the responsibility theme, but it also suggests that the design mentioned above can be justified if “. . . *the blind -- and pedestrians, and cyclists, and people who simply don't pay attention . . .*” are actually at risk.

In the consumer society in which we engineers live and work, we create most of the products society “needs”. However we find ourselves in the conflicted position of having the capability to

do things, but the ethical responsibility to consider the impact of what we do. It can be argued that one of the impacts of any design decision is to commit both human and physical resources, both of which are in short supply. Does it follow that we should make moral judgements relating to the work we undertake?

If we are not part of the solution, are we part of the problem?