



## Ethical challenges and greenwashing – challenges for structural engineers

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### Abstract

In the face of the climate emergency, but also threats to biodiversity, and with exploitation of limited resources posing serious threats, it is easy to resort to 'greenwashing', noting small changes which have been provided when large changes are needed to even meet current commitments. However, many of the standard solutions to net zero, such as use of increased proportions of GGBS in concrete, are themselves constrained by limitations to availability of scarce resources.

This paper gives the author's personal response to these challenges, considering ways in which structural engineers can avoid just 'greenwashing', but instead aim to do good as well as just avoiding harm. Engineers must have excellent professionalism and competence, and strong ethics.

**Keywords:** Sustainability, climate, ethics

### 1 Introduction and challenge

Civil and structural engineering has a great potential to do good, but also to do harm. Herbert Hoover, President of the United States, was an accomplished engineer and wrote the following in 1954 (albeit in less inclusive language than today):

*'The great liability of the engineer compared to men of other professions is that his works are out in the open where all can see them. His acts, step by step, are in hard substance. He cannot bury his mistakes in the grave like the doctors. He cannot argue them into thin air or blame the judge like the lawyers. He cannot, like the architects, cover his failures with trees and vines. He cannot, like the politicians, screen his shortcomings by blaming his opponents and hope that the people will forget. The engineer simply cannot deny that he did it. If his works do not work, he is damned. That is the phantasmagoria that haunts his nights and dogs his days. He comes from the job at the end of the day resolved to calculate it again. He wakes in the night in a cold sweat and puts something on paper that looks silly in the morning. All day he shivers at the*

*thought of the bugs which will inevitably appear to jolt its smooth consummation.*

*On the other hand, unlike the doctor, his is not a life among the weak. Unlike the soldier, destruction is not his purpose. Unlike the lawyer, quarrels are not his daily bread. To the engineer falls the job of clothing the bare bones of science with life, comfort, and hope. No doubt as years go by people forget which engineer did it, even if they ever knew. Or some politician puts his name on it. Or they credit it to some promoter who used other people's money with which to finance it. But the engineer himself looks back at the unending stream of goodness which flows from his successes with satisfactions that few professions may know. And the verdict of his fellow professionals is all the accolade he wants.'* [1]

This is quoted in full as he details the professional challenges faced so comprehensively, yet we now operate with far more awareness of climate and resource challenges, and visibility of how engineers' activities have shaped the 70 years since this was written. How should we respond?