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Art of approximation

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Engineers design buildings by estimating the demands from Mother Nature, with materials they approximately know, using design practices built over years of assumptions. Structural design is a merge between science and art. The inexplicable idea of engineering judgment comes into play when presenting design solutions. Our educational process used to include a rigorous treatment of hand calculation methods, without computers and calculators. Now, we have a plethora of tools to simplify the calculation methods. But what does this mean for an engineer's judgment? How do you know if the answers from the computer are accurate? This article will present some tools, techniques and impart the age-old philosophy of checking your numbers before you sign off.

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