

# DeepSoft, Inc.      Engineering • Programming • Training

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## What is the role of a Consulting Engineer?

By consulting engineer I'm referring to an individual who is independently employed and has academic training in a specific field or fields of engineering plus professional experience in those fields plus a professional license to practice engineering in a specific state. If your company builds civil types of structures such as: public buildings, bridges, dams, roads, etc. your designs most likely are required to be evaluated by a registered professional engineer and if deemed satisfactory will put his or her stamp on the design. This could be one of your existing employees or an independent consulting engineer.

If your company designs commercial products you probably do not need to have your designs approved by a professional engineer but you do have an obligation to do a diligent job on the design, fabrication, and testing (the engineering) of your products. It is far cheaper to find problems before you go into production of a new product or a modification of an existing product. Engineers, whether on your staff already or an independent consultant, can help with this.

Independent consulting engineers allow you to hire the specific expertise you need when you need it without retaining someone on staff permanently. Independent consultants usually have a high level of academic training and professional experience, frequently higher than experienced employees or contractors. While we normally work at a higher hourly rate than direct employees, you are only paying for our services when you need them. We also have a business to run with all of the expenses associated with that so it's not reasonable to expect us to work at the same hourly rate as a direct employee, even one with the same level of qualifications. Although if you compare hourly costs for a direct employee including indirect costs, with a contract engineer, and with an independent consulting engineer you will find that the total costs are comparable assuming comparable qualifications.

Clients are under no obligation to follow our recommendations although it is usually unwise not to. It's a little like a visit to the doctor, who can tell you what you need to do, it's up to you to do it.

If we say that a design is satisfactory it will be for a very specific set of quantitative criteria such as: specific geometry, loads, boundary conditions, and material properties. It will also apply to a very specific type of analysis: linear, non-linear, static, dynamic, etc. For a registered professional engineer to put his or her stamp on a design he or she must either do the design and/or analysis themselves or directly supervise those that do. Normally an independent consulting engineer is not supervising the clients' employees, he or she is doing the design and/or analysis themselves. If we are only hired to do a linear static analysis we will provide the results of that analysis and make our recommendations based solely on that type of load. If a dynamic analysis is called for we would have to do a dynamic analysis in order to determine if the product or structure is acceptable under specific dynamic loading.

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