

What Is the Role of an Engineer?

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To begin, I offer an official definition.

“Engineers work to develop economic and safe solutions to practical problems, by applying mathematics, scientific knowledge and ingenuity while considering technical constraints. The term is derived from the Latin root “ingenium,” meaning “cleverness” ... The work of engineers is the link between perceived needs of society and commercial applications.” Initially thinking this was an amusing anecdote, having lived the life for over 20 years, I find the definition quite appropriate.



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While the definition is broad, to be fair, a more specific response must be tailored to the audience. Engineering is involved in so many aspects of life the specific sector to which it is applied must be identified. In the construction industry alone, half a dozen types of engineers come to mind immediately. MEP (Mechanical, Electrical, and Plumbing) Engineering is the one that I practice day in and day out, and is of course near and dear to my heart.

Many people don't understand the role of an MEP Engineer often perceiving his product as a necessary formality required by local building departments to be coupled with architectural plans. Architecture is easier to appreciate because when you look at architectural drawings you can visualize the design. You can see your workstation, see your chair and ultimately see yourself in the space. Looking at a set of MEP engineering plans, you see what occurs above ceilings and behind walls most of which looks like spaghetti to the untrained eye. Because the visualization is so difficult the process is often overlooked and underappreciated.

Truth be told, a properly engineered project should be mostly transparent to a client. Like the Wizard of Oz, our delivery says 'pay no attention to the man behind the curtain'. Through our design, we deliver comfort provided by a properly designed heating, ventilation and air conditioning system or the quick response time for water to warm up when rinsing your hands. We deliver the power that energizes the outlet you plug your computer into and the list goes on. In the end, sometimes the only evidence we leave behind is when you gaze up at the ceiling and wonder "What are those white disks at the ceiling?" The better job an engineer does, the less noticeable the product of his design is.

We can't stress enough the importance of being involved as early as possible in the overall project development. We assist in the due diligence and feasibility process as well as the schematic design and these tools should be used for planning and budgeting purposes that translate to substantial cost and time savings. The value of the installation designed by the MEP engineering consultant can range from 40% to 60% of the overall construction budget. The impact of engineering design direction can move the project budget by valuable percentage points. One of the most effective business decisions is to place value on the engineering design. It impacts budget (construction and operation), architecture and overall quality of life.