

# How misguided legislators are impacting the engineering profession and specifications

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**F**or many years, I have worked with sales and technical staff from manufacturers who championed their products in a factual and direct manner; competing for sales and the specification of their products and services on complex and routine engineering projects. Presenting technical information and knowledge based on science and widely-accepted standards is the way to compete for the supply of materials and products for projects that have a direct impact on the lives of people.

Price-sensitivity is deeply rooted in government purchasing practices. But the value of many purchases cannot be determined on price alone. Box culverts, bridges, and drainage pipeline systems are structures. The design engineer must make the decision on the materials and products to use that will provide not only project functionality but also protect the safety of the public. This is an obligation of the engineer in the "Order of the Engineer." It is the design engineer who is ultimately responsible for the performance of the structure throughout the design life of the project. It is the engineer who accepts liability each time he or she stamps plans and specifications.

New materials and products entering the market have many challenges to overcome. Not only must they meet with the approval of the senior engineer, they must also compete with standardized materials and products that are proved to perform as designed for various structures. Engineers are asked more often these days to

evaluate materials and products with little performance record, little or no scientific research and analysis, and a small body of knowledge on how well they will best serve humanity. Many engineers find it easy to accept the claims of manufacturers and recommendations for use through presentations of highly skilled salespeople and marketers, especially if they have technical credentials. But it is still the engineer that specifies a material or product who is liable for any failures in performance, or injury to the public. Engineers are becoming increasingly hesitant to include materials and products with questionable performance in their specifications until the applications are based on a solid foundation of science and testing.

Having a product approved for use in a specification can take months and sometimes years. For a salesperson or manufacturer, it can be a difficult process to understand. Perceived reasons for rejection of a product are many. I've heard: "The engineer just doesn't understand," and, "Something fishy is going on." I have also heard that rejection of a product by an engineer may be none other than a gut feeling of concern. The final decision, however, remains with the engineer of record who is responsible for analyzing options before drafting a specification.

There is a new tactic employed by some manufacturers to have their products specified. Political action and legislation is being introduced to the tendering system to force engineers to take certain decisions. This

insidious form of political meddling manifested in 2004 when a plastic pipe manufacturer sued Portland, Ore., to force their product into the city's specification for storm sewers and culverts. Then a state specification committee was sued, as well as its individual members. Portland won in court, defending the right of its engineers to choose products in the interest of the safety of its citizens. The state committee members, having to defend themselves, backed down. Legal costs can be ruinous, unless a defendant has the resources to cover legal costs and address any settlement.

In 2005, plastic pipe industry interests introduced a provision that was inserted into the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) during a closed conference committee in Congress. SAFETEA-LU was an authorization bill that governed United States federal surface transportation spending. This provision mandated "competition" for drainage pipe *materials*. FHWA interpreted "competition" to mean that *all states* must allow *all pipe materials* in their specifications unless they could prove the material was not satisfactory for use on a project or in particular applications. Now, instead of choosing proven products, state DOTs had to justify their engineering decisions to FHWA. Congress had effectively inserted itself into a state DOT's engineering process and specification writing. Ironically, the engineer's obligation to the public was being challenged by the public itself through actions of its elected representatives.

In 2012, Congress passed the Moving Ahead for Progress in the 21st Century Act (MAP-21), which removed itself from influencing a state DOT's engineering duty. MAP-21 granted the states and their engineers the autonomy to choose the pipe material they determined to be the proper choice for the application. But removing politics from engineering did not stop with MAP-21.

Representatives of the plastic pipe industry vowed to bring legislation to each state, mandating the use of all pipe products through legislation. The plastic pipe industry employed the assistance of ALEC (American Legislative Exchange Council), an organization which drafts and shares "model" state-level legislation. The plastic pipe industry-funded legislation, however, was defeated in the 11 states where it was introduced. Such legislation would have removed engineering decisions from public works authorities.

All products for all applications have a right to compete. As a public works director, I see the competition every day. Products that are best suited to perform for the design life of a project will be specified. I encourage competition. Proper competition improves not only the quality, but also the performance of products. Competition for supplying products for public works should be welcomed when alternatives are assessed according to scientific principles, experience and knowledge.

Misguided legislators do not belong in a competitive environment with outcomes that affect health and safety. The public can be exposed to great risks through the actions of elected representatives who restrict the choices of engineers in specifications.

Attempts to override the collective "professional opinions" of engineers must be stopped. Ask public works

engineers how they see this invasion into their profession and obligation to humanity. The legislators sponsoring bills that restrict the engineering process, which in turn affects specifications, either forgot or decided not to ask a public works engineer about obligations. Maybe they will

remember to ask "why" the next time they are approached by a manufacturer who is finding it challenging to have their product specified.

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