

Client, Teammate or Nemesis?

By Wayne Vandenberg, P.E.

Let's talk about bittersweet relationships. Many of my good friends are architects. We get together at work functions and social events, jostling each other about our jobs and teasing with the usual stereotypical jokes. We discuss the ever-increasing demands of owners for speed AND perfection. We lament the good old days when plans were drawn by hand, a lot of thought was put into those plans, and late changes were taboo. Oh, yes, and we complain about contractors. Then, we go to our respective corners; I mean offices. Suddenly the gloves are off and we seem to talk in circles about why some things need – or ought – to be a specific way. We sigh over decisions or indecisions. And we finish our conversations silently wondering what world each of us comes from.

Architects have forever been the “Master Builder”. It is part of their training, part of their genetics. Their class work focuses not only on the elements of a building, but also history, social and cultural relations.

Engineers – well, we have forever been the “Problem Solver”. It is part of our training, part of our genetics. Our class work focuses on material properties, building elements and math.

My architect friends come from the worlds of Wright, Ghery, Vanderoh and LeCorbusier; we engineers come from Timoshenko, Giolambas, Kahn and Lin.

Right brain vs. left brain. Fluid vs. rock. Circle vs. square.

You might expect me to go on about how we need to fight the constant flow of changes, battle the bringer of the new idea, squelch the “what if we ...,” by quoting physics books and material properties. No... That is not the goal. We, meaning engineers and architects, have a common goal: to produce a beautiful facility, a serving facility, and an affordable facility.

Architects need to resolve owner preferences, CEO budgets, user needs and code official rules in a building that serves all those who enter it and pleases all those who look at it. Those are their constraints. Structural engineers are brought onto the team to work magic with numbers, to apply codes and logic and material properties to help resolve the ever-changing enigma that constantly faces our architectural friends. That is our strength. That is the challenge that surely drove us into engineering – ever since we first took apart our Dad's fishing reel ... and thought we could put it back together again.

So then, how do we resolve our apparent conflicts? First, we need to understand that they are not real conflicts. Communication is the key. Communication, we all know, is an art and not a science. We need to understand our audience. Not just their language or their slang or their accent. We need to understand them. Architects live in a world of design, of physical space, of visual effect. Because of that, they communicate through the languages of design, space and sight. We, on the other hand, speak in the language of numbers and objective facts. Listen to what they are saying. Get past how they are saying it.

Every architect has a different level of understanding of structural systems from their days spent studying for the exam. Some have carried that interest and understanding throughout their

careers; others have not. In the same way, some of us structural engineers have lost our ability to be civil; while some have not. Be mindful when talking about masonry wall systems – our block may be their brick or stone or tile. The confusion about what is a joist vs. beam vs. girder can be answered differently from project to project. Is a parallel chord truss a floor joist? Is a TrusJoist a beam? When talking about steel framing, make sure you ask “cold form” or “structural.” I will skip the details about one client's “vertical beams” that caused way too much confusion. A sketch and a fax can clear up a week's worth of misunderstood e-mails and RFI's in seconds.

As engineers we need to understand just as deeply as the architect the form that is desired. We need to share the vision. We need to ask what the goal is, what is the desired effect. When we are asked to use joists, not beams, are we discussing the need to reduce costs or the need to reduce the imposing look of an exposed roof structure? It may change our answer from one that pointedly says, “Nope, loads are too high,” to an answer of, “Well, we could go with larger spacing, castellated beams or engineered trusses.” We must listen with the ears of a designer, not an engineer, because that is what we are — one part of a team of designers. Our art is applying physics and material properties in ways that may challenge the standards, yet still meets the vision.

Let's take a simple school project. Chances are the client teamed with us, and negotiated a fee with us, based on the assumption that it was indeed a simple school project. But is it rural, suburban or urban? Is the project budget based on referendum or private donations? Growing community or shrinking community? Charter school with arts focus wishing for flexibility and lively flow of feature, or traditional school where classroom flexibility is minimal, as is \$/sq.ft.-budget. Special needs children? Is it in a community with a desire for expressive architecture? Although we may

approach any project as $WL^{2/8}$, the need or desire to bend and stretch our tools may be based on our understanding of the shared vision developed by the other designers and the owners for months before we were ever involved. Bottom line — a “simple school” is always more complex than it looks, and since we design “by committee,” we have to know how to communicate with that committee.

Know the history, share the story, and explore **your** art. We both come from the worlds of Eiffel and Calatrava.■

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