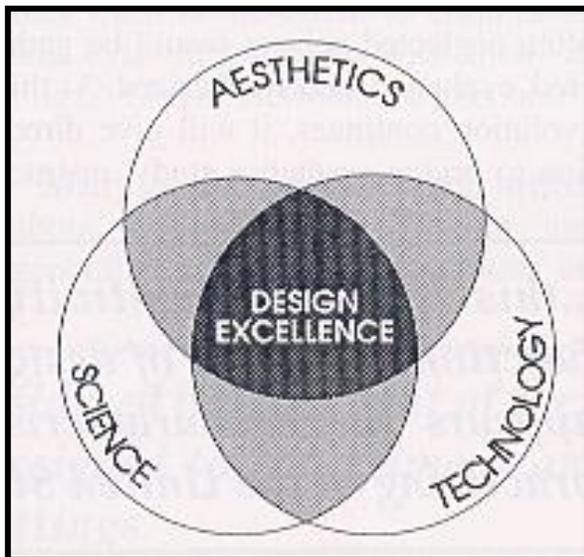


Bridge Aesthetics

What makes a bridge look good? This is what today's bridge engineers are learning as they rediscover the lost practice of bridge aesthetics. Bridge aesthetics is the use of applying accepted principles in the design and details of bridge construction so that its resulting appearance compliments the surrounding environment.

Bridge aesthetics have evolved over the centuries, but have been mostly a lost art in the United States since the 1940's. Following World War II, many engineers considered bridge aesthetics merely as adding decoration and unnecessary cost to their bridges. While California engineers never stopped designing aesthetic bridges, Ohio and other states have only recently begun to again incorporate aesthetics in bridge projects.

So, what's the big deal about making a bridge look good? The underlying philosophy of a good bridge design is that it is the union of technology, science and aesthetics. (See figure below.) These three aspects each represent a part of making a bridge: science represents the design and function of the bridge, technology represents methods and costs of constructing the bridge, and aesthetics is the pleasing appearance. If a big design incorporates all three aspects, it has achieved design excellence. For example, a bridge can be made to appear light and majestic (aesthetics), yet without strength (science), it may collapse. Conversely, a bridge can be made very strong, using large members (e.g. girders, concrete piers), but this would produce a bulky design (no aesthetics), and one that may be viewed as an over-design and a waste of money. In other words, the bridge should be not too big, not too small, but just right for its location.



Three Aspects of Design Excellence
From "Achieving Excellence in Concrete
Bridge Design," By Martin Burke, Concrete
International, August, 1995

Good appearance is often associated with bridges that efficiently respond to the flow of forces in the structures. For miniature balsa wood bridges, the primary factors affecting its aesthetic appearance are:

1. Geometry (including symmetry)
2. Structure Type
3. Structure Shape

Many other factors, large and small, affect bridge aesthetics in the real world. Large-scale aesthetic design considerations not only involve structure type and shape, but also pier placement and shape, abutment and wall placement. Smaller scale, or detailed, aesthetics decisions include color, surface patterns, textures and ornamentation on the bridge. All of these features should compliment the surrounding environment, whether it's rural, urban or industrial.

One concluding warning must be made. In practice it is better to have an ugly but safe bridge rather than a flimsy, unsafe but attractive bridge. Attractive or ugly, the primary goal of a bridge is to provide safe passage for the loads it must carry.