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When the topic of sustainable design is discussed within a design team, the input of Structural Engineers is often limited to discussions on the recycled content of construction materials such as steel and concrete. Sustainable design, however, is also about the efficient use of materials. Baldrige & Associates has a record of focusing on **sustainable design** approaches to optimize a wide range of building types and development projects.

- Our commitment to sustainable design includes structural engineering staff with *LEEDS certification*, a continued focus on reducing material consumption through *efficient structural design*, and the desire to work with architectural, mechanical and electrical team members to *incorporate sustainable approaches*.

- The **Council on Tall Buildings and Urban Habitat** invited Steven Baldrige to speak in their Advances in Sustainable Design session about *Structural System Optimization: A Sustainable Design Strategy* at this year's 7th World Conference. Themed "*Renewing the Urban Landscape*," the conference took place in New York City on October 16-19, 2005.

- Most recently, Baldrige & Associates has been working closely with Joe Nicolai of the JN Automotive Group, who is committed to incorporating sustainable design into new buildings. One result of this collaborative working relationship is Harley Davidson Cycle City. This project included studies to incorporate wind generated electrical power and photo voltaic cells. To minimize the use of other building products such as gypsum board, the structure of the building exposes recycled steel as part of the architectural design.

- **Value-Engineering:** Structural optimization to provide the required, or an enhanced, level of performance at reduced cost and/or shorter construction duration. Some examples on high rise buildings include:

- ▷ *909 Kapiolani* – A 225-unit, 33-story residential project. Typical tower slab, shearwalls and foundations were studied. Through this work, BASE assisted the team in eliminating over 100 tons of reinforcing steel.

- ▷ *Watermark* – A 38-story residential project. BASE suggested options to optimize the slabs and shearwall layout potentially saving over 900 cubic yards of concrete.

"More attention is being paid these days to Sustainable Design. Recent material price increases, further evidence that global consumption is on the rise, has raised both awareness and the need to design for the efficient use of material. From a structural engineering standpoint, the most significant contribution to sustainable design can be made by optimizing the structural systems to reduce material requirements on a project."