

EMA'S ENGINEERING TODAY

MAY 2013

Information and Helpful Hints for School Districts and the Architects who serve them.

“Throughout the integrated design process, EMA helps all project stakeholders collaborate in ways that enable a more evidence-based design process, catapulting the team past crippling behaviors typically rooted in contractual divisions.”

Kent Beason

*BS Mechanical Engineering;
MS Energy & Sustainable Building
Design*



**Estes, McClure
& Associates, Inc.**
Engineering and Consulting

EMA can help you make an easy choice: Traditional vs Integrated design process

Despite energy modeling advancements that have spanned 30+ years, among some the mode of interaction among a project's team members has not changed. At some point, teams that operate in a traditional approach will fall behind an integrated design movement that ultimately serves to deliver a building that uses less energy and more effectively implements all trades' expertise. This article briefly discusses the differences between the traditional and integrated design processes and how the energy modeling effort is exercised in both cases, with a focus on integrated design. It will also discuss how EMA can help a team deliver a successful project.

Traditional

The whole building energy model is a low priority. In many cases, the energy model is not completed until after detailed design is completed, and at that point, the energy model's ability to impact the design has been relegated from that of a tool of persuasion, to a checklist item. All trades perform work per contract separations with minimal collaboration. Design choices are largely governed by upfront costs, giving little or no regard to the building's life cycle energy usage. In this respect, there is an unfortunate gap in communication with the Owner and/or future occupants of the building.

Integrated

The whole building energy model becomes a high priority including daylight benefits and analysis. The focus of project costs shift from upfront to life cycle assessment which better links the Owner who has a vested-interest in the energy performance of the building. A project kickoff design charrette serves as a meeting where team members introduce one another and work to develop a vision for the project. The project's vision can include qualitative ideas and/or quantitative specific goal(s). Sometimes the goals developed in the charrette are based upon preliminary assessments performed by the Owner or architect. All stakeholders participate, including the Owner's representatives, future occupants, and all professional trades in the project who discuss performance goals and associated energy modeling efforts. Dependent on each specific project, EMA performs some of these tasks in the traditional approach. The whole building energy and daylight modeling is especially beneficial in sustainable designs.

What EMA brings to the Integrated Design Process

- EMA utilizes simulation tools that can fully integrate with architectural software tools (ie. Revit, Sketchup) where appropriate, making energy modeling iterations as seamless as possible.
- EMA creates and translates a project's vision into actionable items.
- EMA utilizes leading edge tools for conducting sustainable design analyses and can make valuable contributions in delivering a successful project from the very beginning.
- EMA develops a building-type energy model during early design stages like pre-design and conceptual design, adding more detailed simulation data through schematic and detailed design, conforming to ASHRAE 90.1 Appendix G guidelines.
- In schematic design modeling, EMA conducts performance comparisons of key building features and energy systems, all of which are communicated in terms of life cycle cost analyses.
- EMA works with all team members to finalize the energy model during the construction document phase. We can also work to calibrate the energy model during post-construction where more energy reduction opportunities are uncovered.

In addition to energy and daylight modeling for MEP projects, EMA provides independent consulting services for both architects and school owners. **Please contact Kent Beason, Mike Clendenin, P.E., Gary Bristow, P.E., for discussion and additional information of these fee-based energy and daylighting modeling services.**



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*Providing Solutions
That Deliver Results*

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Technology	
CONSULTING	SCHOOL EXPERIENCE
Commissioning	39 years
Communications	585 Texas ISDs
Emergency power	47 colleges and universities
Energy	Other schools throughout the country

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**Don't miss out on
Texas LoanSTAR
revolving loans!**

The Texas LoanSTAR Revolving Loans program finances energy related cost-reduction retrofits for public school districts, colleges, and universities. Low interest rate loans enable successful applicants to implement their energy-related cost-reduction efforts at their facilities. The program's revolving loan mechanism allows applicants to repay loans through the stream of energy cost savings from the projects.

There is about \$40 million available with maximum loan amount of \$7.5 million for any one application. Applications are due early June 2013. **Please contact EMA's Gary Bristow, P.E., Josh Gentry, P.E. or Cameron Symes, P.E. to learn how to take advantage of this opportunity.**

COMPANY SPOTLIGHT

Dave Anderson of Express Leadership University conducted an in-house workshop "Communicating for Leaders" for EMA employees.

Cameron Symes, P.E. presented "Building Optimization and Sustainability" at the recent Council of Education Facility Planners International meeting in Austin, Texas. Watch future EMA newsletters for a briefing on this topic and contact Cameron directly at csymes@estesmclure.com.

James McClure, P.E. (Retired) presented "Green Building Codes" and "Net Zero Energy Buildings" for the East Texas Chapter – ASHRAE technical meeting held at EMA.

EMA would like to welcome **Kent Beason, BS Mechanical Engineering; MS Energy & Sustainable Building Design**. His experience includes HVAC loads, Energy Modeling, Daylight Modeling, Computational Fluid Dynamics analysis, Thermal Massing, Natural Ventilation, Sustainability and Energy Audits.



Kent Beason