

EMA'S ENGINEERING TODAY

Providing Solutions that Deliver Results

JANUARY 2010

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

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

Commissioning Can Locate and Resolve Potential Problems

Commissioning is a quality process to help ensure that building systems are installed according to the design intent and are operating properly. There are essentially four types of commissioning that can be performed.

1. **New buildings commissioning** – for newly constructed facilities
2. **Re-commissioning** – for buildings previously commissioned at construction
3. **Retro-commissioning** – applied to existing buildings never commissioned
4. **Scheduled commissioning** – to optimize building performance based on the recurring collection and analysis of energy data

The main objective of commissioning is to verify that a facility's building systems operate as designed. For energy-using systems such as HVAC, this improves optimization and potentially increases energy efficiency. Systems that may be included in the process are HVAC, controls, lighting, security, and emergency power.

The potential benefits of commissioning include:

- Improved IEQ
- Lower energy use and costs
- Fewer deficiencies in new buildings
- Better occupant comfort
- Improved documentation



During the commissioning process instrumentation is used to gather data to evaluate systems performance.

Studies indicate that common problems in new schools involve mechanical and electrical systems, controls, and fire alarm/life safety systems. Frequent operational issues include temperature control problems, HVAC problems, faulty sensors, and specified equipment that is missing. Most of these matters could be resolved at the beginning through building commissioning.

All new buildings are required to meet applicable codes. However, because equipment or devices are installed to comply with code requirements does not mean that they are best suited for the application, the most efficient choice, or that they will operate properly. Commissioning goes beyond basic construction observation or test and balance for HVAC systems. It is a more comprehensive process to find potential problems with building systems and resolve them.

Five Points To Help With New Building Design

This is the second installment in a series of articles on building systems coordination between the architect and engineer. In this issue we focus on the relationship between architectural features and mechanical systems.

1. Understand the owner's preference for HVAC systems during the schematic design of the building.
2. Eliminate or minimize mechanical equipment above ceilings to facilitate maintenance.

3. Locate all indoor mechanical rooms or outdoor courtyards away from noise sensitive spaces.

4. For LEED and energy conservation projects, it is a good idea to consult with the mechanical engineer for optimum orientation of the building.

5. Identify large structural elements as early as possible and verify they will not conflict with mechanical pathways

We'll Be There...Stop By and See Us!

TASA Midwinter Conference
 Austin (Convention Center)
 January 25 & 26
 Booth #312

TASBO Annual Conference
 Fort Worth (Convention Center)
 February 16-18
 Booth #602

Learn More About Senate Bill 300 at TASBO

Do you have questions regarding senate bill 300? Plan to attend our educational session "Senate Bill 300 - Simple Steps to Saving" presented by EMA Sr. Vice-President Gary Bristow and Richardson

ISD Energy Manager Ed Sheftall. This session will explain how to comply with legislation and other simple steps to saving energy. Check conference guide for location of Feb.18, 2010 session at 3 p.m.

ENGINEERING

Air conditioning
 Communications
 Controls
 Electrical
 Energy
 Lighting
 Mechanical
 Plumbing
 Technology

CONSULTING

Communications
 Emergency power
 Energy
 Fire/Safety
 Lighting
 Master planning
 Media
 Research studies
 Sustainability
 Security
 Technology
 Workshops/Training

SCHOOL EXPERIENCE

36 years service
 585 Texas ISDs
 47 colleges and universities
 Other schools throughout the country



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Energy Efficiency Workshop for Texas Public Schools

February 5 • 9 a.m. - 12 p.m.
 Region 10 Education Service Center
 400 E. Spring Valley • Richardson, Texas

Topics will include:

- Energy management basics
- Energy efficient school design
- Maintenance/Energy/IPM
- Energy efficient retrofits

Presented by EMA. There is no charge for public school personnel to attend. Please contact Amber at 903/581-2677 to register.

Tyler ISD Awarded Gold Designation

Tyler ISD recently received a "gold" designation from Texas State Comptroller Susan Combs. The recognition comes for maintaining a high level of financial transparency online. Congratulations to TISD.

Sherman ISD School Recognized

Sherman ISD's new Percy W. Neblett Elementary School was recognized in The Building of America Magazine for extensive use of natural daylighting. EMA provided the MEP engineering for the project.

Test Your Knowledge

1. Ground source heat pumps require one well per ____ ton(s) of unit capacity.
 - a. 0.5
 - b. 1
 - c. 5
2. The average depth of a well for a ground source heat pump in this area is about ____ feet.
 - a. 100
 - b. 300
 - c. 500
3. Water source heat pumps reject building heat picked up during the cooling cycle to _____.
 - a. the ground
 - b. the atmosphere
 - c. a cooling tower
4. To avoid excessive ground warming in the well field, which can adversely affect efficiency during the cooling season, wells are spaced about ____ feet apart.
 - a. 5
 - b. 20
 - c. 50

COMPANY SPOTLIGHT

EMA is proud to announce they have two new certificates to hang on their walls. Congratulations to **Jason Reed** and **Tonya Newsom** on becoming two of Texas' newest licensed engineers. EMA has a total of 15 licensed engineers.



Jason Reed



Tonya Newsom

1, 2, 3, 4, 5