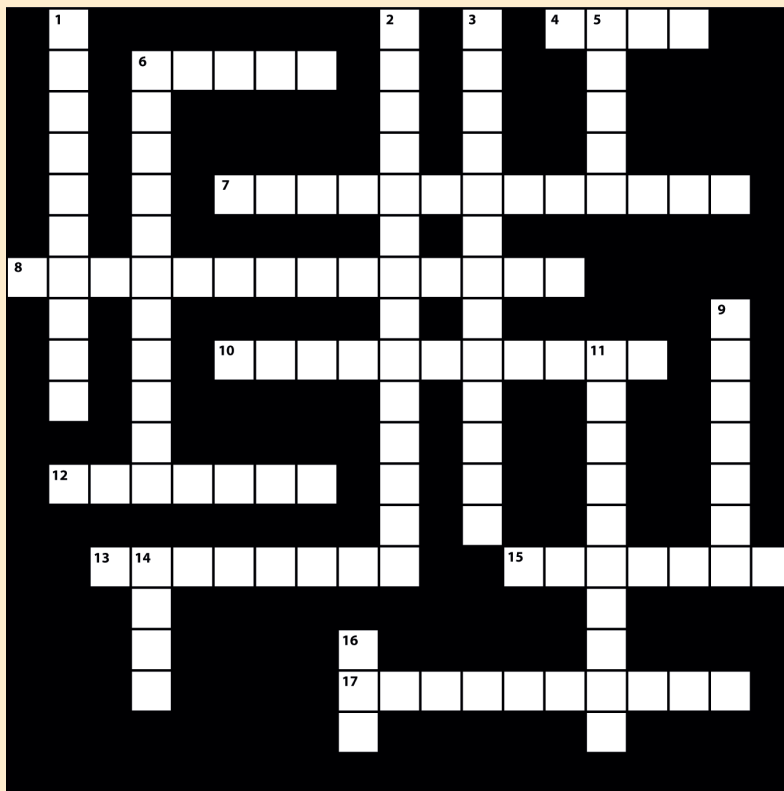


Take the HVAC CHALLENGE™

BY STEVEN G. LIESCHEIDT, P.E., CSI-CCS, CCPR

▶ Integrated Building Design



ACROSS

- These activities may be used to optimize individual discipline solutions in response to the schematic design development package.
- This type of engineering is similar to life-cycle cost analysis and may be performed at any phase of design.
- This is a systematic process of applying QA/QC procedures to the design and construction of a building to verify that key elements of the design, in fact, constructed as designed and started, tested, operated, and maintained so that the building meets the designer's intent and owner's expectations.
- These objectivities may define where facility infrastructure can be located so that replacements can be made when the useful life has expired.
- These reviews should be conducted during the design development and construction document phases of design.
- In the budgeting process, these sources should be planned to cover anticipated professional services fees, capital construction costs, contingencies, escalation

costs, maintenance costs, utility/energy costs, and occupant costs.

- These are the graphic representation of the work on a project and include plans, elevations, sections, details, legends, notes abbreviations, and schedules.
- This type of water is essential to life and faces continuous pressures relative to availability and quality.
- This design process discourages sequential philosophy and promotes holistic collaboration of the project team members during all phases of project delivery.

DOWN

- Design team members should have a high degree of this, along with knowledge gained through education and experience on similar projects.
- These describe the administration, quality, products materials, workmanship, warranty, testing, and start-up requirements of the work of a project.
- These priorities may dictate that some infrastructure have unique requirements to ensure proper performance and ser-

- viceable attention during the operational life of the facility.
- Reconfiguring a space or changing its use.
- This effectiveness term deals with the practical and reliable means of providing ventilation air into the breathing zone of the facility occupants.
- This comfort is part of the total IEQ of a facility and may or may not be a critical objective.
- This comfort may require specific focus because of the nature of activities inside and around the facility and is part of the IEQ objectives of a building.
- This type of management includes comprehensive record keeping, timely, and accurate communications and systematic, consistent application of written standard office procedures.
- The process of using intelligent graphic and data modeling software to create optimized and integrated building design solutions.

To brush up on the facts behind this month's clues, refer to Chapter 57 ("Integrated Building Design") in the 2007 *ASHRAE Handbook - Applications*.



Liescheidt is a sales engineer with Langendorf Supply Co., Inc. in St. Louis, MO. E-mail him at stevel@lisco-inc.com

Thank you to all of the *ES* magazine readers who have used the "HVAC Challenge" as a means to continue your learning about subjects written in the *ASHRAE Handbook*. It has been my pleasure to provide this alternate testing game to encourage you to learn. I especially thank *ES* magazine for the opportunity to publish the HVAC Challenge for the past several years. — Steve Liescheidt

Can't wait until next issue?

Now, check out the answers for this month's "HVAC Challenge" on page 65.

Solution to November's HVAC Challenge™

