## Continuing Education from *Plumbing Systems & Design*

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Do you find it difficult to obtain continuing education units (CEUs)? Is it hard for you to attend technical seminars? ASPE has a new program to help you accumulate the CEUs required for maintaining your Certified in Plumbing Design (CPD) status.

ASPE features a technical article in every issue of *Plumbing Systems & Design (PSD)*, excerpted from its own publications. Each article is followed by a multiple-choice test and a simple reporting form.

Reading the article and completing the form will allow you to apply to ASPE for CEU credit. For most people, this process will require approximately 1 hour. A nominal processing fee is charged—$5 for ASPE members and $25 for nonmembers (until further notice, the member fee is waived). If you earn a grade of 90% or higher on the test, you will be notified by return mail that you have logged 0.1 CEU, which can be applied toward the CPD renewal requirement or numerous regulatory-agency CE programs. (Please note that it is your responsibility to determine the acceptance policy of a particular agency.) CEU information will be kept on file at the ASPE office for 3 years.

No certificates will be issued in addition to the notification letter. You can apply for CE credit on any technical article that has appeared in PSD within the past 12 months. However, CE credit only can be obtained on a total of eight *PSD* articles in a 12-month period.

## Continuing Education Questions—"Control of Plumbing Noise in Buildings" (*PSD* 114)

**1. One of the major factors influencing whether the flow of waste water in a piping system is laminar or turbulent is**
a. the volume of water.
b. the flow velocity.
c. the temperature of the water.
d. the type of piping material.

**2. The Reynolds number formula is used to determine**
a. pipe size.
b. turbulent or laminar flow.
c. pumping capacity.
d. density of the fluid.

**3. What can happen where a local restriction exists in the water flow in a pressurized piping system?**
a. Pressure increases.
b. Velocities decrease.
c. Water hammer occurs.
d. Cavitation occurs.

**4. The sound level of waste water flowing in a drainage system is typically**
a. 20 to 25 dB(A).
b. 25 to 30 dB(A).
c. 30 to 35 dB(A).
d. 35 to 40 dB(A).

**5. The rapid closure of a valve in a pressurized piping system causes**
a. water hammer.
b. pressure drop.
c. increased velocity.
d. none of the above.

**6. One source of pump noise is**
a. too high a water temperature.
b. low outlet velocity.
c. imbalanced motor bearings.
d. pump casing interior finish.

**7. Noise control elements of the design and specifications do not include**
a. radiation to the structure.
b. water-hammer noise control.
c. plumbing fixture specifications.
d. pump system isolation.

**8. A 3-dB to 5-dB reduction in sound level can be obtained by**
a. decreasing velocity in the piping network.
b. reducing the number of tee and elbows in the piping network.
c. decreasing the water pressure in the system to 55 psi maximum.
d. using W diameter piping.

**9. Noise levels can be reduced by as much as 15 dB by**
a. using water taps that incorporate an aerator in the spout.
b. using ball valves.
c. using gate valves.
d. none of the above.

**10. Noise control mitigation for pumps often includes**
a. vibration isolators to support the pump and motor.
b. flexible connectors between the pump motor, piping and electrical connections.
c. an inertia base.
d. all of the above.

**11. Which of the following water closets is one of the most quiet?**
a. Wash down
b. Siphon vortex
c. Siphon action
d. Reverse trap

**12. A reduction of 10 to 12 dB can be obtained by**
a. rigidly attaching the piping to the structure.
b. sealing all penetrations at the shower wall.
c. using foam isolators on pipe hangers and brackets.
d. none of the above.