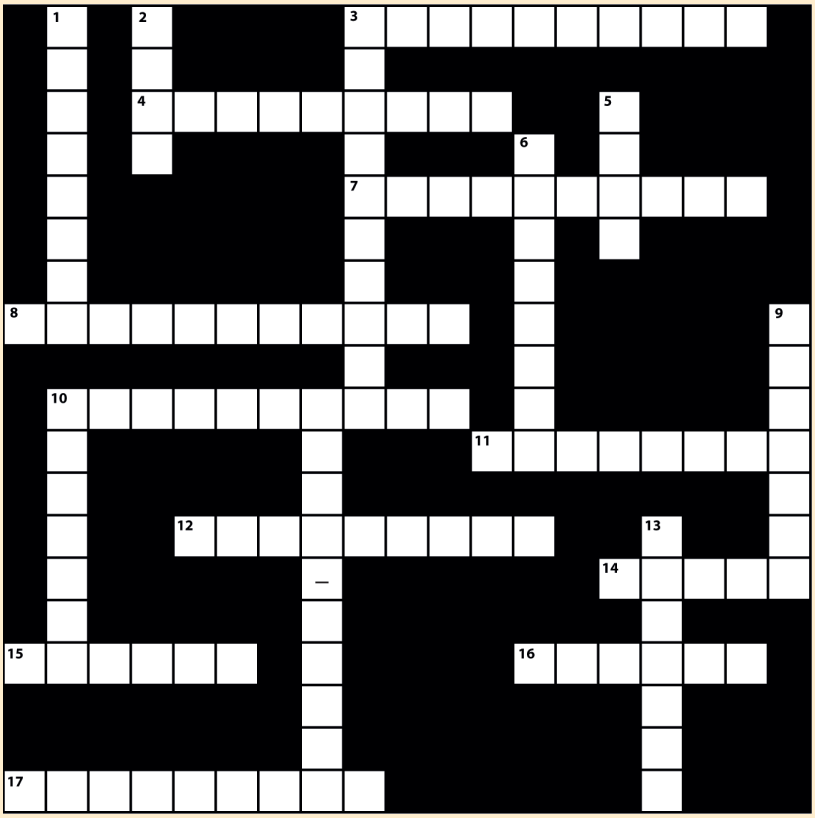
Take the HVAC CHALLENGE™

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

Insulation For Mechanical Systems



ACROSS

3. These types of stainless steels are particularly susceptible to attack from chlorides.
4. This under-insulation is most prevalent in outdoor industrial environments such as refineries and chemical plants.
7. These insulations and treatments are added to surfaces to lower long-wave emittance.
8. This loss is noise absorbed within the duct.
10. This insulation thickness is the thickness of insulation that, if installed on a flat surface, would equal the heat flux at the outer surface of the cylindrical geometry.
12. These insulations are composed of small nodules that contain voids or hollow spaces.
13. This loss is a measurement (in dB) of the reduction in sound pressure level from a pipe as a result of application of insulations and jacketing.
15. These are used for hot piping of large diameter and where significant pipe movement is expected.
16. This conservation minimizes unwanted heat loss/gain from building HVAC systems.
17. This organization publishes *Standard 90 – Energy Standard for Building Except Low-Rise Residential Buildings.*
18. An insulation design objective for protection against contact burns.

DOWN

1. This type of noise is from vibration of the duct walls caused by air pressure fluctuations in the duct.
2. This organization publishes the *National Commercial and Industrial Insulation Standards.*
3. Noise from piping can be reduced by adding this type of insulation and jacketing material.
5. This organization publishes the *Standard Test Method For Measuring Compressive Properties Of Thermal Insulations.*
6. These insulations are composed of small, individual cells, either interconnecting or sealed from each other.
9. These insulations are composed of small diameter fibers that finely divide the air space.
10. One of the most important considerations in choosing internal duct insulation is resistance to this air effect.
11. This type of economic thickness costing considers the initial cost of the insulation system plus the ongoing value of energy savings over the expected service lifetime.
14. This type of insulation is primarily used to limit heat gain or loss from surfaces operating at temperatures above or below ambient temperatures.

To brush up on the facts behind this month's clues, refer to Chapter 26 ("Insulation for Mechanical Systems") in the *2005 ASHRAE Handbook - Fundamentals.*

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

Solution to December's HVAC Challenge™