Take the HVAC CHALLENGE™

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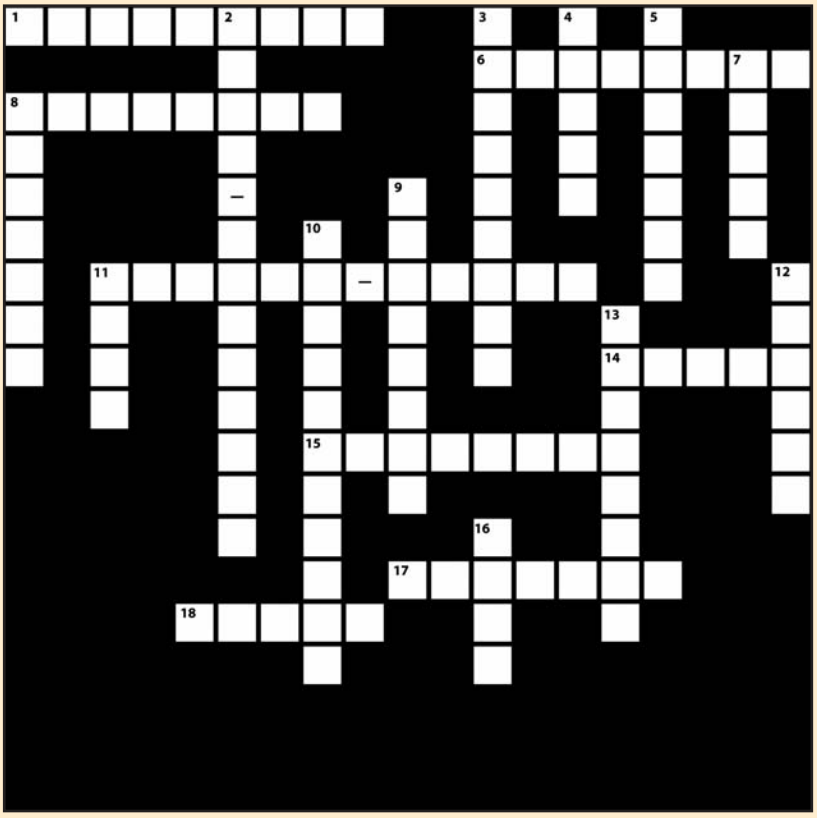
Automatic Fuel-Burning Equipment



ACROSS

1. These types of stokers introduce raw coal into a retort beneath the burning fuel bed in solid-fuel-burning equipment.
6. This compensation should be made if the application is higher than 2,000 ft above sea level.
8. This is the term used to describe modulating control systems that position the fuel oil control valve and the forced-draft damper in a predetermined relationship.
10. These types of burners include an air shutter, a venturi tube, a gas orifice, and outlet ports.
11. This type of unitary heater is used to temper the outside air supply and the combustion gases of the heater, and is mixed directly with large volumes of outside air.
14. These types of burners use a fan to supply and control combustion air.
15. This is the term used to describe when the burner fans starts so the furnace or combustion space, the gas passages of the heat exchanger, and the chimney connector are purged of any unburned combustible gases.
17. An automatic one of these is necessary for safe operation and is an essential part of the automatic control system.
18. A mechanical stoker is used when this form of fuel is used.

DOWN

2. This is a modulating control that maintains the proper ratio of air to fuel throughout the burner range with an air/fuel ratio controller.
3. This type of unitary air heater is generally designed for use in large spaces such as airplane hangers and public garages.
4. This type of boiler is available in cast iron, steel, and nonferrous metals.
5. These are devices that feed a solid fuel into a combustion chamber in solid-fuel-burning equipment.
7. Combustion controls function properly with a reasonable constant building depressurization and furnace _____.
8. This sensor monitors the effect of the fuel-burning equipment on the controlled variable.
9. This type of unitary heater is used extensively for heating factories, foundries, sports arenas, loading docks, garages, and other installation where convection heating is difficult to apply.
11. This type of unitary heater is usually like a unit heater without the fan and is used for heating air in system with bowers provided to move the air through the system.
12. This component of automatic fuel burning equipment can use oil, gas, or coal as a fuel source.
13. These types of stokers use a combination of suspension burning and grate burning in solid-fuel-burning equipment.
16. This type of unitary air heater is used extensively for heating spaces such as stores, garages, and factories and consists of a burner, a heat exchanger, a fan for distributing the air, a draft hood, and automatic pilot and controls for burners and the fan.

To brush up on the facts behind this month's clues, refer to Chapter 26 ("Automatic Fuel-Burning Equipment") in the *2004 ASHRAE Handbook — HVAC Systems and Equipment*.

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Solution to January's HVAC Challenge™