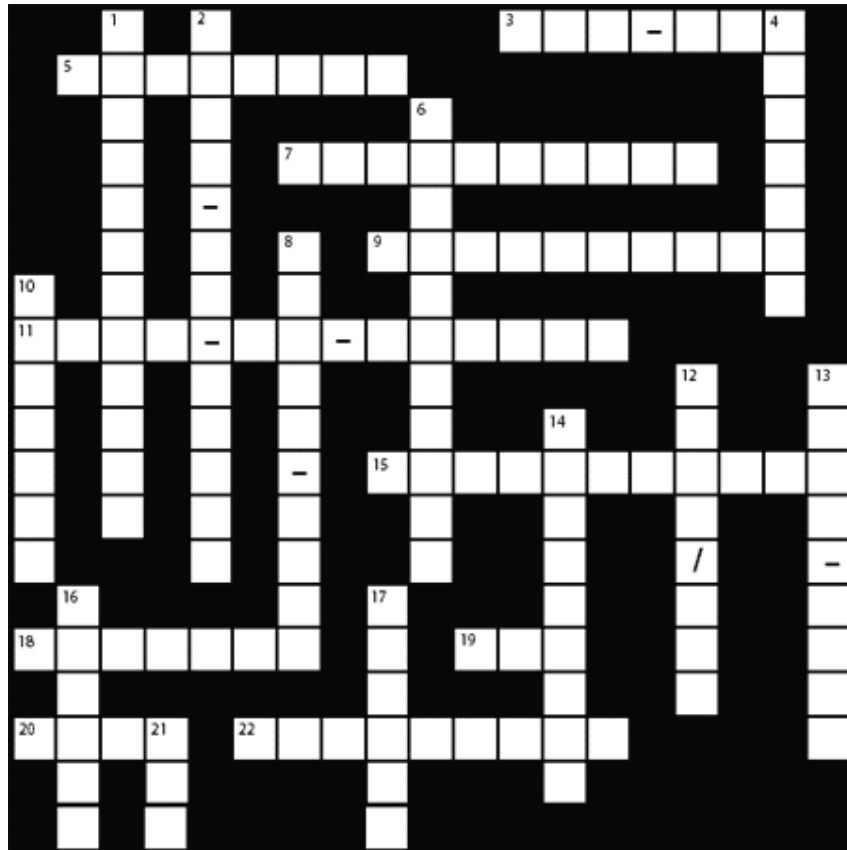


Crossword Puzzle: Load Calculations



ACROSS

3. This temperature is the temperature of the outdoor air that, in the absence of all radiation changes, gives the same rate of heat entry into the surface as would the combination of incident solar radiation, radiant energy exchange with the sky and other outdoor surroundings, and convective heat exchange with the outdoor air.

5. Examples of this form of heat gain to a space are people, lights, equipment, and appliances.

7. The heat gain from these types of devices in the space need to be taken into account; however, the data is generally very subjective and often taken from nameplates.

9. These transfer functions relate conductive heat fluxes to the current and past surface temperatures and the past heat fluxes.

11. Cooling load caused by lights recessed into ceiling cavities is partly made up of this component, which goes to the return air plenum of the space being heated and cooled.

15. Outside air that is introduced through the air conditioning equipment.

18. This portion of air out of (or into) ductwork can have a much greater impact on the load calculations than conventional duct heat gain or loss.

19. This heating and cooling method is a simplified method directly related to and derived from the

heat balance method.

20. It is normally estimated that the heat gain to this section of the supply air transport system is a certain percentage of the space sensible cooling load and it is applied to the db temperature of the air leaving the coil in the form of an equivalent temperature reduction.

22. This data rarely reflects the actual power consumption of office equipment.

DOWN

1. The heat load from this type of air is immediately mixed with zone air in the well-mixed model for zone air calculations.

2. Cooling load caused by lights recessed into ceiling cavities is partly made up of this component, which goes to the space being heated and cooled.

4. This time series method is a new simplified method for performing design cooling load calculations that is derived from the heat balance method.

6. This type of light fixture typically has a special allowance factor based on whether they are designed to allow air to pass through them to the return air plenum or not.

8. This radiation from lights is usually assumed to be distributed over the surfaces in the zone in some manner.

10. These exterior devices (roof overhangs, side fins, or other buildings) cause nonuniform loads that require hourly calculations on separate segments of the window being affected.

12. Cooling load temperature differential method with solar cooling load factors.

13. The two limiting cases for modeling this internal radiation exchange are zone air that is completely transparent to this radiation and zone air that completely absorbs this radiation from surfaces in the zone.

14. The ratio of the measured peak electrical load at the equipment panel to the maximum electrical load of each individual item of equipment.

16. These types of air-handling light fixtures are generally either ones that allow or don't allow air to pass through them.

17. These load calculation factors (allowances) were sometimes as much as 10% to 20% before buildings were constructed as airtight as they are today.

21. This heating and cooling calculation method was originally designed for energy analysis with emphasis on daily, monthly, and annual energy use.

To brush up on the facts behind this clues, refer to Chapter 29 ("Load Calculations") in the *2001 ASHRAE Fundamentals Handbook*.

(* Adapted from the journal *Engineered Systems*, February 2003)