

Why use it if it won't solve your health problem, or worse, introduce one? We can report that the machine was satisfactory from both angles.

Since there are few basic laws of ventilation design, since nearly every job must be tailor made, since we cannot be sure the job is right when it is on the drawing board, we must depend on our own past experience, the experience of others, and the standards for safe limits as developed in the field of hygiene. In other words, ventilation may be in large measure empirical - the result of trial and error. Errors can be expensive, but if consideration is given to the factors just enumerated, they can be eliminated or kept to a minimum.

Now if an engineer designs a system of exhaust ventilation, our tests will indicate whether minor or major alterations are necessary or whether the system is performing properly. Such knowledge will add to the peace of mind of the conscientious engineer. You can't tell by eyesight always.

The fallacy of considering an operation safe because no visible dust is evident has been demonstrated. We found lead contamination in the office at Pittsburgh; and at the old Meadville plant, recirculated air contained a good percentage of the fines and came close to making a lead intoxication case in an area that you would not suspect. The hygienist and engineer should bear in mind that there is a natural tendency to believe our eyes.

Another fallacy current is to rate the need for ventilation on the basis of composition of the parent material used or processed. Let me illustrate. Consider a wall made of 90 per cent quartz rock and 10 per cent lime mortar. A workman begins demolishing the wall with a jack-hammer. The dust produced will be overwhelmingly mortar dust, a fact that bears no relation to the original composition of the wall.

We have been told that a parting compound contains less than 5 per cent free silica and that a copper casting contains no lead. Therefore, why exhaust a processing operation? Here again we must think in terms of industrial hygiene. How much silica is the man breathing? In the case of the copper castings, are you speaking metallurgically or hygienically?

Therefore, I should think that an engineer would want to know how well he has designed so that he can profit by his experience. For example, you can't tell Al Shafer that he doesn't know how to design a burning table; he knows from our tests that his design is 100 per cent effective. It will be an easy matter for him to work out a second table.

For the present ventilation project at National Bearing St. Louis, we have worked right along with the Engineering Department. Design and test has been the procedure until now we feel a good practical exhaust system has been developed.

We were also called on to make studies on the effectiveness of a Ruemelin exhaust for cupola fume. We were able to report that the method is impractical. Suppose these units had been installed division-wise before their effectiveness in this application was known?

We have been able to show that an overhead ventilator above a fume producing operation had absolutely no effect on improving the atmosphere around the men most severely exposed. Such information in the hands of the plant engineer is helpful. He won't repeat the mistake!