

H. PNEUMATIC CONVEYING SYSTEMS

Light bulky materials, such as wood shavings, textile fibers, paper trimmings, ground cork, and grain products, can be transported by air without excessive power requirements and without damage to the materials or conveying equipment. Conveying velocities may be of the same order as for dust-handling systems, or they may be much higher, as indicated in Table 15, with resultant increase in the power requirement. The quantities of air required for pneumatic conveying vary approximately from 100 cu. ft. per pound of light fluffy material such as "open cotton" at 3000 l.f.m. to about 25 cu. ft. per pound of heavy solid material at 8000 l.f.m.

I. CONSTRUCTION SPECIFICATIONS FOR VENTILATING SYSTEMS

The designer should obtain the codes and standards that apply to his industry, state, or trade association to be certain that his preferences do not conflict with locally established practice. It is not possible to formulate uniform specifications that will have nation-wide acceptance without removing most of the details that would be of interest. Furthermore, construction materials, methods, and standards are improving yearly.

The annual *Guide* of the American Society of Heating and Air-Conditioning Engineers is suggested as a source of information on construction features that will be kept reasonably up to date by the frequent revisions prepared by authorities among the Society's membership. The Committee on Industrial Ventilation of the American Conference of Governmental Industrial Hygienists has published a loose-leaf reference book incorporating the recommendations of industrial hygiene engineers on construction and use of ventilating systems. Among state codes, the most widely publicized in the field of industrial ventilation are those prepared by the Division of Industrial Hygiene of the New York State Department of Labor. The American Standards Association's list of approved and adopted codes on ventilation is already substantial and continues to grow. It is an increasingly important source of technical and design information as professional organizations assemble their material for submission to the

J. MAINTENANCE OF VENTILATING EQUIPMENT

Too frequently the designer has no further control over the ventilating system after it is placed in use. Whether he made provisions for alterations and additions, or issued instructions that no change must be made without a review of the design, the fact remains that sooner or later something will be done to upset the original plan, and place new burdens upon the fan, collector, and ductwork for which they were never prepared. Accordingly, the alert redesigner or investigator will proceed with caution when appraising the original design.

innumerable failures in mechanical ventilation are due to inadequate care in maintenance, and this applies to nearly every part of the system, whether stationary or movable. When it is realized that contaminated air is in constant motion through the hoods, ducts, cleaners, and fan, it is readily appreciated that the entire air-handling equipment should be classified as dynamic rather than static. Transparent ducts would settle this point beyond doubt in many cases.

Perhaps the best assurance that mechanical ventilation is functioning properly is a scheme of periodic inspection and testing. Volume III outlines the practical methods of observing and measuring air flow. Successful maintenance engineers have learned to use these reliable methods of measurement to ensure high class performance.

General References

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