force upon specially shaped blades of an exhauster wheel, and then conveyed through a dust circuit in the fan casing to the dust storage hopper.

4. *Cinder Catching Fan.* This is a special type of collector in which removal of solids is effected by a slotted scroll. It is a fan unit which is often used for the dual purpose of dust removal and induced draft service.

SETTLING CHAMBERS

While it would be possible in theory to remove dust by settling in a large chamber when conveying velocities are reduced to the point where the particles would no longer be held in suspension, such devices have little practical application in dust collecting equipment. Extreme space requirements and the presence of eddy currents which may nullify the effective velocity, means that settling chamber type of collectors can be used only for removal of extremely coarse particles. Pressure drop should be $\frac{1}{4}$ to $\frac{1}{2}$ in. water column plus that necessary to accelerate the air motion to the required conveying velocity at discharge of the settling chamber.

TESTING METHODS

Methods of determining the performance of industrial air cleaning devices will depend upon the nature of the air contaminant, its quantity, the required accuracy of the test, and the type of air cleaning device. The technics used in collecting the samples are the same as those utilized in the field of industrial hygiene.

The tests may be facilitated by feeding uniformly a known amount of the material to be removed. The performance efficiency may be calculated from the amount of material introduced, the quantities of air involved, the amount of material intercepted and the quantity that escapes. When it is necessary to test the device under actual use, the material entering and leaving must be sampled simultaneously over a sufficiently long period of time to collect an adequate amount for analysis. If feasible, the quantity of material removed by the cleaning device during the test period should also be determined.

Unusual care must be exercised in collecting the samples to insure that the sampling areas selected are actually representative of the material entering and leaving the cleaning device. With gases, vapors and fresh fumes this problem is not great. On the other hand, mists, dusts and aged fumes may present considerable trouble. When the material is confined in a duct system, it is common practice to collect the sample along the center-line. The sampling tube is located parallel with and facing the flow. The sampling velocity should be approximately the same as the air velocity in the duct. With large ducts it may be desirable to make traverse tests to locate an optimum sampling position.

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