W. B. CONNOR ENGINEERING CORP.

Danbury, Conn. — Representatives in All Principal Cities

In Canada: Douglas Engineering Co., Ltd., Montreal, P. Q.

Air Recovery — Air Purification

WHERE TO APPLY AIR RECOVERY

Air Recovery is simply the conversion of foul or stale air to fresh air. It has been used to advantage wherever air is conditioned to enhance comfort, raise production efficiency, extend food preservation or protect product quality. Depending on the source of contamination, Dorex Air Recovery Equipment has been installed to remove odors and other gaseous impurities from intake air, from recirculated air or from exhaust air.

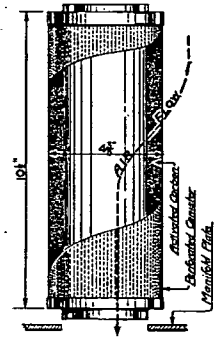


Fig. 1 Dorex Canister

When applied to recirculated air, Dorex Adsorbers reduce the amount of unconditioned outdoor air needed for ventilation and effect savings in installation and operating costs. For example: Given an air conditioning requirement of an area of 20,000 cfm, of which it is assumed 14,000 cfm would be recirculated and 6,000 would be outdoor ventilation before installation of Air Recovery Equipment, it may be possible to cut the amount of unconditioned outdoor air intake to 2,000 cfm by converting 4,000 cfm of used, already conditioned recirculated air to fresh air. Figured for average temperate zones, this 33⅓ per cent load reduction would lower the installation and operating cost substantially because each 1,000 cfm of heated or cooled air that is converted saves: (1) 100,000 Btu of installed heating capacity, (2) 2.6 tons of installed refrigeration, (3) 1,800 kw hours of current per cooling season, (4) 1,500 gallons of fuel oil or 9 tons of coal, and (5) incidental water consumption and maintenance.

In existing systems, the application of Dorex Air Recovery Equipment will enable the system to serve a larger space or satisfy a greater conditioning load without increasing cooling or heating equipment and without consuming more fuel or power.

Activated Carbon Traps Gases and Odors

Activated carbon removes gases and odors by adsorption—a natural phenomenon which takes place when air-borne gases or vapors come in contact with it. An instantaneous condensation occurs and the condensed impurities are held tenaciously until the carbon is forced to give them up in reactivation. For air conditioning purposes, however, the carbon must be especially processed, activated, and impregnated to meet the following specifications: (1) High activity (adsorptive capacity) for a wide range of gases and vapors; (2) High retentivity over an entire range of normal operating conditions; (3) No retentivity for water vapor; (4) Extreme hardness to avoid dusting in handling and in service; (5) High apparent density (in the granular form) of not less than 0.45; (6) Adaptability to repeated reactivation without appreciable loss in activity or retentivity. In actual use, Dorex activated carbon has removed and retained 95 per cent of all gaseous impurities from the air passed through it and maintained that efficiency from six months to two years, depending on the air contamination.

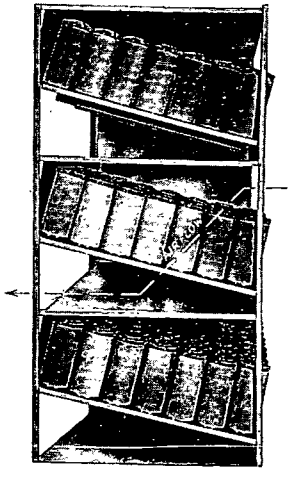


Fig. 2 Typical Canister Arrangement—side view

Equipment to Suit Individual Requirements

Dorex Air Recovery Equipment is available in a range of types and sizes to suit individual requirements. Each type is designed to hold the correct amount of activated carbon in a manner to provide a maximum area for decontamination, a minimum of air resistance and uniform air flow through the carbon. The average resistance to air flow ranges only from 0.15 to 0.2 in. wg.

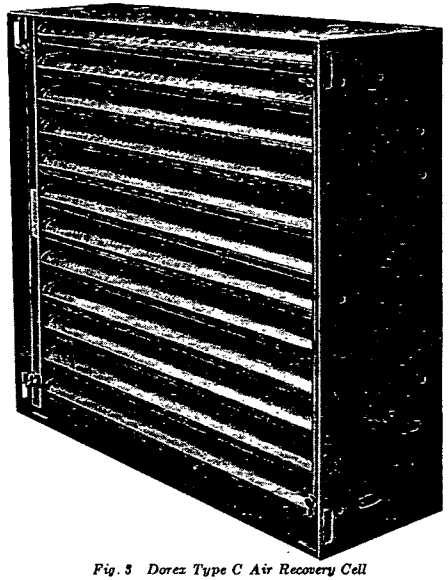


Fig. 3 Dorex Type C Air Recovery Cell

TYPE H—Adaptable to Most Central Systems for Recovering the Freshness of Intake Air and Recirculated Air and for Eliminating Exhaust Nuisances

Type H Equipment—for complete decontamination of all air passed through it—consists of removable, perforated, carbon-filled canisters which are mounted in multiple on one or more supporting manifold plates. Fig. 1 shows a canister and its function; Fig. 2 shows a typical arrangement of canisters as installed. The flexibility of this arrangement makes Type H Equipment readily adaptable to a wide variety of space limitations.

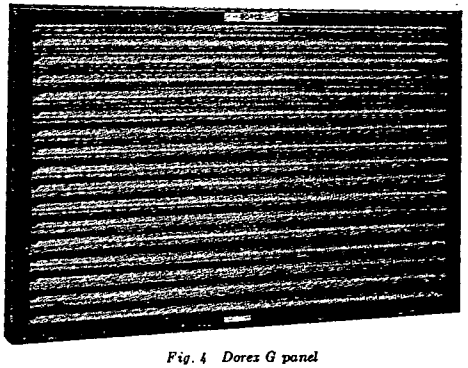


Fig. 4 Dorex G panel

TYPE C—Equipment for Recovering the Freshness of Recirculated Air.

Dorex Type C Air Recovery Cells were developed to meet a need for a large capacity, easily handled and installed air purification unit. Each cell measures only 24 in. x 24 in. x 8¾ in. deep and completely purifies 1,000 cfm. They require no more engineering than that required for ordinary dust filters and can be mounted right along with them in either flat or "V" arrangement. (Fig. 3)

TYPE G—for "Package" Conditioners, Unit Heaters, Refrigerated Spaces, Airplane, Bus, Railway Car, and Marine Installations and Other Systems Where Space Is at a Premium.

These compact panels consist of sturdy metal frames, each housing a battery of exposed perforated metal tubes which contain the activated carbon. Standard units of one, two or three tube rows in depth are available in a range of stock sizes for arrangement in air ducts. (Fig. 4)