

Ventilation Plan Examination in New York

The period of reconversion from war to peace has provided our engineering unit with an unusual opportunity to assist industry with its industrial ventilation problems—particularly the installation of local exhaust ventilation for the removal of injurious dusts, gases, fumes, vapors, and mists.

While much of the plan examination work comes to our unit as a result of inspectors' orders for ventilation in connection with their enforcement of industrial code rules and labor law requirements, other plans come in for approval as a result of consultation with industry by members of our engineering unit, or their own initiative, in connection with regular field studies conducted by our division for the control of health hazards in industry.

Many of the largest plants in New York State, each employing thousands of workers, have worked in close cooperation with our division in designing their ventilating systems. In one plant alone, recommendations made by our engineers, on the basis of their extensive experience with industrial ventilation, made it possible in a system employing close to a million cubic feet of air per minute to save 25 percent from the amount specified by plant engineers in their original plans and actually provide better protection for the workers. From this it can be seen that substantial savings were effected not only in the original ventilation costs, but in costs for current operations of the systems.

One plant which manufactured heat exchangers for submarines, tanks, and airplanes during the war, has now reconverted to its former peacetime production of automobile radiators, heaters, and defrosters. Their main problem was that of safely and economically controlling the *lead hazard* due to extensive torch soldering and hot lead dipping operations as required in the process of manufacture. Close cooperation between the plant and our engineering unit resulted in the design of about 50 highly efficient exhaust systems with a concurrent net saving of about 150,000 cubic feet of air each minute.

In another plant, it was possible for

our engineering unit to contribute materially to the solution of a rather unique problem in ventilation. It developed that it would be necessary to supply to this factory about 750,000 cubic feet of make-up air per minute to replace the air removed by industrial exhaust systems. This was tempered by direct firing of commercial gas in the air supply system. This method of air heating is very economical, but it was necessary for our engineering unit to require extensive safeguards in order to protect the workers from the possible *carbon monoxide* exposure which might result from incomplete combustion of the gas. These safeguards were worked out with company engineers and the system has been satisfactorily installed.

Still another large company was faced with the problem of a rapid reconversion from the manufacture of airplane subassemblies to automotive subassemblies. Their problem was of a general nature, including *metal working*, *degreasing*, *plating*, and *painting*, and was distinguished by its great number of exhaust systems and the enormous quantity of air exhausted. Although the systems were largely of standard design, careful checking by our office resulted in very substantial savings of power and heat.

In the postwar expansion program in a different type of industry, it was necessary to control *dust from a battery of about 60 newly placed knife finishing machines*. The particular problem encountered in this plant was one of collecting great quantities of waxy and other sticky buffing compounds gen-

erated by the process. Systems which had previously been installed on similar machines were known to have resulted in serious clogging of air ducts by these buffing compounds. In order to maintain efficient dust control, it was necessary to devise a method of preventing this clogging. A system was proposed to the company engineers, which provided that the bulk of the refuse was collected at each machine by a small primary cyclone dust separator. The exhaust mains and secondary dust collector were thus relieved of this burden and the trouble-free operation achieved. This system has been installed and is functioning very satisfactorily.

In the field of industrial solvents, control designs recommended by the engineering unit were very numerous. One such installation is presented: The chief engineer for a plant manufacturing *artificial pearls* brought a tentative design for exhaust ventilation for this operation to the engineering unit for approval. This involved exhausting about 12,000 cubic feet of air per minute from the dipping and drying machines. After careful study of the operation, our engineer suggested a design employing only about 1,500 cubic feet which when installed resulted not only in effective control of the solvent vapor hazard to health but in improving production.

The above illustrations are indicative of the nature and the diversity of the problems which were presented to our engineering unit for solution in recent months, in connection with the examination and approval of ventilation plans for the control of health hazards in industry.

During 1946, a total of 2,606 ventilation plans were submitted to our engineering unit. Of the 2,587 plans which were acted upon, 2,051 were approved. A total of 19,480 workers at 11,904 machines were protected thereby from injurious exposure to noxious dusts, gases, and fumes. This plan examination work necessitated 1,707 plant visits for study of the ventilation needs of the situation and for consultation with management.

