• **Personal protective equipment** Reliance may at times be placed on personal protective equipment

Items of personal protective equipment, such as respirators, can minimize the exposure for the workman—but they are generally satisfactory only for intermittent or emergency use They are a last line of defense Other means should be employed for health protection around harmful processes that are carried on routinely and continuously

Respiratory protective equipment should not be relied on too strongly for several reasons the proper type may not be provided, the employee may not wear it, respirators may not be properly cleaned and serviced, facepiece fit may be poor, permitting unfiltered air to be breathed, and chemical cartridge respirators or gas masks may be worn without regard to the real danger—oxygen deficiency Scrupulously avoid these pitfalls in order to be sure that respirators will give adequate protection on intermittent or emergency jobs Selection, use, and care of respirators are discussed in *Respiratory Protective Devices Manual* of the American Industrial Hygiene Association

• Exhaust ventilation may be a necessity where the other control techniques are impracticable

Role of the safety professional

The purpose of this and the next chapter of the Manual is not to make a ventilating engineer out of the safety professional, but to place before him the basic principles of air flow so he can better understand how to use ventilation more effectively Since the prime purpose of local exhaust ventilation is the protection of health, he has a vital interest in it

In a plant that employs an industrial hygienist, chemical engineer, and fire protection engineer, the safety engineer's interest in ventilation is at a minimum Industrial hygienists have led in developing the art of design of exhaust ventilation for the control of plant air contaminants They have perfected instruments and analytical procedures for air sampling to learn the nature of the air contaminant and to see if it is under control The safety professional is relieved of responsibility in these areas if an industrial hygienist is at hand

But most plants, especially those of medium or small size, do not employ an industrial hygienist, chemical engineer, or fire protection engineer, although they may have a part-time or full-time safety professional Of necessity, these persons must acquire some understanding of potential hazards to personnel, to plant property, and to the community that may result from release of hazardous air contaminants

In the absence of other plant specialists, professional advice can be obtained from several sources The safety professional may often get good advice from the workmen's compensation insurance carrier or fire insurance carrier for the plant Advice may be obtained through the state or local department of health or the state department of labor, one or the other of which in most states maintains an industrial hygiene service and a fire prevention bureau

If his unit is part of a multiplant corporation, the safety professional should consult with his home office The supplier of materials that are suspected of being toxic can be consulted Professional services can be secured by employing a private consultant who is a specialist in industrial hygiene, ventilation, toxicology, or fire prevention

Regardless of whether the plant is large or small, exhaust systems would normally be designed by or under supervision of the plant engineer But because they are installed for protection of health or prevention of fire and are usually not part of the production equipment or power systems of the plant, the plant engineer may not take full responsibility for their satisfactory performance On the other hand, the safety engineer, who does have an interest in a safe workplace, is generally unfamiliar with the engineering principles of exhaust systems Consequently, in the absence of an industrial hygienist, neither the plant engineer nor the safety engineer pays much attention to such ventilating systems

Therefore, in the absence of an industrial hygiene engineer, the safety professional can make a real contribution to health and safety by familiarizing himself with ventilation fundamentals With this Manual as a guide, and with such assistance as he needs from the industrial hygiene profession secured from