4. The inflowing air reduces excessive perspiration and tends to cool the face.

5. When a hand-operated blower is used a second person is always present. (With an approved mask, provided the facepiece is tight, the wearer can inhale enough air through the hose to escape if the blower should stop).

The Air-Line Respirator consists of a tight-fitting facepiece, a loosely fitting facepiece or even a helmet or hood covering the head and extending down over the neck or shoulders. The air supplied to these respirators has been largely that obtained from the compressed air source used in the performance of the work, as in sand blasting, pneumatic drilling and spray painting. This air is frequently contaminated with objectionable and, in some instances, harmful substances which, to some extent, can be removed by means of air-purifying appurtenances. In discussing "Respiratory Protective Devices" in the February (1937) issue of the Journal of Industrial Hygiene and Toxicology, Mr. C. E. Brown of the United States Bureau of Mines wrote:

> "Using air from the ordinary compressed air system found in industry to supply respirators is not to be indiscriminately recommended. These compressed air systems are usually of the high pressure, internally lubricated, reciprocating-compressor type. The air supplied by these systems is contaminated frequently with malodorous constituents such as vapors, mists and products of decomposition of the compressor lubricant, slugs of water, and rust from the pipe line. All or most of these contaminants can be removed probably by some of the commercial air purifiers sold for this purpose. A pressure-reducing mechanism should be used also in the line to prevent any possibility of sudden accidental blasts of high-pressure air from injuring the lungs of the wearer of the respirator. With a compressor of this type there is always the possibility, however rare it may be in well-kept systems, of the generation of carbon monoxide due to overheating of the compressor lubricant (Jour. Indust. Hyg. 18,461 (1936)). This danger can be minimized or eliminated by the use of temperature controls or carbon monoxide alarms on the compressor which, of course, should be so maintained as to prevent the generation of carbon monoxide.
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> "The trend in supplied-air respirators is to use special low-pressure, externally lubricated, positive-pressure air-supply devices. Most of the objections to the high-pressure reciprocating-type compressor do not apply to an air-supply of this kind. Since these devices are not common in industry, however, it is usually necessary to purchase a special one for use with the respirator. Since air purifiers, pressure-reducing mechanisms, and special compressor-control or alarm mechanisms are not necessary, the price of this respirator complete with air-supply device should not exceed that of the other type of respirator without the air supply system.
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> "The use of a special air-conditioning unit to regulate the temperature and humidity of the air supplied to the respirator wearer is desirable."

The minimum air supply for a respirator designed to use all the air for respiratory needs at a high degree of efficiency is generally agreed among Industrial Hygienists to be at least four to six times the air breathed per minute. As a general class, respirators with loose-fitting facepieces, hoods, or helmets require