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Air quality is a quantitative measure of the quality of air, by analyzing the level of contamination and pollutants present in the air sample. In most of the times, the regular air stream is found to be very hazardous, especially for small children making them prone to air borne and other allergic diseases. But the air quality in a hospital's Operation theatre and also in the clean room of a medical pharmaceutical unit cannot be contaminated with pollutants which are toxic and hazardous. The air quality of areas which are medically related should be very sterile and free of germs and bacteria, thus minimizing the risks of infections and allergies. Hence, laminar air flow is of great significance and use in medical applications.

Laminar air flow cabinets are designed to ensure a particle-free working environment, thus improving the quality of air. Air is taken through a filtration system and is filtered using a pre-filter and one or more HEPA filters and then exhausted across a work surface in a laminar or unidirectional air stream. The air within the Laminar Flow Hood, whether it is horizontal or vertical, is thus filtered of many particles creating a working zone for many applications in the medical, electronic and industrial domains.

Laminar air flow is having many practical applications in the medical domain. In a hospital, where the air is having the highest probability of being contaminated with germs, bacteria and other pollutants, it is very risky to conduct operations and other surgical practices unless there is enough protection from contamination risks. Research has found out that the air samples after the employment of laminar air flow is found to be less contaminated than without laminar air flow. Likewise, the rate of post operative infection have also reported to be considerably low after the use of laminar air flow technology in the surgical areas and afterwards. Laminar air flow is also used during the assembly of medical and surgical instruments and equipments to ensure that they are sterile and germ free. When vertical laminar air flow is installed in an operating room, the pre-filters and ducts on top of the system supplies fresh air to the recirculation system. The whole system provides fifty changes of new air and a total of 600 changes of air per hour. This also reduces the risk of explosion as the anesthetic gas in an operating room gets diluted with every supply of air circulation. Thus, laminar air flow is very inevitable in medical domain where safety issues are very sensitive and critical.

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