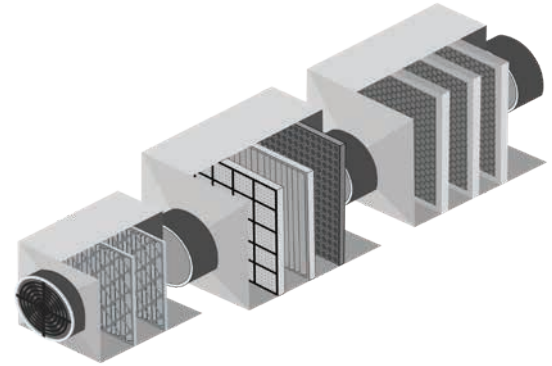


## Indoor Air Quality Control Technology for Parking Lot



**Problem Statement:** Increasing concentrations of exhaust emissions from motor vehicles, especially in the enclosed/ insufficiently ventilated environment, are detrimental to human health and cause long-lasting ill effects. Due to space constraints in metro and smaller cities, multi-level parking has become a popular choice in public and residential societies. However, most multi-level parking lots are enclosed areas with inadequate/negligible ventilation, obstructing the free airflow, resulting in toxic air pollutants in the vicinity. Hence, it is necessary to curb these toxic air pollutants in parking lots.

**Uniqueness of the Solution:** Not many technologies are available to curb the air pollutants from parking lots. The product design is specifically suited to filter and purify air pollutants such as carbon monoxide (CO), hydrocarbons (HC), volatile organic compounds (VOCs), nitrogen oxides (NO<sub>x</sub>) and particulate matter (PM) released from motor vehicles.

The proposed Indoor air quality control technology is a unique air filtration unit based on the principle of three units: Filtration unit (for PM removal); Thermal Catalytic Oxidation (TCO) unit for removal of CO, VOC and HC; and Selective Catalytic Reduction (SCR) unit for NO<sub>x</sub>. Based on the type of pollutant to be removed, a combination of units is placed in series.

**Current Status of Technology:** The Indoor Air Quality Control Technology is in the prototype stage and is undergoing testing. Installation of pollution abatement devices in the parking lots requires precise mathematical modelling simulation of the system and best-fit technology selection which this technology addresses by qualitative and quantitative methods.

**Societal Impact:** Several countries have enforced strict laws to keep indoor air quality (IAQ) under check, but India is yet to catch up to this. Poor IAQ in offices

and residential societies with multi-level parking is alarming. The proposed product will improve overall air quality in offices and residential societies with multi-level parking. The product is best suited for urban localities and reduces the negative impact on human health and the environment.

**Patent(s):** Nil

**Relevant Industries:** Shopping Malls, Parking Lots.

**Faculty:** Prof. Anil Kumar Dikshit, Environmental Science & Engineering.