



Natural Air Purifier

Below, Bryan James, owner of Anchor Printing, Baytown, Texas, displays a BioFilter 2000 natural air purifier, one of several he uses to remove fumes from his print shop. BioFilter 2000, disguised as an attractive planter, is described as a "living machine;" it employs a biological filtering system to reduce or eliminate odors and pollutants in indoor air. The technology was developed by Dr. Billy C. Wolverton and his associates at the Environmental Research Laboratory of John C. Stennis Space Center, Mississippi as part of a 20-year research program aimed at eventual development of a bioregenerative life support system for long duration spacecraft.

The BioFilter 2000 is the initial product of Terra Firma Environmental, Baytown, Texas, a Native American-owned company founded by president

Federico T. Marques, who is pictured *at right* with a sampling of his products. Wolverton, now retired from NASA and operating Wolverton Environmental Services, Inc., Picayune, Mississippi, served as a consultant to Terra Firma. The filter system is designed to combat "sick building syndrome," an acute incidence of indoor air pollution that can occur in highly insulated or poorly ventilated offices and residences; it can cause burning throat, nose and eyes, fatigue, headache, dizziness, nausea and other ailments.

The BioFilter purifies the air through a system that combines activated carbon and other filter media with living plants and microorganisms. The adsorptive filter material traps and holds the indoor pollutants. The plant roots and microorganisms living on and around the roots convert the pollutants into food for the plant.

Most non-flowering house plants will work; Terra Firma supplies a list of those that have tested best. The plant is grown hydroponically (without soil) in



the filter media. Contaminated air is pulled into the system by a small fan. After smoke, odors, chemicals and other pollutants are removed by the filter media and plant roots, the cleansed air is returned to the room through slits in the planter.

Terra Firma is developing a self-cleaning filter that removes pollutants from the air and disinfects the air as well. An upgraded version of the Biofilter 2000, it will use plants, microorganisms and activated carbon filtration to clean the air and an ultraviolet source to rid the air of harmful mold, bacteria and viruses. Dr. Wolverton is again serving as a consultant to Terra Firma on the new product, to be introduced in 1993. ●

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PLANT-BASED AIR

FILTERING SYSTEM

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