

## Fluoropolymer coated stainless steel helps emerging nanotech industry grow safely



PSP® duct installation at NonoFab 300 South Annex, Albany Nanotech, NY

The computer revolution of the mid 80's dramatically transformed business and the way people work. Today, at the dawn of the 21st century, nanotechnology has the potential to impact everyday life in the same way. The pursuit of scientific innovations in this field of research and consequent commercial applications has been increasingly financed with an eye on future dividends. Universities, state and regional development councils continue to invest in nano-technology research in hopes of getting in on the ground floor of this latest revolution. As a result research facilities are sprouting up all over the country. Most noticeable of which are the construction of multi million dollar nano-facilities on university campuses from Boston to Los Angeles.

Nanoscience is the study of microscopic particles as small as one nanometer or one billionth of a meter. Nanotechnology builds on this information with the express goal of atomic scale manufacturing. Scientists claim this technology holds the promise of new materials and products from smaller, more powerful computers, environmentally sensitive clothing and futuristic swarm-like weapons. Recognizing the potential of this science, major corporations such as IBM, Fujitsu and Intel are also pouring vast sums of money into research along with the United States government.

Nanotech research employs many of the same manufacturing protocols as microprocessor "chip" manufacturing, the most critical of which is an environmentally clean space or "clean room" free of airborne particulate. Clean rooms are designated by class, such as Class 1000, 100 or 10. A Class 10 clean room maintains less than ten particles larger than 0.5 microns in each cubic foot of airspace.

Just as clean room manufacturing necessitates the intake of clean, filtered air, so too must the by-products of manufacturing processes be safely exhausted. These by-products all contain potentially hazardous, highly corrosive, combustible and even toxic fumes and liquids. Therefore, the safety and health of personnel and the integrity of the facility and its systems are important considerations in the design of any lab but especially important in a university setting where student safety is paramount. The challenge is to incorporate reliable, cost-effective, easy-to-install, fire and corrosion resistant transfer systems into a facility. Building codes and insurance companies prefer the use of non-combustible materials for fume and chemical transfer systems versus materials requiring suppressant devices such as sprinkler systems. To address these challenges, Fab-Tech developed a process to integrally bond a fluoropolymer material onto stainless steel. Fab-Tech's coated stainless steel process pipe and duct delivers unparalleled corrosion protection, ease of installation, and structural integrity in the event of a fire since it does not melt, burn or generate smoke.

Also important in the choice of construction materials is the FM rating. Factory Mutual ( FM ) is an affiliate of FM Global, the world's largest insurance company, specifically devoted to reducing commercial and industrial property losses and maintaining the continuity of its policyholders' business operations. In addition, manufacturers such as Fab-Tech use Factory Mutual Research's services to earn "FM" approval, certifying, through rigorous testing, the reliability of their products and services.

For more information about stainless steel process pipe and duct coated with fluoropolymer barrier coating from Fab-Tech, visit the website [www.fabtechinc.com](http://www.fabtechinc.com) or contact a sales representative at [sales@fabtechinc.com](mailto:sales@fabtechinc.com).



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