

ASPE TechSymposium2021



Stephen E. Howe, PE

Stephen Howe studied at Northeastern University in Boston and received a degree in Civil Engineering. He is a registered New York State Professional Engineer and has PE licenses in New York, Georgia, Missouri, Ohio, and South Carolina. Currently retired, he is employed at the New York State Education Department as an Associate Mechanical Construction Engineer, where he reviews plans for K-12 schools for code compliance in the mechanical plumbing and electrical disciplines. Stephen has been a member of ASPE for more than 30 years. On the national level, he served as President of the ASPE Research Foundation and is a member of the Education Committee. He presented a paper at an ASPE Convention on Legionella and has given training seminars in New York, South Carolina, and Michigan. He also presented a seminar on sanitary and stormwater systems at the ASPE Tech Symposium in Orlando.

Nitrous Oxide, Nitrogen, and Carbon Dioxide Medical Gases

We will be studying three Medical gases, Nitrous Oxide, Nitrogen and Carbon Dioxide. Nitrous Oxide is used in anesthetic machines, to initiate the anesthesia with nitrous oxide, before the administration of a more powerful anesthetic. Nitrogen is used at high pressure to operate surgical tools. Carbon Dioxide is typically used to inflate or suspend tissues during surgery, and is also used in laser surgeries. We will be first taking a look at high pressure cylinders and the manifolds. There are important considerations involved in their location, layout and piping to the hospital. We will then study medical gas outlets. The designer will locate the outlets according to regulations and coordination with the medical facility and the architect. Lastly, we will go over sizing the manifolds and associated equipment and finish up with sizing the piping.