Central Vacuum Systems

Laboratory Vacuum:
- Pumps, whenever possible, shall be of the single-stage, liquid ring type, with components designed for use in chemical laboratory applications.
- The vacuum system should be insensitive to occasional ingestion of liquid slugs as may occur from improper trapping or ingestion from vacuum inlets.
- The use of partial or fully recirculating systems should be provided to minimize water consumption.
- Systems are typically designed to provide 480 mm (19” HgG/ 275 Torr/ 65% vacuum) at the remote terminal inlet. Where vacuum levels deeper than 22” HgG are required, the use of localized vacuum pumps should be considered unless such demand is justified and widespread.

Animal Surgical Vacuum:
- Surgical vacuum systems for vivaria shall be completely independent of other systems (including medical systems serving humans), and shall be designed to be compliant with NFPA-99.
- A single alarm panel may serve both the master and area alarm functions, provided the alarm is appropriately located and provides alert to responsible personnel and BAS.
- Sufficient valving is required, and may be arranged per NFPA-99 or per the DRM. Drops to individual spaces are not required to be individually monitored by alarms where valves are located in secure locations.
- Where human medical/surgical vacuum systems are used in the same facility, distinctly different terminal outlet patterns should be utilized. The use of DISS connections is often recommended.

Animal Anesthetic Gas Scavenging/WAGD Vacuum:
- Scavenging requirements for animal applications shall be determined through consultation with the program veterinarian, and shall be based on low vacuum or high vacuum type active systems.
- Terminal units are typically required in procedure rooms and surgery areas.
- Systems are designed as active type, in accordance with either NFPA-99 WAGD systems, or in conformance with ISO 7396-2.
- Source equipment is typically liquid ring pumps or regenerative blowers. Small systems may choose to utilize compressed air driven active venturi type terminal units to eliminate the need for additional piped systems all together.
- Alarms are required per NFPA-99.
- High vacuum systems typically operate at approximately 5-inch HgG. Low pressure systems should comply with ISO 7396-2, and include source vacuum flow regulation.
- Systems are typically designed to provide 50 to 80 LPM (1.75 to 3.0 SCFM) per inlet.
- Effective anesthetic gas scavenging can also be accomplished through procedures performed within ducted biosafety cabinets and downdraft tables, or where similar controlled active means of capturing anesthetic are provided.

Further details on this month’s topic are available on the DRM website

DRM Chapter 8, Section 9