

Kyle Jussel
Medical Air, Inc. - President/CEO
Ph: (303) 279-2491 Ext: 130
kyle@medicalairsystems.com



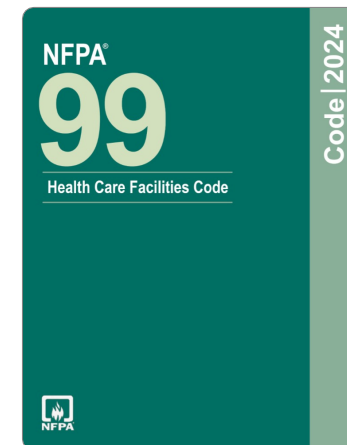
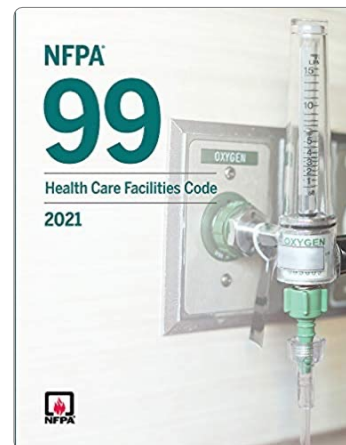
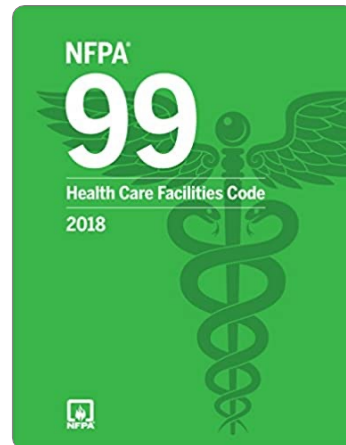
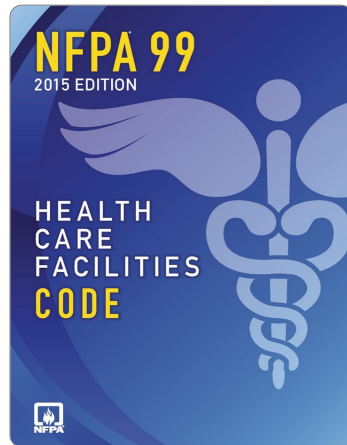
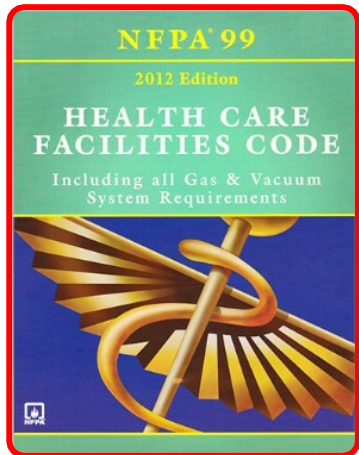
Table of Contents



- Chapter 1 – Administration
- Chapter 2 – Referenced Publications
- Chapter 3 – Definitions
- Chapter 4 – Fundamentals
- Chapter 5 – Gas and Vacuum Systems
- Chapter 6 – Electrical Systems
- Chapter 7 – Information Technology & Communication Systems
- Chapter 8 – Plumbing
- Chapter 9 – Heating, Ventilation & Air Conditioning (HVAC)
- Chapter 10 – Electrical Equipment
- Chapter 11 – Gas Equipment
- Chapter 12 – Emergency Management
- Chapter 13 – Security Management
- Chapter 14 – Hyperbaric Facilities
- Chapter 15 – Dental Gas & Vacuum Systems
- Chapter 16 – Features of Fire Protection
- 2027 edition will include new chapter on cybersecurity

3.2.2 Authority Having Jurisdiction (AHJ). An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

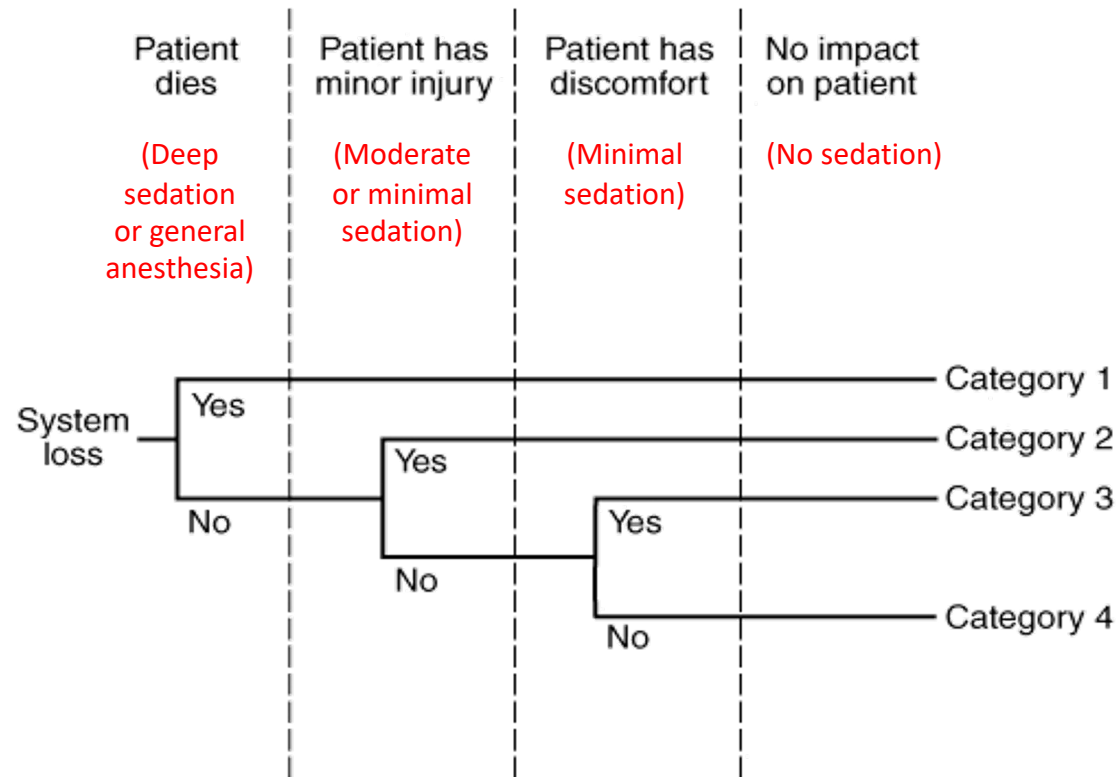
Since 2016, The Centers for Medicare & Medicaid (CMS) have enforced the 2012 edition of NFPA 99 as a minimum requirement for health care facilities. However, each state, county, city and even individual Fire Marshals may enforce different codes that are more recent. Depending on who the AHJ is for any given project, the answer to this question may vary.



2027 - 3.3.173 Responsible Facility Authority (RFA). An individual designated by the health care facility's governing body to be responsible for conducting risk assessments, defining compliance requirements, and maintaining medical gas management programs.

4.2.1.1 The governing body shall conduct risk assessments and shall determine risk categories based on the character of the processes and operations conducted in the health care facility.

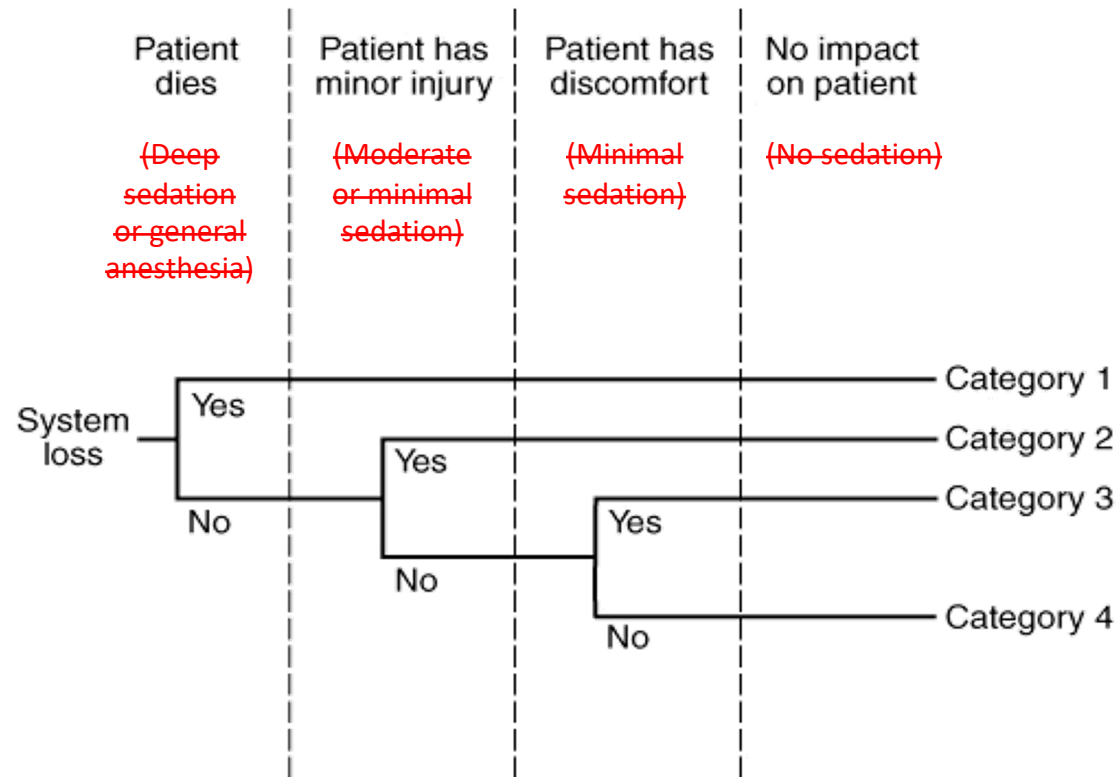
4.2.2 Risk categories shall be classified by the health care facility's governing body by following and documenting a defined risk assessment procedure.



2027 - 3.3.173 Responsible Facility Authority (RFA). An individual designated by the health care facility's governing body to be responsible for conducting risk assessments, defining compliance requirements, and maintaining medical gas management programs.

4.2.1.1 The governing body shall conduct risk assessments and shall determine risk categories based on the character of the processes and operations conducted in the health care facility.

4.2.2 Risk categories shall be classified by the health care facility's governing body by following and documenting a defined risk assessment procedure.



5.1.3.3.2 Design and Construction.

5.1.3.3.2.1 Medical gas and vacuum systems shall be designed by one of the following:

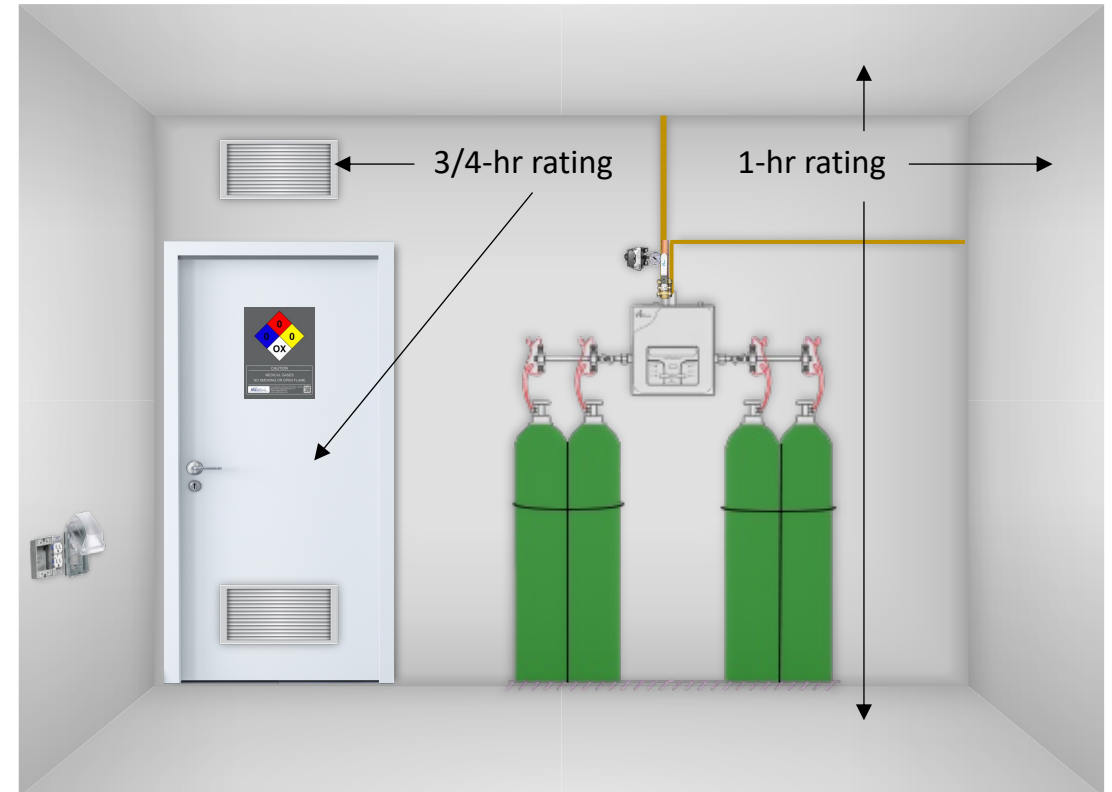
- 1) A ~~party technically competent and experienced in the field of medical gas and vacuum system design~~ and qualified person meeting the requirements of ASSE/IAPMO/ANSI 6060, *Professional Qualifications Standard for Medical Gas System Designers*
- 2) A ~~party deemed technically competent through other qualification(s)~~ qualified person deemed sufficient by the health care facility's governing body



5.1.3.3.2 Design and Construction.

5.1.3.3.2.2 Locations for central supply systems other than cryogenic fluid central supply systems and motor-driven equipment and locations for the storage of positive-pressure gases shall meet the following requirements:

- 6) If indoors, rooms containing oxygen, nitrous oxide, or other oxidizers shall be separated from the rest of the building by walls and floors having a 1-hour fire resistance rating with doors and other opening protectives having a 3/4-hour fire protection rating.
- 8) Fuel-fired equipment shall not be located in the room.
- 9) If the location requires heat, the maximum allowable temperature of the in-room heating element shall be 266°F.
- 10) The location shall be provided with racks, chains, or other fastenings to secure all cylinders from falling, whether connected, unconnected, full, or empty.
- 11) The location shall have racks, shelves, and supports, where provided, constructed of noncombustible materials or limited-combustible materials.
- 12) The location shall protect electrical devices from physical damage.



5.1.3.3.2 Design and Construction.

5.1.3.3.2.7 The limits for the maximum allowable quantities listed in Table 5.1.3.3.2.5 shall be permitted to be exceeded where documented by an approved risk assessment by the health care facility's governing body.

Table 5.1.3.3.2.5 Storage Quantities for Medical Gas and Cryogenic Fluid Central Supply Systems in Health Care Facilities

Gas	Maximum Allowable Quantity, Connected and in Storage		
	Outdoor Enclosures ^a	Indoor Nonsprinklered ^b	Indoor Sprinklered ^c
Oxygen and nitrous oxide ^d	No limit	283 m ³ (10,000 ft ³)	566 m ³ (20,000 ft ³)
Carbon dioxide, helium, medical air, and nitrogen	No limit		
^a Outdoor enclosure constructed and ventilated in accordance with this code and NFPA 55. ^b Indoor structure constructed in accordance with 5.1.3.3.2 and ventilated in accordance with 9.3.6. ^c Indoor structure constructed in accordance with 5.1.3.3.2, ventilated in accordance with 9.3.6, and provided with an approved, automatic sprinkler system in accordance with NFPA 13. ^d Sum of all oxidizing gases within a room.			
Gas	H-Cylinder (Cubic Feet)	Small LP Liquid (Cubic Feet)	
Oxygen (O ₂)	244	4,577	
Nitrogen (N ₂)	226	3,685	
Carbon Dioxide (CO ₂)	434	N/A	
Nitrous Oxide (N ₂ O)	558	N/A	
Medical Air (MA)	230	N/A	

5.1.3.5.12 Emergency Oxygen Supply Connection (EOSC).

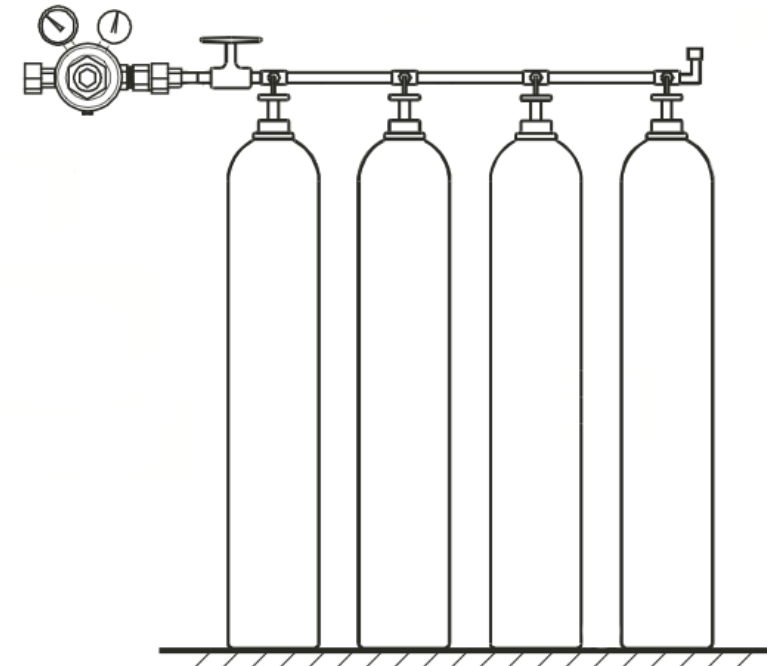
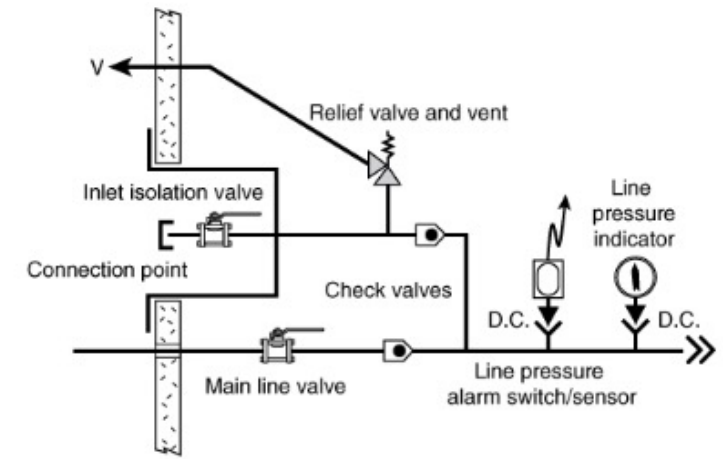
5.1.3.5.12.2(8) Four alarm connection points installed to both master alarm panels to allow the temporary supply to be monitored while in use.

5.1.3.5.13 In-Building Emergency Reserves (IBER).

5.1.3.5.13.3 IBERs shall consist of either of the following:

- 1) Gas cylinder header per 5.1.3.5.9 with sufficient cylinder connections to provide for at least one average day's supply with the appropriate number of connections being determined after consideration of the delivery schedule, the proximity of the facility to alternate supplies, and the facility's emergency plan.
- 2) Manifold for gas cylinders complying with 5.1.3.5.10.

5.1.3.5.13.5 IBERs shall have a local signal that visibly indicates the operating status of the equipment and an alarm at all master alarms when or just before the reserve begins to serve the system.



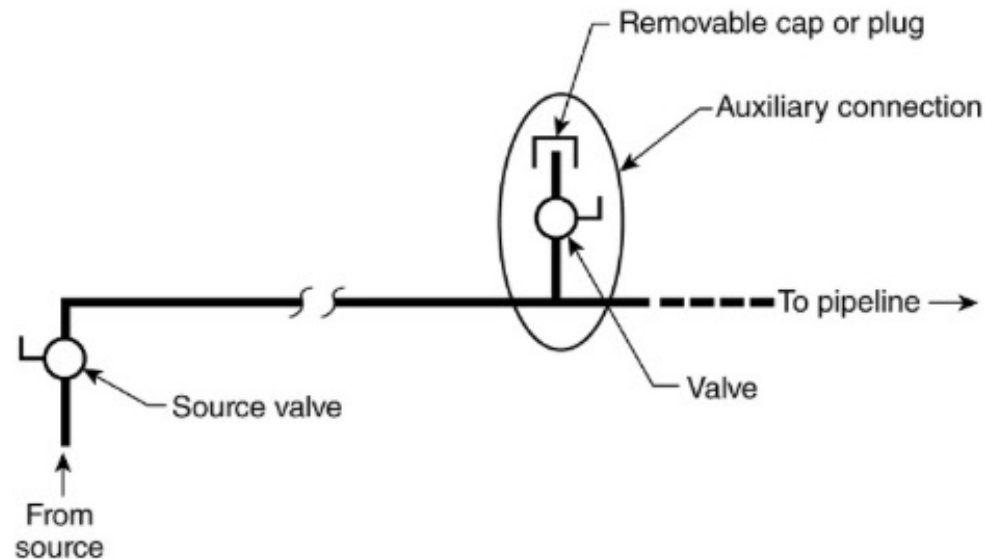
5.1.3.5.14 Auxiliary Connections.

All medical gas and vacuum systems shall be provided with a point of access for connection of a temporary or supplemental source of supply complying with 5.1.3.5.14.1 through 5.1.3.5.14.5.

5.1.3.5.14.1 The auxiliary connection shall be located in the main line, on the patient side of the source valve, as determined by the responsible facility authority.

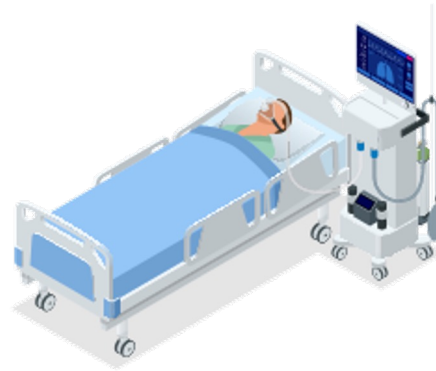
5.1.3.5.14.2 The auxiliary connection shall be the same size as the main line but not required to be larger than DN50 (NPS 2 in.).

5.1.3.5.14.3 The auxiliary connection shall consist of a tee, valve, and removable plugged or capped connection point.



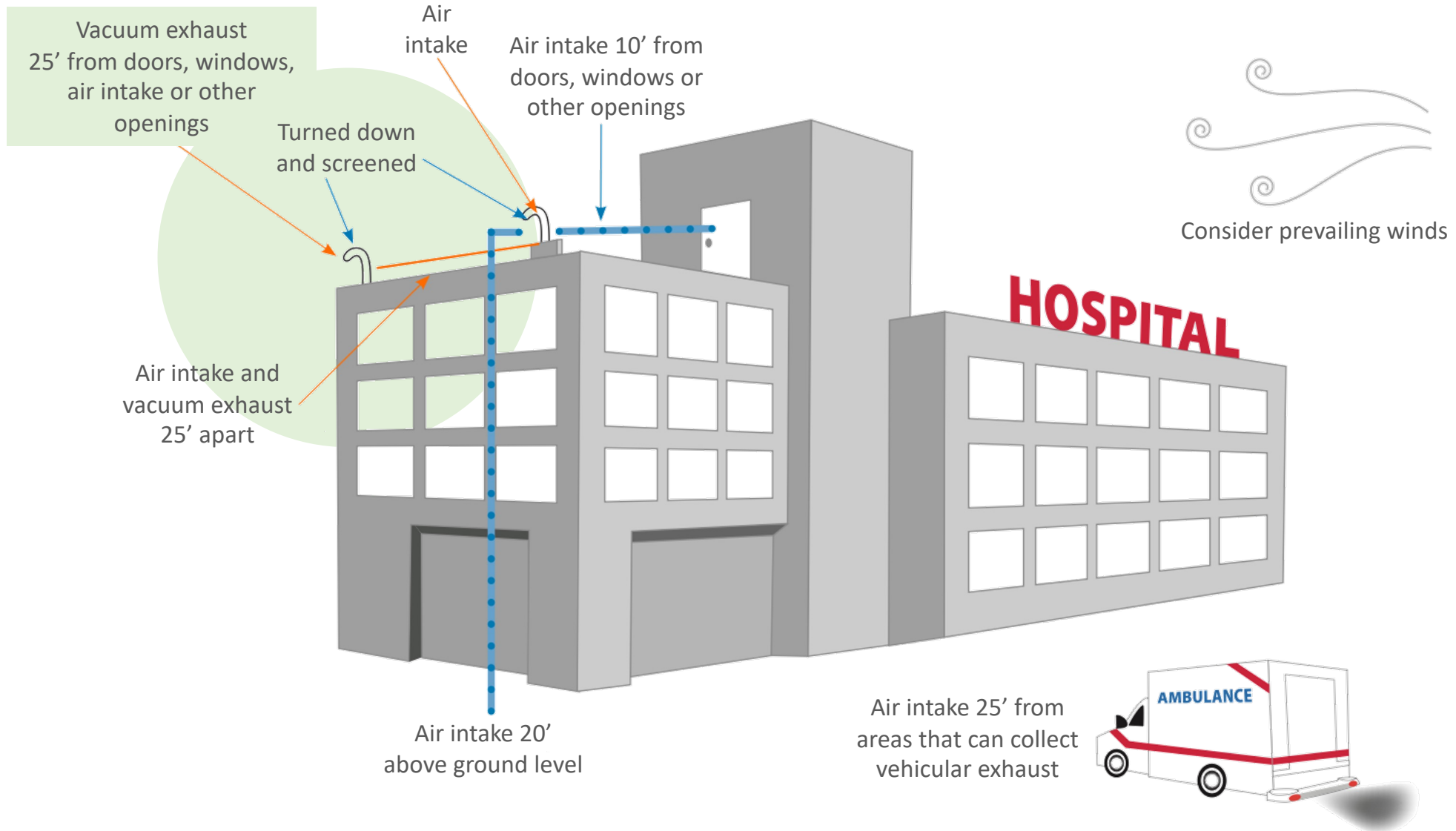
5.1.3.6 Category 1 Medical Air Central Supply Systems.

5.1.3.6.2 Uses of Medical Air. Medical air sources shall be connected to the medical air distribution system only and shall be used only for air in the application of human respiration, in the calibration of medical devices for respiratory application, and in simulation centers for the education, training, and assessment of health care professionals in accordance with 5.1.3.5.2.

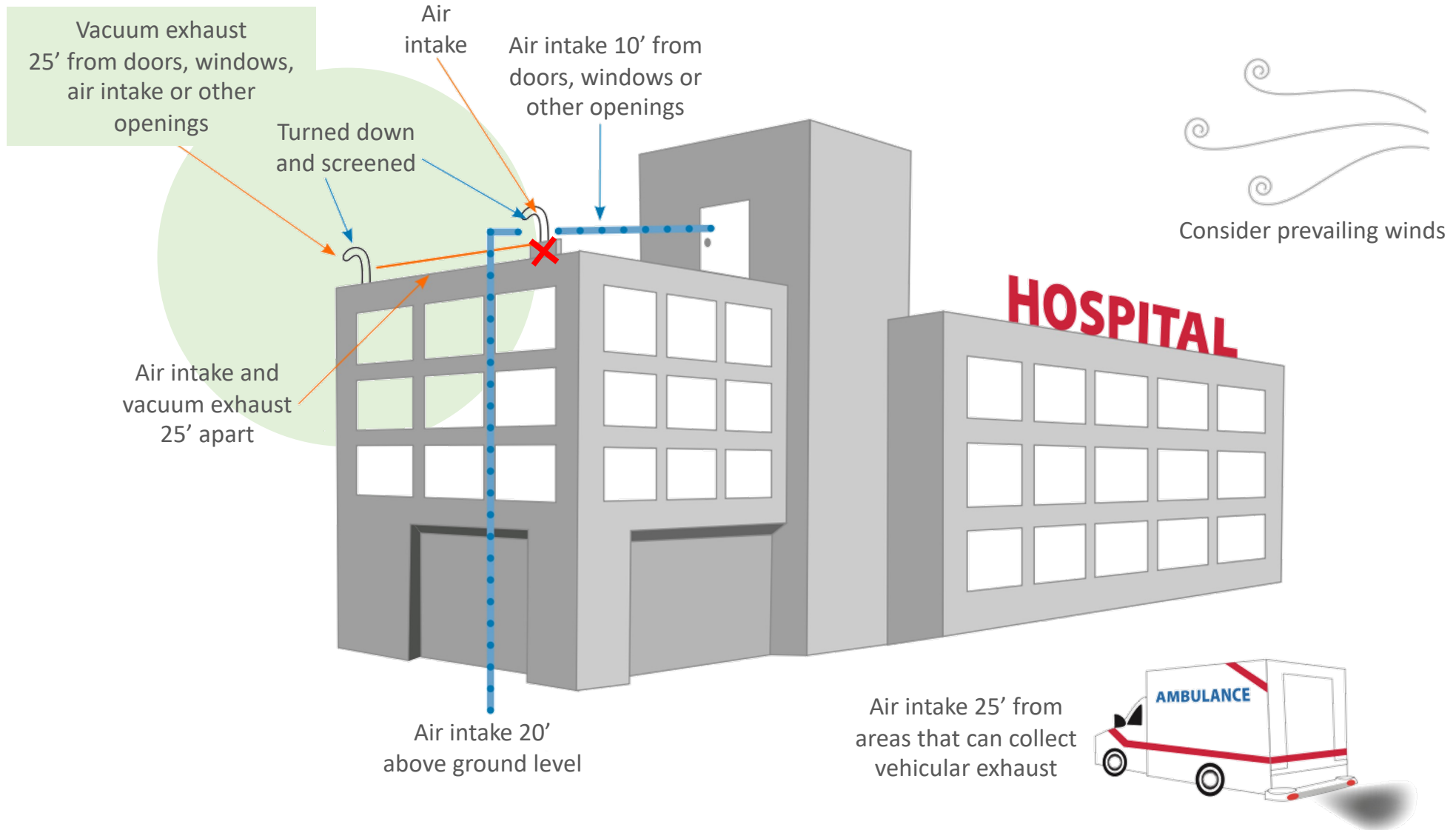


- When sizing air compressor systems for altitude, it is important to note that all manufacturers' standard specifications are given at sea level conditions. Pressure/vacuum and flow are both affected and can impact what technologies can and should be used at higher elevations.
- Maximum allowable pressure "rule of thumb": Multiply the max pressure rating at sea level by the % of atmospheric pressure at elevation (100 PSI @ sea level = 83 PSI @ 5,280 ft)
- Flow capacity "rule of thumb": Reduce the capacity rating by 3% per 1,000 ft of elevation
- Maximum end vacuum level "rule of thumb": Reduce the maximum end vacuum level by 1" HgV per 1,000 ft of elevation

5.1.3.6.3.11 Compressor Intake & 5.1.3.7.7 Medical-Surgical Vacuum Exhaust.



5.1.3.6.3.11 Compressor Intake & 5.1.3.7.7 Medical-Surgical Vacuum Exhaust.

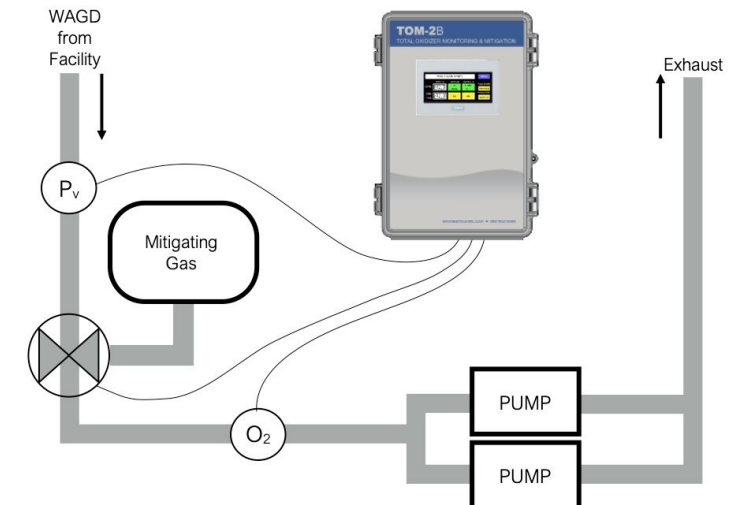


5.1.3.7.4 Vacuum Filtration.

- 1) Filtration shall be at least duplex to allow one filter to be exchanged without impairing the vacuum system.
- 2) Filtration shall be located on the patient side of the vacuum producer.
- 3) Filters shall be efficient to $.3\mu\text{m}$ and 99.97% HEPA or better.

5.1.3.8.1.2 If WAGD is produced by the medical-surgical vacuum source, the following shall apply:

- 1) The medical-surgical vacuum source shall comply with 5.1.3.7.
- 2) The total concentration of oxygen shall be maintained below 23.6% unless one of the following conditions is met:
 - a) The vacuum pump complies with 5.1.3.8.2.1.
 - b) The combined medical-surgical vacuum/WAGD system is monitored for oxygen and an alarm will initiate at all master alarm panels if the oxygen concentration exceeds 23.5%



5.1.4 Valves.

5.1.4.1.1 Gas and Vacuum Shutoff Valves. Shutoff valves shall be provided to isolate sections or portions of the piped distribution system for maintenance, repair, emergencies, or planned future expansion needs and to facilitate periodic testing.

5.1.4.1.2 Security.

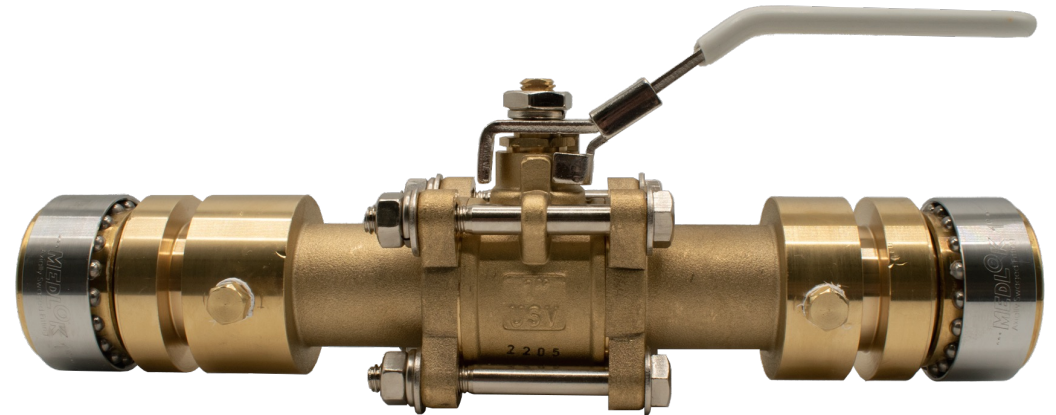
All valves, except valves in zone valve box assemblies, shall be secured by any of the following means:

- 1) Located in secured areas
- 2) Locked or latched in their operating position
- 3) Located above ceilings, but remaining accessible and not obstructed



5.1.4.1.6 Valve Types. New or replacement valves shall be permitted to be of any type as long as they meet the following conditions:

- 1) They have a minimum Cv factor in accordance with either Table 5.1.4.5(a) or Table 5.1.4.1.6(b).
- 2) They use a quarter turn to off.
- 3) They are constructed of materials suitable for the service.
- 4) They are provided with any of the following:
 - a) Copper tube extensions by the manufacturer for brazing
 - b) Corrugated medical tubing (CMT) fittings
 - c) Memory metal fittings
 - d) Axially swaged fittings
- 5) They indicate to the operator if the valve is open or closed.
- 6) They permit in-line serviceability.
- 7) They are cleaned for oxygen service by the manufacturer if used for any positive-pressure service.
- 8) They have threaded purge ports on the patient side and the source side.
- 9) They have a minimum working pressure equal to or greater than the relief valve protecting the piping system on which the valve is installed for any positive-pressure service.
- 10) Seals necessary for the operation of the valve and prevention of leaks comply with 5.1.3.5.4 and are replaceable.



5.1.4 Valves.

5.1.4.2 Source Valve

5.1.4.3 Main Line Valve

5.1.4.4 Riser Valve

5.1.4.5 Service Valve

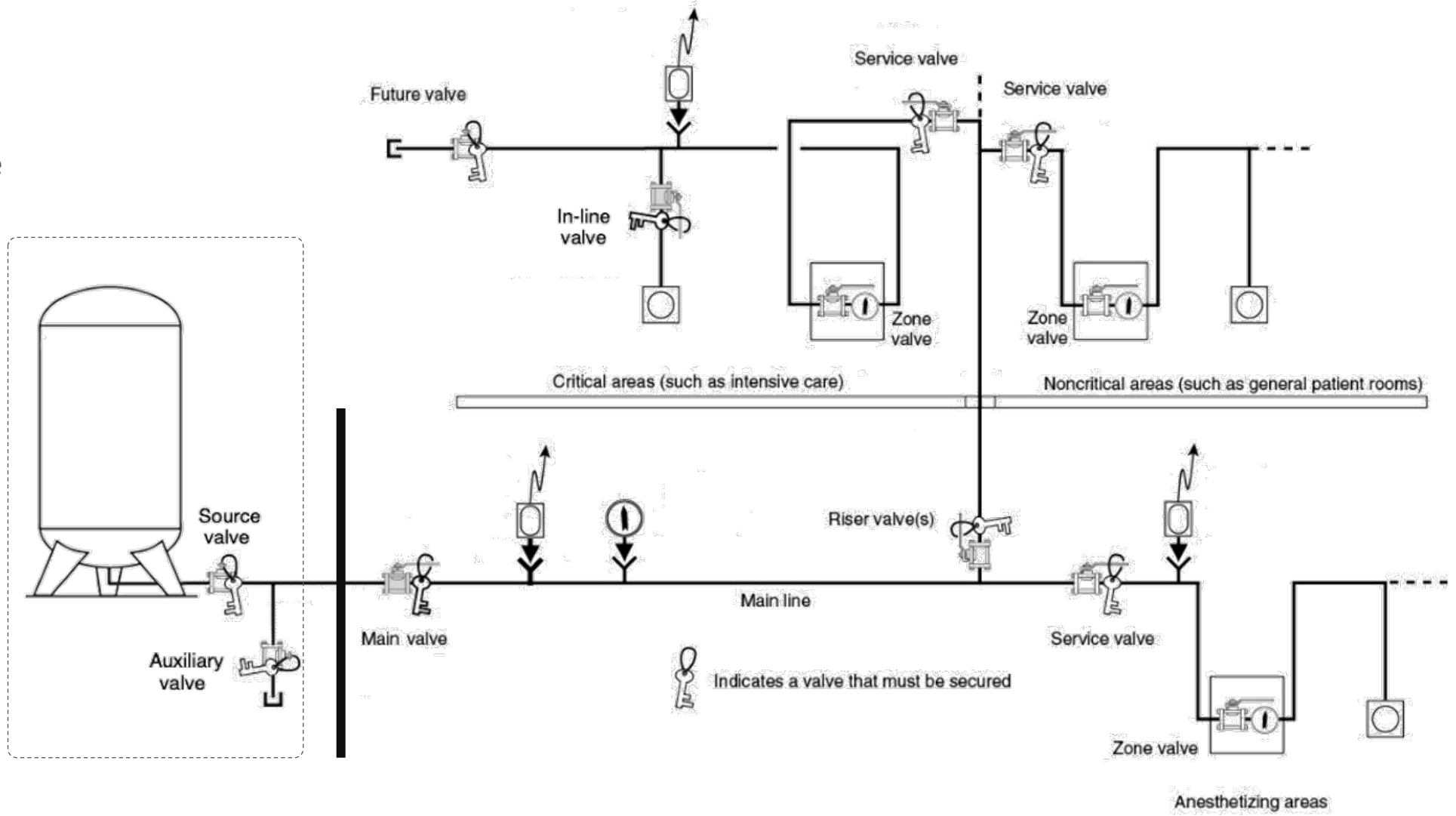
5.1.4.6 Zone Valves

5.1.4.7 In-Line Shutoff Valves

5.1.4.8 Valves for Future Connections

5.1.4.9 In-Line Check Valves

5.1.4.10 Auxiliary Source Connection



5.1.4 Valves.

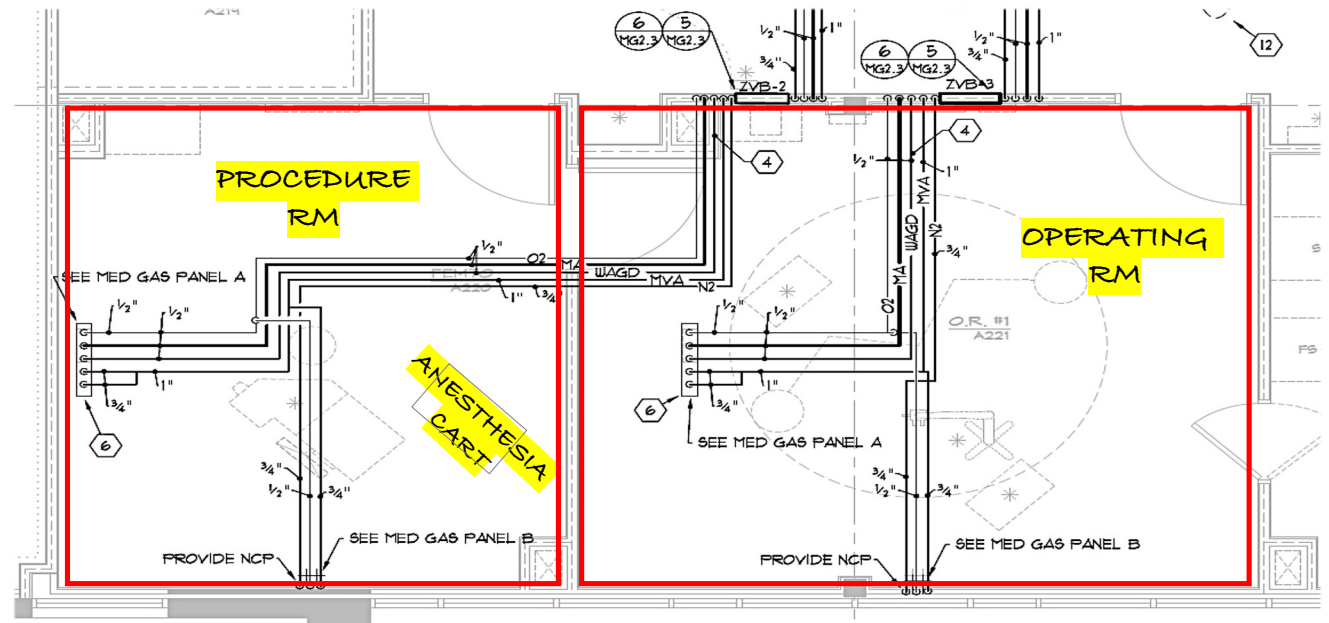
5.1.4.6 Zone Valves. All station outlets/inlets shall be supplied through a zone valve.

5.1.4.6.2 Each Category 1 patient care space shall be provided with a zone valve controlling only that patient care space.

5.1.4.6.3 Zone valves shall be located as follows:

1) A physical separation intervenes between the valve and the outlets/inlets that it controls.

- a) Walls, if they reach floor to ceiling or deck to deck
- b) Doors that can be closed, including fully or partially glass doors
- c) Non-operable windows
- d) Glass enclosures, if they reach floor to ceiling or deck to deck

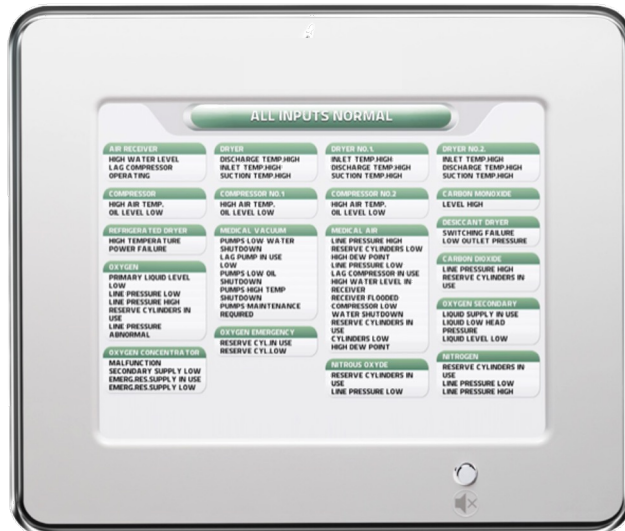


5.1.9 Category 1 Warning Systems.

5.1.9.1 General. All master, area, and local alarm systems used for medical gas and vacuum systems shall include the following:

- 2) Visual indicators that remain in alarm until the situation that has caused the alarm is resolved.
- 3) Cancelable audible indication of each alarm condition that produces a sound with a minimum level of 80 dBA at 0.92 m (3 ft).
- 5) Visual and audible indication that the communication with an alarm-initiating device is disconnected.

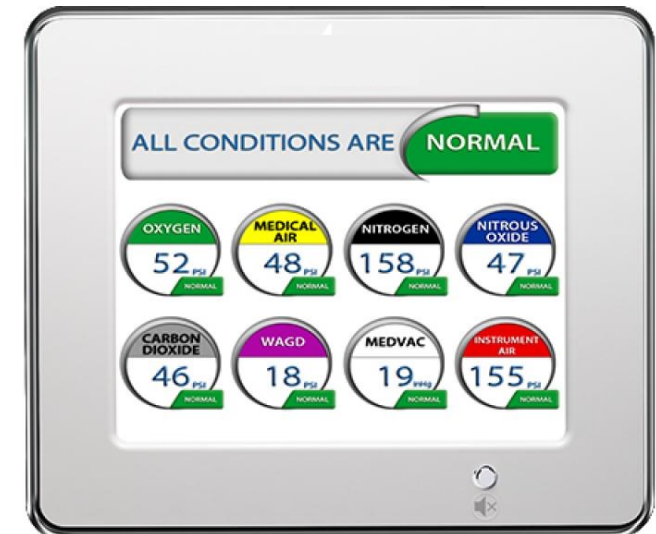
Master



Local



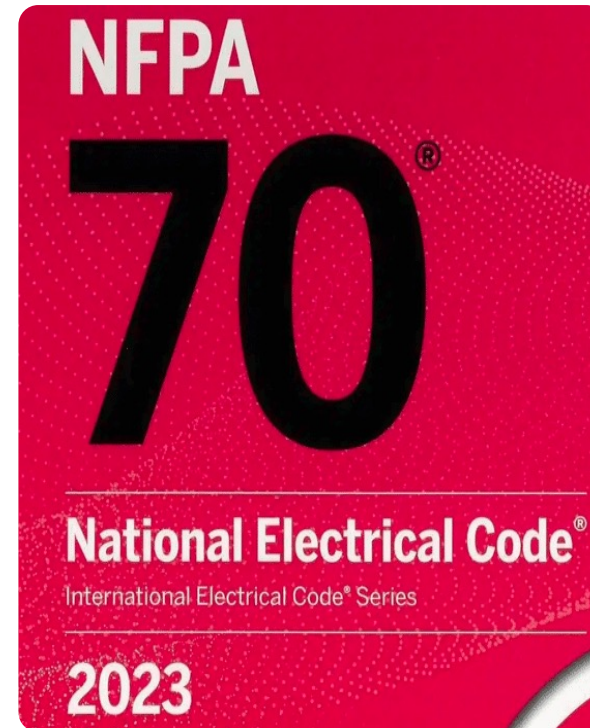
Area



5.1.9 Category 1 Warning Systems.

5.1.9.1 General. All master, area, and local alarm systems used for medical gas and vacuum systems shall include the following:

- 11) Where used for communications, wiring from switches or sensors that is supervised or protected as required by 517.30(C)(3) of *NFPA 70* for life safety and critical branches circuits ~~in which protection is any of the following types:~~
 - a) ~~Conduit~~
 - b) ~~Free air~~
 - c) ~~Wire~~
 - d) ~~Cable tray~~
 - e) ~~Raceways~~
- 11) Communication devices that do not use electrical wiring for signal transmission and are supervised such that failure of communication initiates an alarm



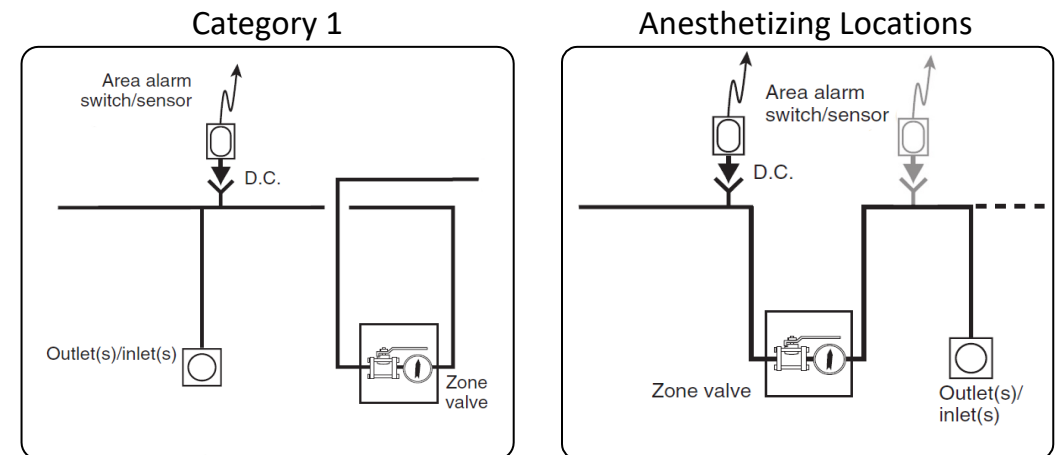
5.1.9 Category 1 Warning Systems.

5.1.9.4 Area Alarms. Area alarm panels shall be provided to monitor all medical gas, medical–surgical vacuum, and piped WAGD systems supplying the following:

- 1) Anesthetizing locations
- 2) Category 1 spaces

5.1.9.4.4 Alarm sensors for area alarms shall be located as follows:

- 1) Category 1 spaces, other than anesthetizing locations, shall have the alarm sensors installed on the patient or use side of each of the individual zone valves.
- 1) Anesthetizing locations, including those that are part of a group of anesthetizing locations, shall have the sensors installed in either of the following locations:
 - a) On the source side of each group of anesthetizing location zone valves on the same branch line
 - b) On the patient or use side of each of the individual zone valves



5.1.10 Category 1 Distribution.

5.1.10.1 Piping Materials for Field-Installed Positive Pressure Medical Gas Systems:

5.1.10.1.4 Tubes shall be one of the following:

- 1) Where operating pressures are above a gauge pressure of 1275 kPa (185 psi) and the pipe sizes are larger than DN80 [NPS 3 (3 1/8 in. O.D.)], hard-drawn H58 (drawn general-purpose) temper seamless copper in accordance with ASTM B819, *Standard Specification for Seamless Copper Tube for Medical Gas Systems*, medical gas tube, Type L, except Type K.
- 2) Listed (CMT) that complies with all of the following...

5.1.10.2 Piping Materials for Field-Installed Medical-Surgical Vacuum and WAGD Systems.

- 1) Hard-drawn seamless copper tube: ASTM B88 (Type K, L or M), ASTM B280, ASTM B819 Type K or L)
- 2) Stainless steel tube: ASTM A269/A269M (TP304L or 316L), ASTM A312/A312M (TP304L or 316L), A312 TP 304L/316L, Sch. 5S pipe, and A403 WP304L/316L, Sch. 5S fittings
- 3) CMT meeting the requirements of 5.1.10.1.4(2)

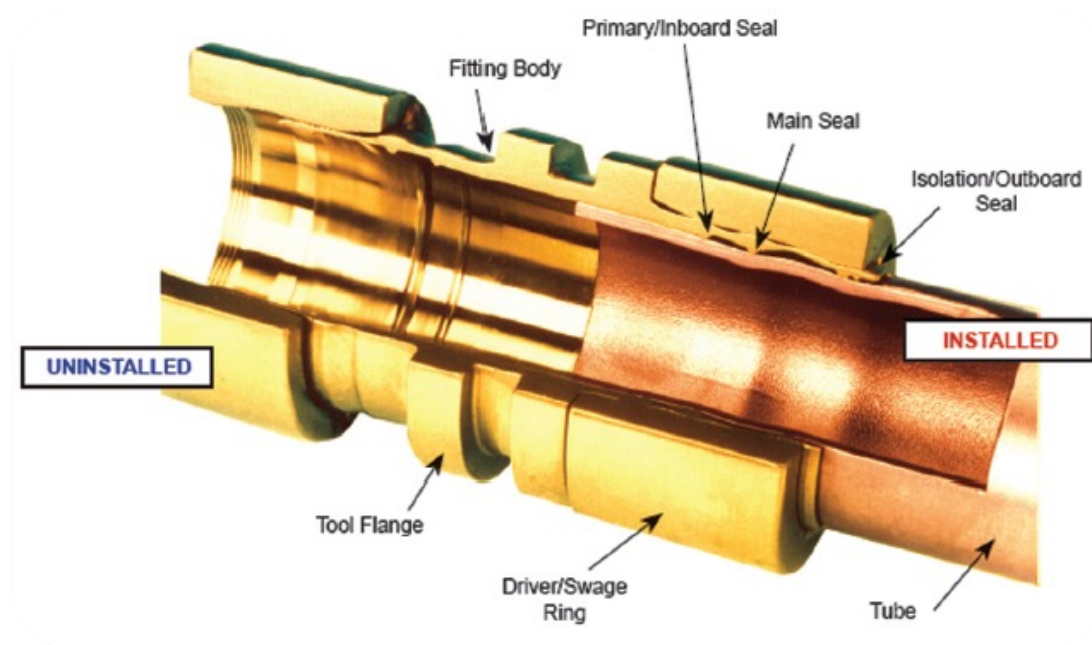


5.1.10 Category 1 Distribution.

5.1.10.3 Joints.

5.1.10.3.1 Positive pressure patient gas systems, medical support gas systems, vacuum systems, and WAGD systems constructed of hard-drawn seamless copper or stainless steel tubing shall have all turns, offsets, and other changes in direction made using fittings or techniques appropriate to any of the following acceptable joining methods:

- 1) Brazing, as described in 5.1.10.4
- 2) Welding, as described in 5.1.10.5
- 3) Memory metal fittings, as described in 5.1.10.6
- 4) Axially swaged fittings, as described in 5.1.10.7
- 5) CMT Fittings, as described in 5.1.10.8
- 6) Threaded, as described in 5.1.10.9



5.1.10 Category 1 Distribution.

5.1.10.11.1 Pipe Sizing.

5.1.10.11.1.1 The system designer shall size the piping such that calculated pressure or vacuum losses across the piping as designed do not exceed the following limits:

- 1) For positive pressure piping, 10% of the intended operating pressure at the source valve
- 2) For vacuum piping, 4" HgV from the inlet to the source valve

5.1.10.11.1.3 3 The design and installation of piping shall meet the following requirements:

- 1) Mains and branches supplying medical gas to more than a single terminal shall not be smaller than DN15 (NPS 1/2) (5/8 in. O.D.) size.
- 2) Mains and branches supplying medical vacuum to more than a single terminal shall not be smaller than DN20 (NPS 3/4) (7/8 in. O.D.) size.
- 3) Mains and branches supplying WAGD or support gases to more than a single terminal shall not be smaller than DN15 (NPS 1/2) (5/8 in O.D.) size.
- 4) Drops to individual terminals shall not be smaller than DN15 (NPS 1/2) (5/8 in. O.D.) size.
- 5) Runouts to pressure sensing devices shall be permitted to be DN8 (NPS 1/4) (3/8 in. O.D.) size.

5.1.10 Category 1 Distribution.

5.1.10.11.1 Pipe Sizing.

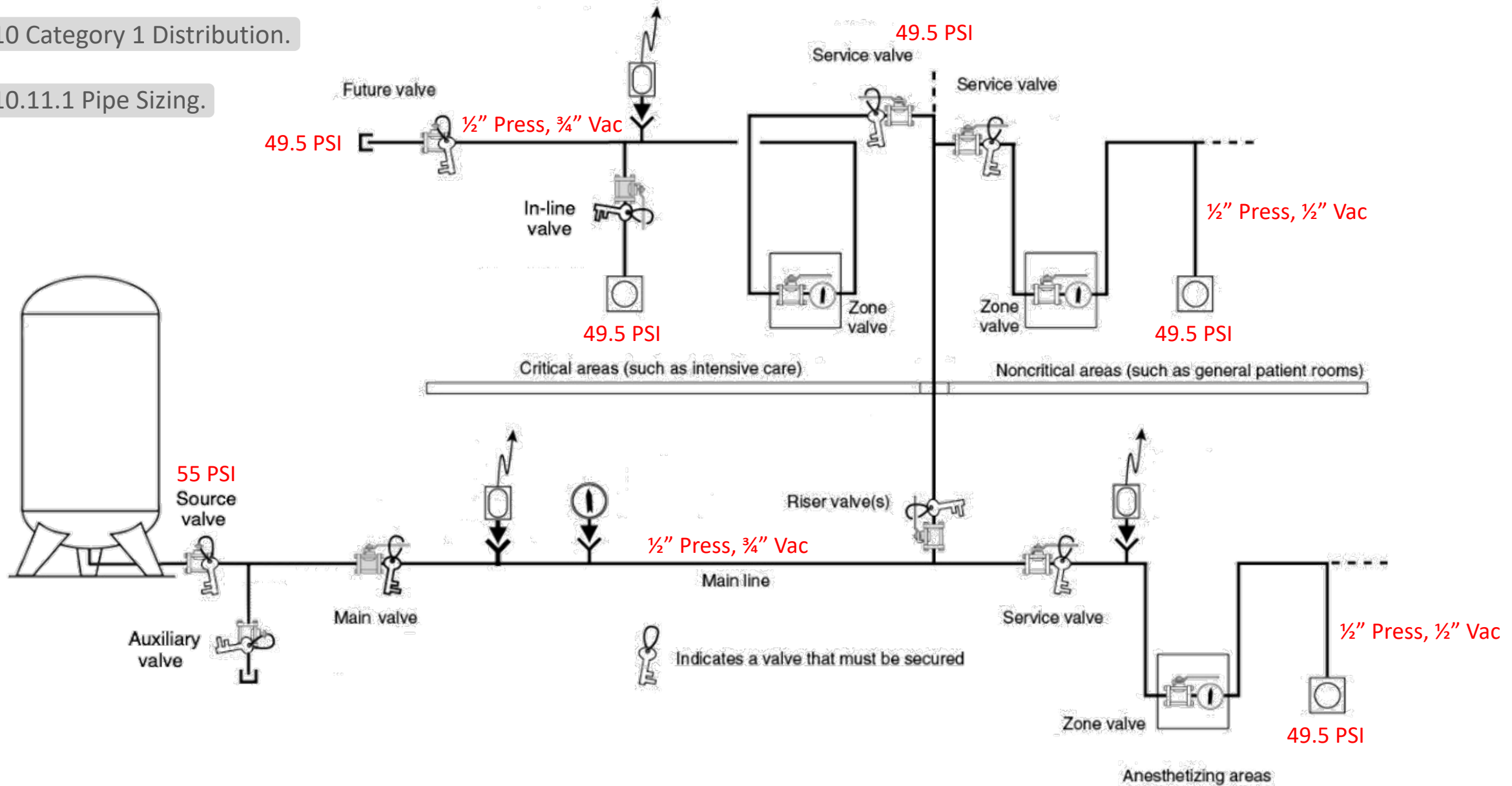


Table 5.1.11 Standard Designation Colors and Operating Pressures for Gas and Vacuum Systems.

Gas Service	Abbreviated Name	Colors (Background/Text)	Standard Gauge Press/Vac
Medical Air	Med Air	Yellow/Black	50-55 psi
Carbon Dioxide	CO2	Gray/Black or Gray/White	50-90 psi
Helium	He	Brown/White	50-55 psi
Nitrogen	N2	Black/White	0-300 psi
Nitrous Oxide	N2O	Blue/White	45-50 psi
Oxygen	O2	Green/White or White/Green	50-55 psi
Oxygen/Carbon Dioxide Mixtures	O2/CO2n%	Green/White	50-55 psi
Medical-Surgical Vacuum	Med Vac	White/Black	15" HgV to 30" HgV
Waste Anesthetic Gas Disposal	WAGD	Violet/White	Varies with system type
Med-Surg Vac/WAGD Combination	Med-Surg/WAGD	White/Black and Violet/White	15" HgV to 30" HgV
Other Mixtures	Gas A%/Gas B%	Major gas for background/Minor gas for text	None
Nonmedical Air and Dental Air	-	Yellow and white diagonal stripe/Black	None
Nonmedical Vac and Dental Vac	-	White and black diagonal stripe/Black boxed	None
Laboratory Air	-	Yellow and white checkerboard/Black	None
Laboratory Vac	-	White and black checkerboard/Black boxed	None
Instrument Air	-	Red/White	0-300 psi

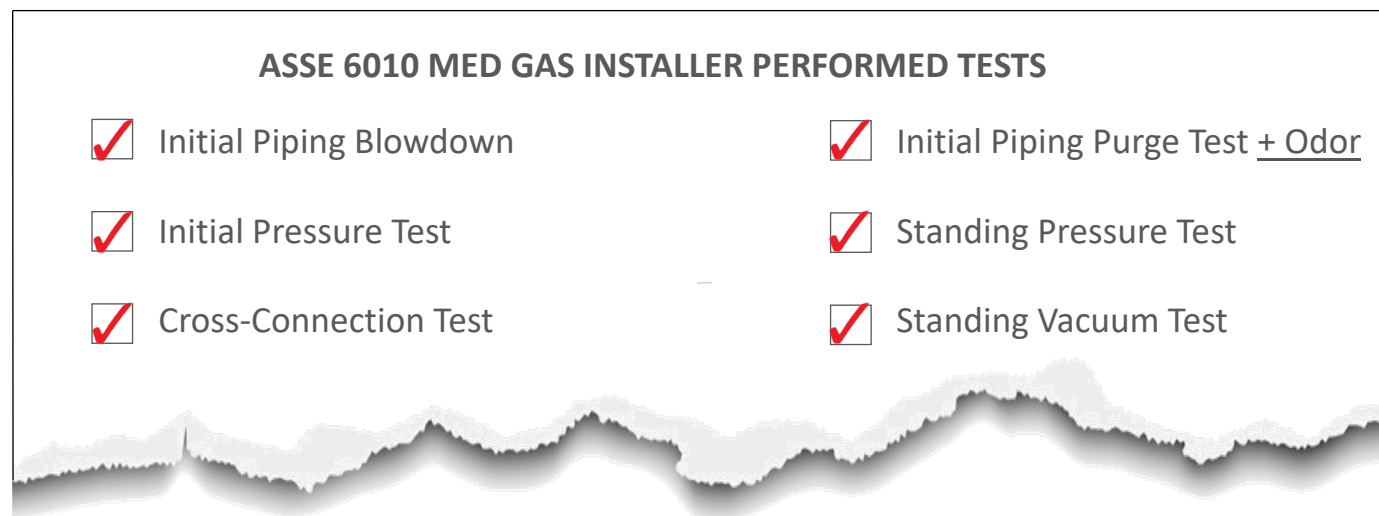
5.1.12 Performance Criteria and Testing.

5.1.12.1.1 Inspection and testing shall be performed on all new piped medical gas and vacuum systems, additions, renovations, temporary installations, or repaired systems to ensure, by a documented process and procedure, that all applicable provisions of this document have been adhered to and system integrity has been achieved or maintained.

5.1.12.1.5 Breached portions of the systems subject to inspection and testing shall be confined to only the specific altered zone and components in the immediate zone or area that is located upstream for vacuum systems and downstream for pressure gases at the point or area of intrusion and any other areas affected by the breach.

5.1.12.2 Installer-Performed Tests.

5.1.12.2.2.1 No pronounced or objectionable odor shall be discernible from any blowdown discharge point of the purge gas.



5.1.12 Performance Criteria and Testing.

5.1.12.3 System Inspection.

5.1.12.3.1.1 System inspections shall be performed prior to concealing piping distribution systems in walls, ceilings, chases, trenches, underground, or otherwise hidden from view.

5.1.12.3.1.3 Inspections shall be conducted by a party technically competent and experienced in the field of medical gas and vacuum pipeline inspections and testing and meeting the requirements of ASSE/IAPMO/ANSI 6020, *Professional Qualifications Standard for Medical Gas Systems Inspectors*, or ASSE/IAPMO/ANSI 6030, *Professional Qualifications Standard for Medical Gas Systems Verifiers*.



- ASSE 6005 – Medical Gas Systems Generalist
- ASSE 6010 – Medical Gas Systems Installer
- ASSE 6015 – Bulk Medical Gas Systems Installer
- ASSE 6020 – Medical Gas Systems Inspector
- ASSE 6030 – Medical Gas Systems Verifier
- ASSE 6035 – Bulk Medical Gas Systems Verifier
- ASSE 6040 – Medical Gas Systems Maintenance Personnel
- ASSE 6050 – Medical Gas Systems Instructor
- ASSE 6055 – Bulk Medical Gas Systems Instructor
- ASSE 6060 – Medical Gas Systems Designer
- ASSE 6070 – Medical Gas Systems Design Instructor

5.1.13 Category 1 Medical Support Gases.

5.1.12.4 System Verification.

- Standing Pressure Test.
- Cross-Connection Test.
- Valve Test.
- Alarm Test.
- Piping Purge Test.
- Piping Particulate Test.
- Verifier Piping Purity Test.
- Final Tie-In Test.
- Operational Flow Pressure Drop Test.
- Medical Gas Concentration Test.
- Medical Air Purity Test for Compressor Sources.
- Labeling.
- Source Equipment Verification + EOSC.



5.1.13 Support Gases.

5.1.13.1.1 Medical support gases consist of nitrogen NF or instrument air and are used primarily for powering equipment used in patient care procedures. Medical support gas applications require delivery at pressures, cleanliness, or purities specific to their intended function(s) (e.g., to operate medical–surgical tools). Medical support gases shall be permitted to be piped into areas intended for any medical support purpose and, if appropriate to the procedures, to be piped into laboratories.

5.1.13.3.7.1 Quality of Instrument Air. The quality of instrument air shall be as follows:

- 1) Compliant with ANSI/ISA S-7.0.01
- 2) Filtered to .01 micron
- 3) Free of liquids (e.g. water, hydrocarbons, solvents)
- 4) Free of hydrocarbon vapors
- 5) Dry to a dew point of -40°C (-40°F)

Table 2.1-2 (FGI Guidelines for Outpatient Facilities)

Section	Location	Oxygen	Vacuum	Medical Air	Instrument Air
PATIENT CARE AND DIAGNOSTIC AREAS					
2.1-3.2.2	Procedure room	1 ¹	1 ¹	—	—
Table 2.1-4	Class 2 imaging room	2	2	1 ¹	—
2.1-3.2.3.2 (1)(a)	Operating room (255-square-foot OR)	1 ¹	1 ¹	—	—
2.1-3.2.3.2 (1)(b)-(c) Table 2.1-4	Operating rooms ² Class 3 imaging room ²	2	3	1 ¹	—
2.1-3.3.2	Airborne infection isolation room	0 ³	0 ³	—	—
2.1-3.7.4	Phase I post-anesthesia recovery (PACU) patient care station	1	1	—	—
2.1-3.7.5	Phase II recovery patient care station	0 ³	0 ³	—	—
—	Cast room	0 ³	0 ³	—	—
2.4-2.2	Birthing room	1 ¹	1 ¹	—	—
2.8-3.4.2	Treatment room (emergency facility)	1	1		
2.8-6.2.2	Triage area (emergency facility)—per station	1	1		
2.8-3.4.4	Trauma/resuscitation room (emergency facility)—per gurney	2	2	1	
2.9-3.2.2	Endoscopy procedure room	1	3	—	—
2.11-3.2.9.2 (2)	Electroconvulsive therapy treatment room	1 ¹	1 ¹	—	—
PATIENT SUPPORT FACILITIES					
2.1-4.3.2.2 (2)	Sterile processing decontamination room	—	—	—	1 ^{1,4,5}
2.1-4.3.2.2 (3)	Sterile processing clean workroom	—	—	—	— ^{1,4,5}
2.1-4.3.2.3	One-room sterile processing room	—	—	—	— ^{1,4,5}
2.9-4.3.2	Endoscope processing room—decontamination area	—	— ³	—	— ^{1,3,5}
2.9-4.3.3	Endoscope processing room—clean work area	—	— ³	—	— ^{1,3,5}

1 Use of portable equipment in lieu of a piped gas system shall be permitted.

4 In the one-room sterile processing facility and the clean workroom of the two-room sterile processing facility, an instrument air outlet or portable compressed air shall be provided as required by the equipment used. In the decontamination room of the two-room sterile processing facility, an instrument air outlet or portable compressed air is required.

5 NFPA 99 permits the use of portable medical compressed air for single applications. Where cylinders are used for non-respiratory purposes, such as air for blowing down scopes and/or running decontamination equipment, NFPA 99 should be consulted for cylinder air quality, placement, and handling.

5.1.14 Category 1 Operation and Management.

5.1.14.1 Responsible Facility Authority.

5.1.14.1.1 Each health care facility shall designate one or more individuals to be the responsible facility authority...

5.1.14.1.2.2 The responsible facility authority shall be responsible for the following:

- 1) Development of Risk Assessment
- 2) Upkeep of the Emergency Plan
- 3) Contingencies for unique circumstances
- 4) Enforcing Permit-to-Work rules
- 5) Evaluation of testing reports
- 6) Maintenance of facility's records including Medical Gas System Diagrams (5.1.14.7.7)



5.1.14.3 Qualifications.

5.1.14.1.3.1 The person(s) designated as the responsible facility authority shall be qualified to interpret, implement, and advise on this code.

5.1.14.1.3.2 Appropriate qualification shall be demonstrated by any of the following:

- 1) Facility develops its own training program
- 2) *ASSE 6010 Medical Gas Systems Installer*
- 3) *ASSE 6020 Medical Gas Systems Inspector*
- 4) *ASSE 6030 Medical Gas Systems Verifier*
- 5) *ASSE 6040 Medical Gas Systems Maintenance Personnel*
- 6) *ASSE 6060 Medical Gas Systems Designer*

5.2 Category 2 Piped Gas and Vacuum Systems.

5.2.1.1 These requirements shall apply to health care facilities that require Category 2 systems as referenced in Chapter 4.

- 1) ~~Only moderate sedation; minimal sedation or no sedation is performed...~~
- 2) ~~The loss of the piped gas or piped vacuum systems is likely to cause minor injury to patients, staff, or visitors.~~

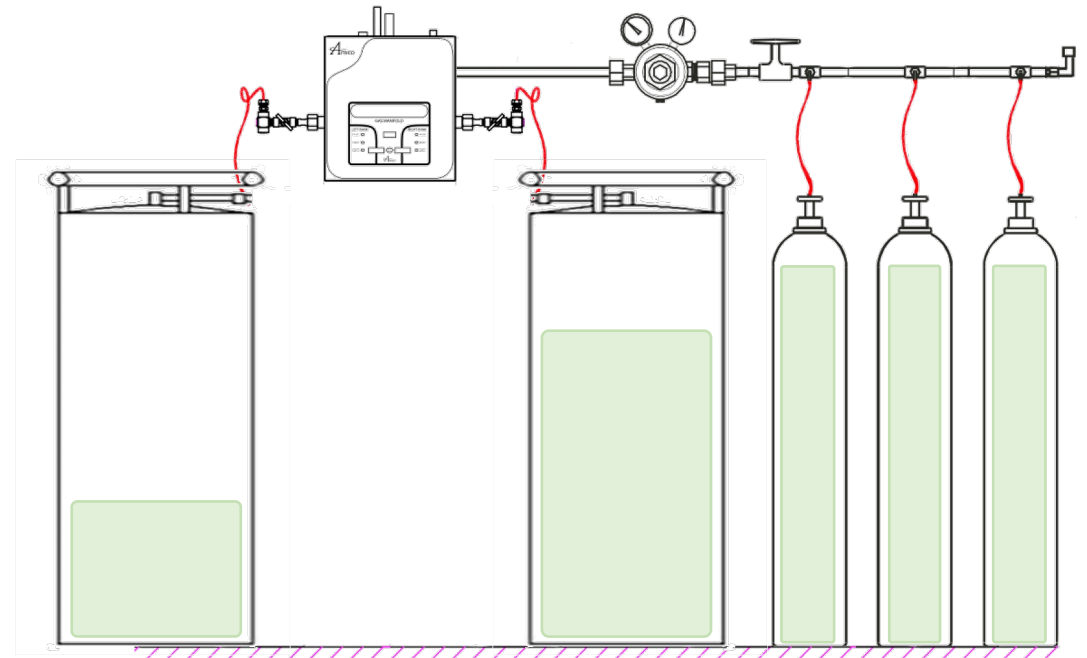
5.3 Category 3 Piped Gas and Vacuum Systems.

5.3.1.1 These requirements shall apply to health care facilities that require Category 2 systems as referenced in Chapter 4.

- 1) ~~Only minimal sedation or no sedation is performed...~~
- 2) ~~The loss of the piped gas or piped vacuum systems is not likely to cause injury to patients, staff, or visitors.~~

5.4 Liquid Withdrawal and Piping.

5.4.1 This section shall apply to health care facilities that draw cryogenic liquids from containers for use in liquid form.



Questions?

Kyle Jussel
Medical Air, Inc. - President/CEO
Ph: (303) 279-2491 Ext: 130
kyle@medicalairsystems.com

