



Medical Gas and Vacuum Systems

Category: Commercial Construction
Residential Construction

Effective: April 3, 2002 *[Margaret M. Mahoney]*

Responsible Bureau Sections: Development Services Center
1900 SW Fourth Avenue
Portland, OR 97201
503-823-7310

Commercial Plumbing Section
1900 SW Fourth Avenue
Portland, OR 97201
503-823-7302

Combination Inspection Section
1900 SW Fourth Avenue
Portland, OR 97201
503-823-7388

BACKGROUND

In 1999 the Oregon legislature changed the definition of plumbing to include medical gas systems. The new regulation affecting medical gas systems takes effect April 1, 2002. Since medical gas systems include piping and mechanical devices in addition to the actual medical gases, it is very important that only those with specialized skills install or inspect these systems. It is for this reason that the new requirements specify new certification and education requirements.

Since medical gas systems fall under the definition of plumbing, in addition to the provisions outlined in this guide, all medical gas systems are subject to the provisions of the current Oregon Plumbing Specialty Code.

Application of Guide

The provisions of this guide apply to all medical gas installations, regardless of the building occupancy classification. All commercial or residential medical gas installations shall comply with this guide.

What Are Medical Gas Systems?

Medical gas systems include the pipes, fixtures and other apparatus for medical gas, anesthetic waste gas or vacuum systems. These systems also include anesthetic waste gas recovery, or scavenging, or disposal systems along with medical air nitrous oxide, oxygen, nitrogen, helium, carbon dioxide, and other gas mixtures.

Who Can Install These Systems?

Installation, repair or alteration of medical gas systems is limited to individuals certified as medical gas installers.

Who Can Become Certified as a Medical Gas System Installer?

Installer certification is limited to the following groups:

1. Licensed Journeyman Plumbers
2. Employee of businesses holding a valid specialty medical gas registration from the State Plumbing Board (State).

How Do I Get Certified?

Medical gas installer certification is acquired through training and examination conducted by approved training programs. Only licensed journeyman plumbers holding an active State of Oregon certification or individuals working for a business with a current specialty medical gas certification from the State are authorized to apply for the medical gas endorsement. A list of Building Code Division approved training programs can be obtained by calling (503) 373-7488.

Permit and Plan Requirements

A. Plumbing Permit Required

Plumbing permits are required for medical gas or vacuum systems in all of the following circumstances:

1. Installation of any new system;

2. Alteration of any existing system;
3. Repair of an existing system; or
4. Replacement of any medical gas or medical vacuum system or its components.

No installation, addition, alteration, repair or replacement of a medical gas or vacuum system, or its components, shall occur without first obtaining a plumbing permit. Any work conducted before obtaining the required permit shall be subject to citation and the imposition of a fine.

B. Permit Application Requirements

Application for a plumbing permit for medical gas or vacuum systems can only be made by the following individuals:

1. Plumbing contractors; or
2. Businesses holding a valid specialty medical gas registration from the State.

C. Permit Application

1. Application for a plumbing permit for a medical gas or vacuum system shall be made through the Development Services Center (DSC).
2. A separate plumbing permit shall be required for each installation, addition, alteration, repair or replacement of a medical gas system.
3. When applying for a plumbing permit for a medical gas system, the following plan submittal requirements apply:
 - a. Simultaneous plumbing and building permit applications.
 - 1) Four sets of the plans and specifications for the medical gas system shall be included with the plans for the general plumbing system.
 - 2) Plans shall be reviewed during the building permit review process.
 - b. Independent medical gas permit application (application without a building permit).
 - 1) Three sets of plans and specifications for the medical gas system shall be provided to the DSC at time of permit application.

- 2) Plans will be reviewed and approved during the plumbing plan review process.

D. Fees

Permit and State Surcharge fees for medical gas or vacuum systems shall be paid at the time of permit application. In addition to the permit fee, a fee equal to 25% of the permit fee shall be charged to cover plan review costs.

E. Additional Permits Required

In addition to the plumbing permit addressing the medical gas system, the following additional permits may be required.

1. Building permit: A building permit is required for the construction of any room or enclosure required for the medical gas system.
2. Mechanical permit: A mechanical permit is required for any heating or ventilation of enclosures where medical gas is stored or distributed.
3. Electrical permit: An electrical permit is required for any electrical work involved in the medical gas system installation.
4. Fire Marshal permit: A permit shall be required from the Fire Marshal's Office for any on site storage of medical gas.

F. Plan and Specification Requirements

1. Plans and specifications are required for all medical gas installations, additions, alterations, repairs or replacements.
2. Medical gas systems shall be designed and installed to meet the requirements specified in the National Fire Protection Association (NFPA) Standard 99C-1999, Gas and Vacuum Systems. This standard has been adopted by reference into the *Oregon Plumbing Specialty Code*.
3. Regardless of occupancy classification, any room containing medical gas cylinders shall be constructed to comply with the construction requirements found in Section 410 of the 1998 edition of the *Oregon Structural Specialty Code*.
4. Plans and specifications shall clearly indicate the nature and extent of the work proposed and shall show in detail that the work will comply with the

requirements of the code. Sizing calculations may also be required if deemed necessary by the plans examiner.

5. Plans, specifications and calculations for medical gas or medical vacuum systems shall bear the seal and signature of an Oregon registered professional engineer.

G. Plan Review

1. **Commercial Medical Gas Installation.** Where medical gas is proposed in occupancies covered by the *Oregon Structural Specialty Code*, the Commercial Plumbing Section will conduct medical gas system plan review. Only those certified plumbing inspectors that also hold medical gas inspection certification may conduct the plan review.
2. **Residential Medical Gas Installation.** Where medical gas is proposed in occupancies covered by the *Oregon One and Two Family Dwelling Specialty Code*, the Residential Plumbing Section will conduct medical gas system plan review. Only those certified plumbing inspectors that also hold medical gas inspection certification may conduct the plan review.
3. After the plan has been approved, the permit shall be issued and the applicant shall be notified that they may proceed with installation. No installation shall be started until plans for the medical gas system have been reviewed, approved and a plumbing permit has been issued.
4. A copy of the approved plans will be available at Document Services. A copy of the approved plans shall be kept at the job site throughout the life of the project, and shall be available for the inspector to review as necessary. Changes may not be made to approved plans without the authorization of the plans examiner.
5. Approval of plans does not guarantee that revisions to plans will not be necessary. Plans that are revised for any reason shall be resubmitted to OPDR for re-approval.

H. Inspection Requirements

1. No inspection of a medical gas system shall occur before the plans have been approved, and the permit has been issued.

Office of Planning and Development Review
Program Guide – Medical Gas and Vacuum Systems
Page 6 of 7
April 3, 2002

2. Inspection will be conducted for all medical gas or vacuum system installation, alteration, repair or replacement. Inspectors certified as medical gas inspectors will conduct all inspections.
3. The applicant is responsible for contacting OPDR to request necessary inspections.
4. Inspection requests made by 6:00 am will be completed the same day they are received. Call (503) 823-7000 to request inspections. Be prepared to enter the following:
 - a. IVR number shown on your plumbing permit;
 - b. The inspection code; and
 - c. A phone number where you can be reached.
5. Inspection is required at the following project stages:
 - a. Piping installation inspection. Use Inspection code 396, Medical Gas/Vacuum system.
 - b. Rough-in cover inspection. Use inspection code 310, rough-In/Top Out.
 - c. Final inspection. Use inspection code 399, Final Plumbing.
6. All work to be inspected shall be exposed and accessible to allow for easy observation by the inspector. Work that is not exposed and accessible shall be subject to reinspection and the appropriate reinspection fees.
7. The inspector will require verification that the work has been conducted by an individual certified to conduct medical gas work. Verification will consist of proof that the installer is certified to conduct such work.
8. Work on a medical gas system which is performed by non-certified personnel shall be subject to disapproval, citation and suspension of construction operations and may be grounds for imposition of fines.
9. System verification. Under the provisions of NFPA 99C, system verification is required to be conducted by a third party individual trained and certified in medical gas verifications.

I. Permit Expiration and Renewal

Plumbing permits for medical gas or vacuum systems shall expire:

Office of Planning and Development Review
Program Guide – Medical Gas and Vacuum Systems
Page 7 of 7
April 3, 2002

1. 180 days from the date of issuance if no work for which a required inspection is needed is performed and inspected in that time period; or
2. 180 days from the last required inspection.

One additional 180 day extension of the permit may be granted upon written request to the plumbing inspector.

Permits that have been expired for less than 180 days may be renewed for additional fee when changes have not been made to the original scope of work permitted.

A permit may be renewed only once. No permit which has expired for more than 180 days may be renewed.

J. Violations, Investigation and Reinspection Fees

Work on a medical gas system which is performed by non-certified personnel shall be subject to disapproval, citation and suspension of construction operations. In addition, all non-certified personnel found to be performing medical gas system work will be reported to the State Plumbing Board.

Any medical gas or vacuum system work undertaken before obtaining the required permit shall be subject to citation and the imposition of an investigation fee. The current investigation fee (established 08/21/2000) is the amount equal to the permit fee or the actual investigation costs at \$105 per hour whichever is greater, plus \$250.

Any work not ready for inspection at the time of inspection will be subject to reinspection and reinspection fees. Current reinspection fees (established 08/21/2000) are \$75.

All fees are subject to change, please contact the Development Services Center to verify the current fee.