

Medical Gas – Design Guidance (Categories 1 and 2)

Code Compliant Design Criterion

2012 NFPA 99 and Chapter 13 of the SPC or UPC

A project permit application is complete when it meets the submission requirements of the Authority Having Jurisdiction (AHJ). It is the duty of the AHJ to inform the applicant, within 28 calendar days:

- a. That the application is complete; or
- b. The application is incomplete and what is needed to make the application complete.

Please resource the complete RCW 36.70B.070 regulations at;

<https://apps.leg.wa.gov/rcw/default.aspx?cite=36.70B.070>

- ☐ Submit one complete set of plans and required designer qualifications

Category 1 and 2 Projects:

- Plans shall be stamped by a WA State Professional Engineer (PE) for all Category 1 and 2 medical gas systems.

Category 3 and 4 Projects:

- A Washington State P.E. or an individual with a valid Washington State Journeyman Plumber Certificate and an ASSE 6005 Generalist Certification or ASSE 6010 Medical Gas System Installer Certification may design Category 3 and 4 medical gas systems.

Note: installation, installer tests and verification tests of the medical gas system, as well as verifier qualifications, shall be in accordance with NFPA 99 and Chapter 13 of the UPC or SPC

Sub-Note: Category 3 and 4 systems do not require plan review and issued as an over-the-counter permit

- ☐ Narrative of Scope: SPC/UPC Section 1304.5.2
- ☐ Application

To expedite the plan review process in a timely manner, it is important that a complete set of plans be submitted. Below is design guidance to assist the applicant with minimum requests of information.

Plan document for Category 1 and 2 medical gas systems new, altered or repaired must include the minimum criterion to be considered complete but may not be limited to the following;

1. Cover sheet shall include but not limited to;

- Symbols
- Abbreviations
- General notes
- Code cycles used
- Sheet index

- Site address
- Assessor's parcel number (APN)
- Systems used (SPC/UPC Section 1304.5.2)
- Third party testing agency
- Designer credentials
- Plan name
- Certification Test Shall Include;
 1. Verifying in accordance with the installation requirements.
 2. Testing and checking for leakage, correct zoning and identification of control valves.
 3. Checking for identification and labeling of pipelines, station outlets and control valves.
 4. Testing for cross-connection, flow rate, system pressure drop and system performance.
 5. Functional testing of pressure relief valves and safety valves.
 6. Functional testing of source of supply.
 7. Functional testing of alarm systems, including accuracy of system components.
 8. Purge flushing of system and filling with specific source gases.
 9. Testing for purity and cleanliness of source gases.
 10. Testing for specific gas identity at each station outlet.

Note: Certification Test, items 1 through 10 must be provided on plan cover sheet

OR;

Referencing UPC Section 1320.2 Certification Test shall be followed

2. Floor plans shall include but not limited to;

- Room names
- medical gas systems
- vacuum systems
- compressors
- exhausts/air intake
- main valves (labeled)
- source valves
- valve boxes
- alarms
- user inlets/outlets
- location of bulk systems
- location of new or existing cylinder storage
- emergency shutoff valves
- plan scale
- equipment

3. Piping layout diagram shall include but not limited to;

All medical gas systems and vacuum, source of system – bulk/cylinder, equipment-compressors, etc., exhaust/air intake, user outlets/inlets, source valves, pipe size, system type, alarms and panels, origin of gas, demand and loading of medical gas pipe system(s)-existing or future.

Note: Category 1, 2, 3, –1302.1-Building System Risk Categories. (2015 UPC)

Building systems in health care facilities shall be designed in accordance with Category 1 through 3 requirements as detailed in this code. [NFPA 99:4.1]

Sub-Note: Category 1, 2, 3, 4 –1302.1-Building System Risk Categories. (2018 UPC)

Activities, systems, or equipment shall be designed to meet Category 1 through 4 requirements as detailed in this code. [NFPA 99:4.1]

4. Complete specification of material shall include but not limited to;

Gas type, abbreviated name, background-lettering-text and coloring, operating pressures.

Note: Table 1305.1 chart format found in the UPC may be used **or** data in Table 1305.1 can be embedded in a customized schedule matrix

5. Qualification of medical gas installer(s);

Qualification of installers must be kept on-site and produced at the request of the PHSKC inspector. This includes valid brazing certification and third party testing agency.

Note: this information may not be available at time of plan approval, but must be available at time of first inspection

6. Third Party Testing Agency

Testing agency must be ASSE 6030 Medical Gas System Verifier Certified.

Note: Third party test agency must comply with the 2015 UPC Section 1319.12.2

7. Special considerations;

A. Seismic provisions may be required for equipment and/or pipe systems when applicable.

B. Operation and maintenance manual may be required at time of final inspection.

8. Operating pressure and supply pressures;

Plan sheets and/or diagrams must show operating and supply pressure of each system installed or connected.

9. Schedules;

A. Equipment

B. Material