

# Medical Gas and Vacuum Piping Systems

“Installers Certification Course” ASSE 6010

**Tuesday – Friday, December 8, 9, 10 & 11, 2020**

8 am – 4 pm each session at ABC Keystone



**Minimum Prerequisite:**

Contractor employees need to be journeyman level or active in an apprenticeship program for at least four years.

Estimators and hospital employees who will not be installing medical gas systems and building officials/inspectors are welcome to the class with the four-year requirement waived.

- This course will consist of training in all facets of medical gas pipeline equipment installation for hospitals, office-based occupancies, nursing homes, and other healthcare facilities.
- Learn proper brazing techniques and requirements for working with medical gas equipment and piping.
- The textbook will be the latest edition of NFPA 99 and will be provided along with other learning tools.
- Participants will receive certification upon successful completion of course material and brazing practical skills.
- Lunch is on your own – current restaurant list will be provided.

**The info sheet for Medical Gas Training seminar found on page 3 must be returned with the ABC registration form at the time of registration.**

**INSTRUCTOR: David B. Mohile**, Medical Engineering Services, Inc., West Virginia. David has been involved with medical gas work for over 35 years. He has been a voting member of the Technical Committee of the American Society of Sanitary Engineering since its inception. For over 20 years he has also been a voting member of the Technical Committee that is responsible for writing and maintaining Chapter 5, NFPA/ANSI, Standard on Medical Gas and Vacuum Systems of the National Fire Protection Association, NFPA 99. This is the standard to which all U.S. hospitals and health care facilities are constructed. He has served as Chair of that Committee.

*“The information received in this course has not only educated me as to proper installation and testing of medical gas systems, but it also has enlightened me as to the personal responsibility for the safety of human life in so doing.”*

– Don R. Crutcher, Frey Lutz Corp

**ABC Member Pricing: \$975 per person**

**Regular Pricing: \$1,295 per person**

**Reservations/cancellations due by: 7 days prior to first session**

**Firm Name:** \_\_\_\_\_ **Phone:** \_\_\_\_\_

**Authorized By/Job Title:** \_\_\_\_\_ **Email:** \_\_\_\_\_

**Participant Name:** \_\_\_\_\_ **email:** \_\_\_\_\_

**Title:** \_\_\_\_\_  **Participant meets min. prerequisite**

**Participant Name:** \_\_\_\_\_ **email:** \_\_\_\_\_

**Title:** \_\_\_\_\_  **Participant meets min. prerequisite**

**TOTAL PARTICIPANTS:** \_\_\_\_\_ **TOTAL COST:** \_\_\_\_\_  Check enclosed  Invoice EIN: 23-1618254

C.O.R.E. - Invoice remaining amount  VISA/AMEX/MC 3/4 Digit Code: \_\_\_\_\_

**Card #:** \_\_\_\_\_ **Exp. Date:** \_\_\_\_\_ **Billing Address Zip Code:** \_\_\_\_\_

**Authorized Signature** \_\_\_\_\_ **Print Name** \_\_\_\_\_

Call Barbara at (717) 653-8106 / FX: (717) 653-6431 / Email: barbara@abckeystone.org/ Register at www.abckeystone.org

Education expenses may be deductible by members as an ordinary and necessary business expense. Consult your accountant for more information.

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**Class Size is Limited to 30 Participants!**

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## **COURSE OUTLINE:**

### **Course Introduction & Materials**

#### **Introduction to Medical Gas Systems**

- Types of Systems
- Medical Gases used in Health Care Facilities

#### **Types of Facilities and Gases Used**

- Hospitals; Nursing Homes; Clinics; Orthopedic and Plastic Surgeons Offices; Ambulatory Surgery and Outpatient; Office Based Occupancies

#### **Medical and Instrument Air Systems**

- Types of Compressors Used
- Equipment Requirements
- Piping Requirements

#### **Medical Gas Sources**

- High Pressure Cylinders
- Cryogenic Vessels – Portable & Fixed

#### **Valves**

- Types and Location of Valve

#### **Alarms**

- Master Alarms
- Area Alarms
- Local Alarms

#### **Medical Vacuum Systems**

- Vacuum Pumps
- Piping

#### **Requirements for Testing and Preparation for Certification**

- Contractor Performed Testing
- Final Verification Testing

#### **Brazing**

- Brazing Requirements
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**Please complete the Med Gas Training info sheet on the next page.**

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Learn proper brazing techniques and requirements and gain training in installation for hospitals, office-based occupancies, nursing homes and other healthcare facilities. NFPA has mandated brazing qualifications since 1993. The 2012 edition of NFPA 99 mandates that all installers meet the requirements of the A.S.S.E series 6010, 32-hour course. In addition, many major design firms now mandate compliance with the ANSI/A.S.S.E. 6000 series in their specifications. This is done typically in the same section of the spec that mandates compliance with the A.S.S.E 5000 series back flow prevention requirements.

**Each student brazing will need to provide the following material:**

- 4' of 1-1/2" L tubing. This need not be cleaned for oxygen service. Ordinary ASTM B88 water tube is acceptable. Scrap tubing can be used if it is clean inside and not dented.
- 6 – 8 1-1/2" wrought couplings with stops. Not cleaned is OK.
- Approximately 1 pound of 5% silver solder BCuP
- Any safety equipment you ordinarily use such as goggles, gloves, etc. We will use vise tri-stands for setting up our brazing assemblies and cutting tubing samples bring them with you to practice for the final examination.

**Note:** The above material can be combined if more than one person is coming from the same shop. For instance, if five people are coming from one shop, they could combine tubing requirements and come up with 1 20' length of tubing.

**Students will be required to successfully complete a written examination as well as a brazing practical in which you will be required to braze vertical and horizontal full penetrating joints on 1 1/2" tubing. The brazing coupons will be tested by a C.W.I at a laboratory.**

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**This info sheet for Medical Gas Training seminar must be returned with the ABC registration form at the time of registration.**

Name of Student: \_\_\_\_\_

Address of Student: \_\_\_\_\_

City: \_\_\_\_\_

State: \_\_\_\_\_

Work PH: \_\_\_\_\_

Home PH: \_\_\_\_\_

**Social Security No. (provide first day of training)**

Master Plumber \_\_\_\_\_ Journeyperson \_\_\_\_\_ Apprentice \_\_\_\_\_ Years' Experience: \_\_\_\_\_

Field Supervisor \_\_\_\_\_ Inspector \_\_\_\_\_ Estimator \_\_\_\_\_ Other Job Title: \_\_\_\_\_

**In-house hospital personnel (please specify)** \_\_\_\_\_

Circle Selection: **Organized Shop**  **Open Shop**

**Current license No's. (if any)** \_\_\_\_\_ **State** \_\_\_\_\_

**Do you currently work on medical gas pipelines?** Circle Selection: **Yes**  **No**

**Are you familiar with NFPA 99?** Circle Selection: **Yes**  **No**

**Name of Employer:** \_\_\_\_\_

**Address of Company:** \_\_\_\_\_

**Company PH:** \_\_\_\_\_

**Company FX:** \_\_\_\_\_

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