ASSE/IAPMO Professional Qualification Standard Series 12000 for the Health and Safety of Construction and Maintenance Personnel

ASSE/ASPE
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INTRODUCTION

- ASSE International, formerly "The American Society of Sanitary Engineering", is a 100 yr. old membership organization dedicated to the preservation of public health and safety through the use of proper plumbing, piping, and mechanical practices.

INTRODUCTION

- Motto "Prevention Rather than Cure"
- Pathogens, biohazards, and other infectious diseases can affect all construction and maintenance personnel in their work areas – especially plumbers who work with plumbing drain lines

INTRODUCTION

- While there is an abundance of piping and mechanical organizations, ASSE International is one of few addressing these pathogens and diseases and the roles they play throughout these industries.

INTRODUCTION

- Standard Series 12000 addresses these critical health issues

- 12000 sets minimum criteria for the training and certification of construction and maintenance personnel – especially plumbers – on how to safely work within this potentially dangerous environment.

PURPOSE

- Explain ASSE/IAPMO Professional Qualifications Standard Series 12000
- Practical Example of use of 12000 – the Safe replacement of Large Hospital Building Drain containing possible Pathogens
- Introduce new trend in Medical/Surgical Vacuum that affects plumbers safety in these regards

Professional Qualification Standards

ASSE Professional Qualification Standards

Since the 1960's, to protect public health, ASSE developed Product Performance standards for safety related plumbing products (now 50 standards)

In 1987, to protect public health, ASSE decided that People Performance Professional Qualification (PQ) standards were also needed for craftspeople (usually plumbers) who protect public health.

Professional Qualification Standards

The flagship ASSE Series 5000 was developed to standardize the industry-expected skill levels of certain backflow preventer technicians

All ASSE standards are minimum requirements developed using the consensus process required by The American National Standards Institute (ANSI)

Supporting Organizations

The American National Standards Institute

Provides accreditation that standards are developed using the consensus process

Consensus – general agreement but not necessarily unanimity

Supporting Organizations

Requirements of "Consensus" process

1. Openness – participation shall be voluntary and open to all persons affected by the standard
2. Balance – the committee shall have a balance of interests and expertise.
3. Consensus – all concerned parties must reach agreement that the standard is the best technical document based on available information
4. Due Process – anyone interested or affected by the standard has the right to participate

Supporting Organizations

The International Association of Plumbing and Mechanical Officials (IAPMO)

1. An 85 year old USA membership organization that develops the ANSI accredited Uniform Plumbing Code and Uniform Mechanical Code to protect the public health and safety

2. In 2012 ASSE members voted on and agreed to become an international chapter of IAPMO

Supporting Standard

OSHA Bloodborne Pathogen Standard (BBPS) 29CFR 1910.1030 – 1991

Published by USA's Occupational Safety and Health Administration to address potential transmission of HBV, HCV or HIV to healthcare and other workers who can be "reasonably" anticipated to contact blood, or Other Potentially Infectious Materials (OPIM), while performing their job duties.

ASSE Professional Qualification Standard Series 12000

"Professional Qualification Standard for the Health and Safety of Construction and Maintenance Industry Personnel"

To train and certify construction and maintenance personnel - especially plumbers – on how to safely work within the potential environment of bloodborne, and other, pathogens, biohazards, and other infectious diseases that could be present within their worksites

ASSE Professional Qualification Standard Series 12000

- After completion of each standard's training, and completion of a third-party proctored exam, each craftsperson will receive a certification confirming that the craftsperson has met all requirements of each standard regarding safely working in the environment of pathogens, biohazards, and other infectious diseases

OVERVIEW

Personnel considered most at risk

1. Maintenance personnel involved in sanitary sewer inspection
2. Maintenance personnel performing "snaking" sanitary drain piping to clear blockages
3. Construction or maintenance personnel who repair, replace, or "breach" sanitary piping
4. Personnel who "clean-up" sanitary sewer spills
5. Personal who work near stagnate water ponds

OVERVIEW

- Bacteria and viruses that cause disease are called PATHOGENS
- BLOODBORNE PATHOGENS (BP) are in blood or other potentially infectious material (OPIM) of infected persons
- BPs are transmitted when pathogen laden blood, or OPIM, come into contact with blood of a healthy person

OVERVIEW

- Examples of Pathogens
  - Human immunodeficiency virus (HIV)
  - Hepatitis B virus (HBV)
  - Hepatitis C virus (HCV)

OVERVIEW

Examples of Other Potentially Infectious Materials – (OPIM)

1. pleural (lung area) fluid
2. pericardial (heart area) fluid
3. saliva from dental procedures
4. peritoneal (abdominal cavity) fluid
5. cerebrospinal (brain/spinal cord) fluid
6. any other contaminated body fluid

OVERVIEW

Typical occupational routes of transmission of blood borne pathogens into healthy individuals

- needlestick or cut from contaminated object
- splash to eyes or mucous membranes of nose or mouth
- contact with non-intact skin

Airborne pathogens can be inhaled

ASSE Professional Qualification Standard Series 12000

Standards included in Series 12000 plus training required:

#12005 Health and Safety Standard for Construction & Maintenance Generalist

#12010 Biological Pathogens Standard for Construction & Maintenance Personnel

#12020 Biological Pathogens Standard for Construction & Maintenance Employers

#12030 Waterborne Pathogens Standard for Construction & Maintenance Personnel

#12040 Contamination/Infection Control Standard for Construction & Maintenance Personnel

ASSE Professional Qualification Standard 12005

#12005 Health and Safety Standard for Construction & Maintenance Generalist

1. Provides general knowledge for any person with an interest in pathogens, biohazards, and infectious disease – such as plumbing engineers and construction managers.

2. Certificate issued after:
   1 hour training course
   Successful completion of a written exam

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ASSE Professional Qualification Standard Series 12010

#12010 Biological Pathogens Standard for Construction & Maintenance Personnel

1. Provides general knowledge of pathogens, biohazards, infectious disease, and OPIM for construction and maintenance personnel, or for any individual who has the potential for exposure including plumbers, pipe and sprinkler fitters, HVAC technicians, demolition laborers, mechanical systems workers, etc.

ASSE Professional Qualification Standard Series 12010

2. Certification achieved after:
   Prior minimum OSHA 10 or OSHA 30 class
   Minimum 4 hr course covering Standard 12010
   Written exam of 25 questions with a score of at least 80%

3. Certification shall be through a nationally recognized third party certification agency

4. Certification shall be for three (3) years

5. Recertification shall include one (1) hour course covering Standard 12010 and successfully completing a written exam

ASSE Professional Qualification Standard Series 12020

#12020 Biological Pathogens Standard for Construction & Maintenance Employers

1. Provides general knowledge of pathogens, biohazards, infectious disease, and OPIM for any employer, employer's representative, or any individual who is directly responsible for someone who has potential for exposure

ASSE Professional Qualification Standard Series 12020

2. Certification achieved after:
   Prior minimum OSHA 10 or OSHA 30 class
   Minimum 8 hr course covering Standard 12020
   Written exam of 25 questions with a score of at least 80%

3. Certification shall be through a nationally recognized third party certification agency

4. Certification shall be for three (3) years

5. Recertification shall include two (2) hour course covering Standard 12020 and successfully completing a written exam

ASSE Professional Qualification Standard Series 12020

According to OSHA 29 CFR 1910.1030, primary responsibility is on employers to:

1. Make a copy of BBPS available
2. Develop written Exposure Control Plan
3. Identify job classes of possible exposure
4. Identify specific tasks of possible exposure and establish safe work procedures
5. Use work practice controls to minimize
6. Provide personal protective equipment
7. Provide equipment for safe contaminated or infectious material handling and disposal

ASSE Professional Qualification Standard Series 12020

8. Provide recurrent annual instruction informing employees of bloodborne disease & providing job performance training
9. Continually emphasize "Universal Precautions" (Employees must always assume that blood and OPIM is infectious)
10. Provide hepatitis B vaccine at no cost to employees designated to be at risk
11. Provide post-exposure and follow-up care to exposed employees

ASSE Professional Qualification Standard Series 12030

#12030 Waterborne Pathogens Standard for Construction & Maintenance Personnel

1. Provides in depth knowledge of waterborne pathogens, bacteria, and biohazards for any person who has the potential for exposure

ASSE Professional Qualification Standard Series 12030

2. Certification achieved after:
   Prior minimum OSHA 10 or OSHA 30 class
   Minimum 4 hr course covering Standard 12030
   Written exam of 25 questions with a score of at least 80%

3. Certification shall be through a nationally recognized third party certification agency

4. Certification shall be for three (3) years

5. Recertification shall include one (1) hour course covering Standard 12030 and successfully completing a written exam

ASSE Professional Qualification Standard Series 12040

#12040 Contamination/Infection Control Standard for Construction & Maintenance Personnel

1. Provides general knowledge about contamination/infection prevention procedures to protect facility occupants and operations – especially in healthcare facilities.

RESPONSIBILITY

Everyone Who Works in a Health Care Facility – No Matter What Their Area of Expertise - Has a Serious Responsibility to Provide Each Patient the Best Possibility to Leave the Facility with a Positive Outcome

NOT JUST THE DOCTORS AND OTHER MEDICAL PROFESIONALS!

ASSE Professional Qualification Standard Series 12040

2. Certification achieved after:
   Prior minimum OSHA 10 or OSHA 30 class
   Minimum 4 hr course covering Standard 12040
   Written exam of 25 questions with a score of at least 80%

3. Certification shall be through a nationally recognized third party certification agency

4. Certification shall be for three (3) years

5. Recertification shall include one (1) hour course covering Standard 12040 and successfully completing a written exam

APPENDIX A
PERSONAL PROTECTIVE EQUIPMENT

Equipment worn to minimize exposure to the hazards addressed in Standard 12000

Must be used when engineering, work practice, or administrative controls are not feasible and do not provide sufficient craftsperson protection

APPENDIX A
PERSONAL PROTECTIVE EQUIPMENT

To choose equipment needed, employees and employers must:

1. Understand the types of PPE
2. Conduct a "hazard assessment"
3. Select PPE for the assessed hazard
4. Select PPE in the spirit of "UNIVERSAL PRECAUTIONS"
5. Understand proper use and care of PPE

APPENDIX A
PERSONAL PROTECTIVE EQUIPMENT

Types of Personal Protective Equipment:

1. Gloves – impermeable
2. Face Shield – full face
3. Full Body Protective Suit – liquid impermeable, tear resistant
4. Boots – water proof
5. Respiratory Filter Mask – N-95 – approved by the National Institute for Occupational Safety and Health (NIOSH)

APPENDIX B
Infection Prevention/Control Risk Assessment - 12040

Provides a matrix to be completed by a Preconstruction Risk Assessment team to:

1. Determine degree of hazard to the occupants, healthcare patients, or operations

2. Determine types of precautions needed to be taken according to the results of the matrix to protect occupants healthcare patients and operations

APPENDIX B
Infection Prevention/Control Risk Assessment - 12040

This risk assessment is required by:

The Joint Commission

The Centers for Medicare and Medicaid Services

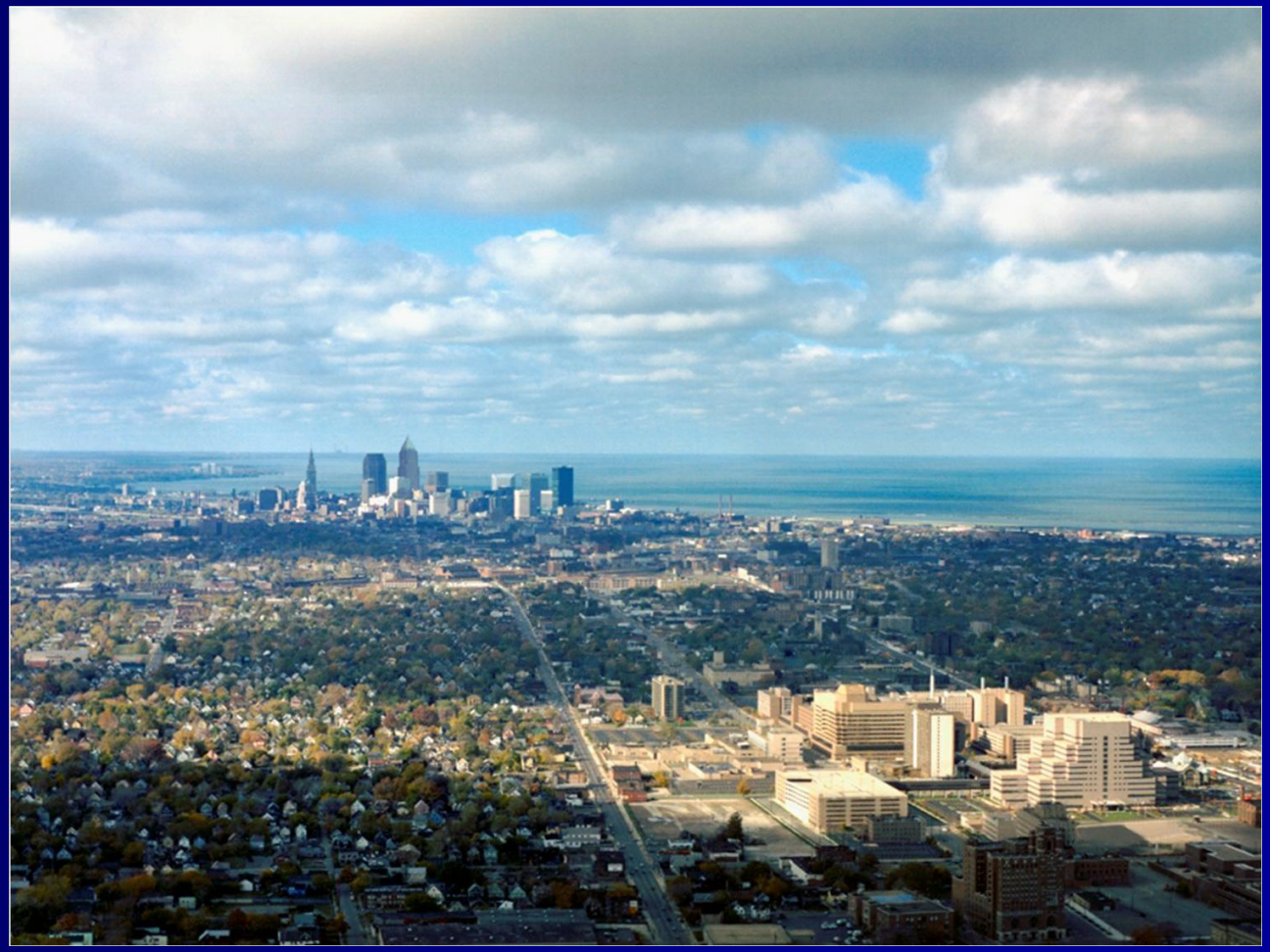
APPENDIX B
Infection Prevention/Control Risk Assessment - 12040

Matrix Procedures:

1. Determine type of construction activity
2. Determine Risk Groups affected by the construction activity
3. Combine Construction Type with Risk Group to determine the Class of Precautions required

Practical Example of the use of Standard Series 12000

Cleveland Clinic Cleveland, Ohio USA



Practical Example of the use of Standard Series 12000

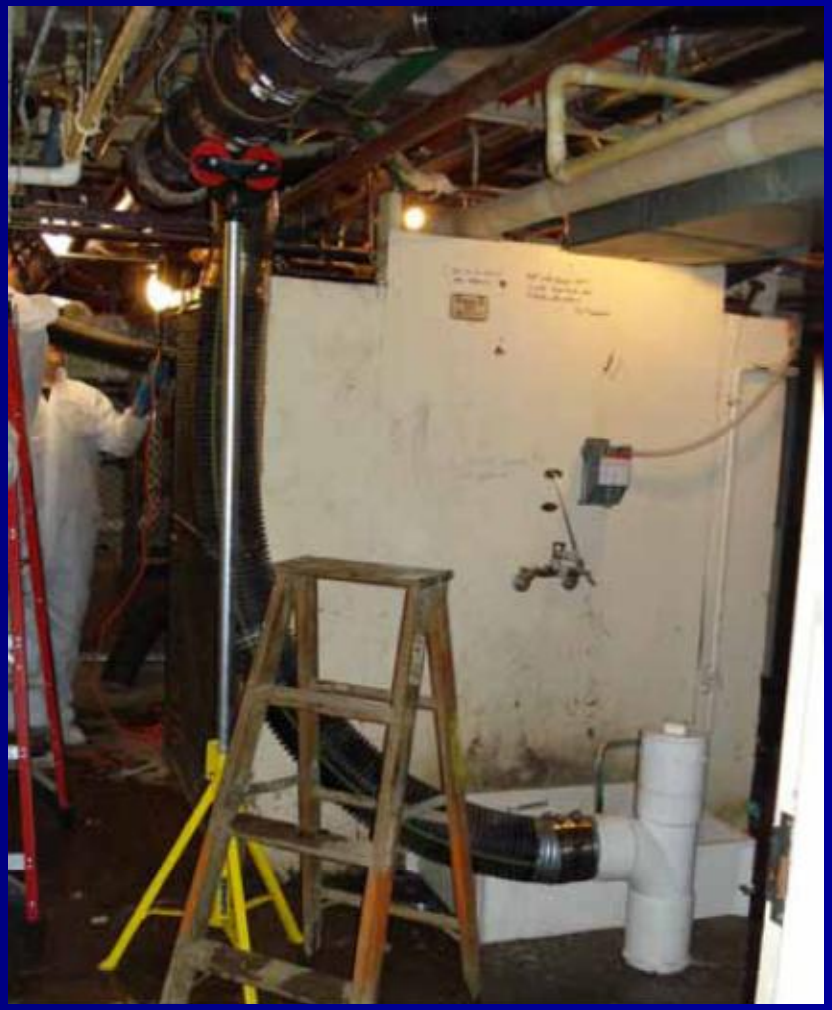
Arnold and Sydell Miller Heart and Vascular Institute at Cleveland Clinic

Practical Example of the use of Standard Series 12000

Corroded 10 inch (25.4 cm) Sanitary Building drain to be replaced

Practical Example of the use of Standard Series 12000

Temporary Connection #1



Practical Example of the use of Standard Series 12000

Temporary Connection #2

Practical Example of the use of Standard Series 12000

Temporary Drain, Protective Flooring, Zip Walls, and HEPA Filters

Practical Example of the use of Standard Series 12000

Fire Rated Plastic Sheeting and Protective Suits

Practical Example of the use of Standard Series 12000

Temporary Drain With Flexible Connections

Practical Example of the use of Standard Series 12000

Two of Many Corroded Fittings Replaced

Practical Example of the use of Standard Series 12000

New
Band
Coupling
Pipe
And
Fittings

Practical Example of the use of Standard Series 12000

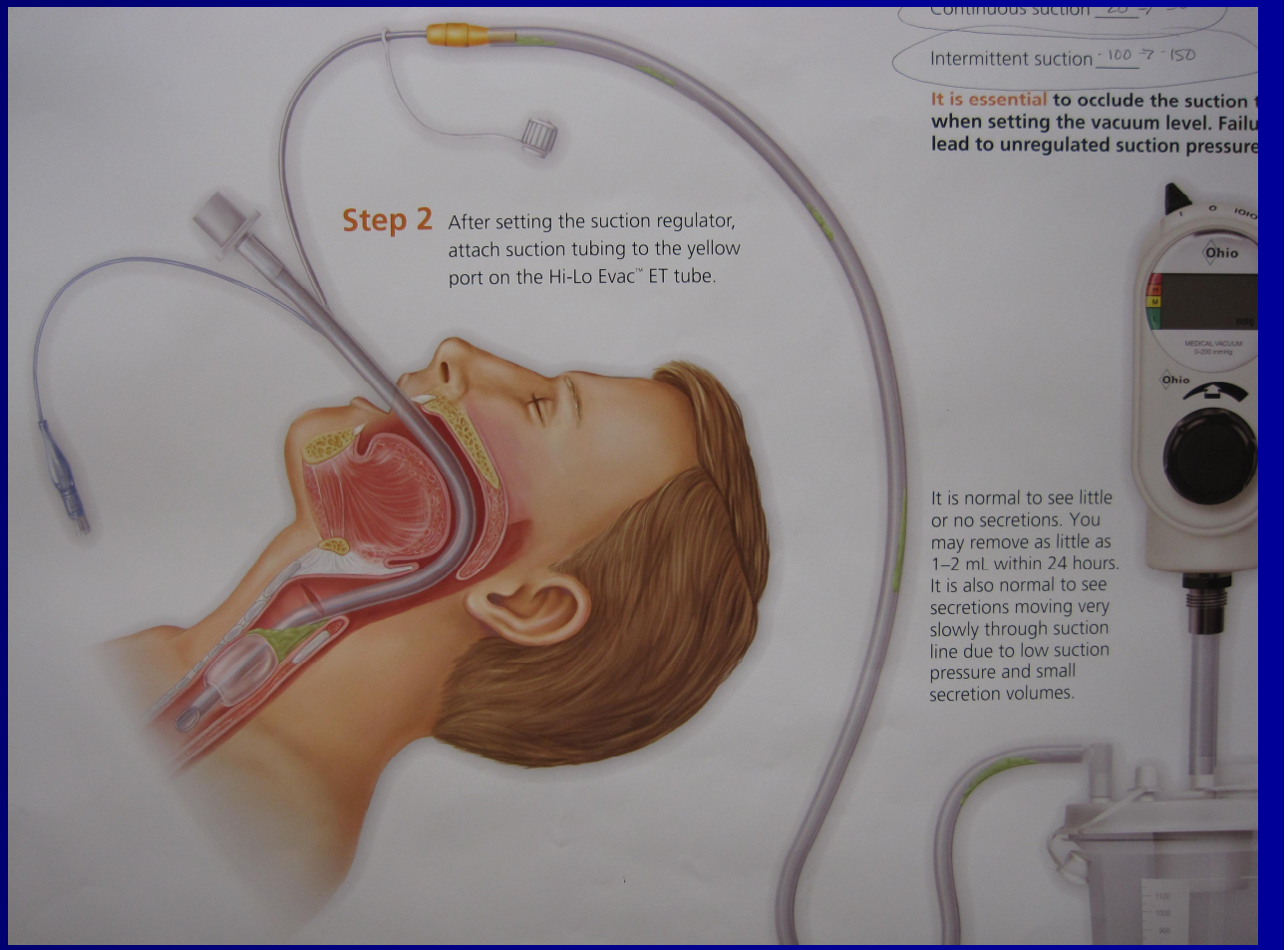
New Pipe and Backwater Valve

New Trend in Medical/Surgical Vacuum affecting Plumbers' Safety

- Gases
  - Oxygen
  - Medical Air
  - WAGD
  - Medical Vacuum
  - Nitrous Oxide

New Trend in Medical/Surgical Vacuum affecting Plumbers' Safety

Endotrachial breathing tube with connection to vacuum inlet and fluid collection canister



New Trend in Medical/Surgical Vacuum affecting Plumbers' Safety

Medical/ Surgical Vacuum Pump

New Trend in Medical/Surgical Vacuum affecting Plumbers' Safety

Portable surgical vacuum pump

Suction Unit has Four Vacuum Connections

Docking Station Requires Water and Drain Connection

All body fluids ejected directly into plumbing drain

Conclusion

100 year old goal of ASSE – Preservation of public health and safety through use of proper plumbing practices

In 1926 Henry B. Davis – Chief Plumbing Inspector of Washington, DC and founder of ASSE – wanted ASSE to "bring about a more uniform plumbing practice than exists today"

Conclusion

ASSE's most proficient method of achieving this goal is in development of consensus plumbing product and professional qualification standards

ASSE standards provide uniform minimum requirements that all jurisdictions can reference and legally codify to protect the health and safety of their constituents

Conclusion

The practical example is a model of the proper use of ASSE Standard Series 12000 guidelines where licensed plumbers protected both themselves, and the patients and all other building occupants, from possibly deadly pathogens in a major USA hospital.

Conclusion