



8982

SANITARY DRAINAGE
SYSTEMS (12B)

40S/40E/40M

A Plumbing and Pipe Trades Course

8982 SANITARY DRAINAGE SYSTEMS 40S/40E/40M

Course Description

A student wanting to develop skills in sanitary drainage must have knowledge of the basic principles of grade, percentages, and siphonage. The student will understand the principles of drainage and how those principles relate to plumbing and piping systems. The student will be able to draw a usable blueprint to assist in the installation of a sanitary drainage system. The student will be able to install, support, and test a sanitary drainage system. The student will have a working knowledge of all codes and regulations as they apply to sanitary drainage.

Goal 1: Describe and apply **health and safety** practices.

GLO 1.1: Describe and apply health and safety practices.

SLO 12B.1.1.1 Demonstrate an understanding of, and adherence to, health and safety practices.

GLO 1.2: Demonstrate an understanding of the ***Trade Safety Awareness Curriculum for Level 1 Apprentices.***

No applicable SLOs.

Goal 2: Demonstrate the **use and management of equipment, tools, and materials**, including those used in **fuel brazing and cutting.**

GLO 2.1: Demonstrate the **use and management of equipment and tools.**

SLO 12B.2.1.1 Apply knowledge and skills related to the safe and appropriate cleaning, maintenance, and management of plumbing tools and equipment.

GLO 2.2: Demonstrate the use and management of **fuel brazing and cutting equipment and tools.**

No applicable SLOs.

Goal 3: Demonstrate an understanding of the **properties and applications** of various types of **pipng and tubing**.

GLO 3.1: Demonstrate an understanding of the **properties and applications** of **pipng and tubing**.

No applicable SLOs.

GLO 3.2: Demonstrate an understanding of the **properties and applications** of **plastic pipng**.

No applicable SLOs.

GLO 3.3: Demonstrate an understanding of the **properties and applications** of **copper tubes and tubing**.

No applicable SLOs.

GLO 3.4: Demonstrate an understanding of the **properties and applications** of **steel pipng**.

No applicable SLOs.

GLO 3.5: Demonstrate an understanding of the **properties and applications** of **cast iron pipng**.

No applicable SLOs.

GLO 3.6: Demonstrate an understanding of the **properties and applications** of **glass pipng**.

No applicable SLOs.

GLO 3.7: Demonstrate an understanding of the **properties and applications** of **asbestos-cement pipng**.

No applicable SLOs.

Goal 4: Demonstrate an understanding of the **properties and applications of various materials (other than pipng and tubing)** used in plumbing and the pipe trades.

GLO 4.1: Demonstrate an understanding the **properties and applications of various materials (other than pipng and tubing)** used in plumbing and the pipe trades.

No applicable SLOs.

Goal 5: Demonstrate an understanding of the **design and layout of piping systems.**

GLO 5.1: Demonstrate an understanding of the **design and layout of piping systems.**

- SLO 12B.5.1.1 Define terminology associated with residential sanitary drainage. (A7a.1)
- SLO 12B.5.1.2 Identify hazards and describe safe work practices pertaining to residential sanitary drainage systems. (A7a.2)
- SLO 12B.5.1.3 Interpret codes and regulations pertaining to residential sanitary drainage systems. (A7a.3)
 - dimension
 - length
- SLO 12B.5.1.4 Interpret information pertaining to residential sanitary drainage systems found on drawings and specifications. (A7a.4)
- SLO 12B.5.1.5 Identify tools and equipment related to residential sanitary drainage systems, and describe their applications and procedures for use. (A7a.5)
- SLO 12B.5.1.6 Identify the methods of back flow protection used in residential sanitary drainage systems. (A7a.6)
 - back water valves
 - gate valves
- SLO 12B.5.1.7 Identify types of residential sanitary drainage systems, and describe their properties and characteristics. (A7a.7)
- SLO 12B.5.1.8 Identify residential sanitary drainage system components, and describe their purpose and applications. (A7a.8)
 - piping
 - fixtures
 - drains
 - traps
 - cleanouts
 - joints and connections
 - backwater valves
 - fire stopping
 - sewage sumps
 - macerating toilet system
 - expansion joints

- SLO 12B.5.1.9 Identify the factors to consider when sizing residential sanitary drainage system components. (A7a.9)
- hydraulic load
 - code requirements
 - future loads when sizing piping close to or at next size up on the chart.
- SLO 12B.5.1.10 Demonstrate residential, sanitary, drainage, and venting systems. (A7a.10)
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Goal 6: Demonstrate an understanding of the **joining, fabrication, and installation** of piping systems, including **hoisting, lifting, and rigging, and access equipment.**

GLO 6.1: Demonstrate an understanding of the **joining and fabrication** of piping systems.

No applicable SLOs.

GLO 6.2: Demonstrate an understanding of the **installation** of piping systems.

No applicable SLOs.

GLO 6.3: Demonstrate an understanding of **hoisting, lifting, and rigging.**

No applicable SLOs.

GLO 6.4: Demonstrate an understanding of **access equipment.**

No applicable SLOs.

Goal 7: Demonstrate an understanding of the **documentation and testing** of piping systems.

No applicable SLOs.

Goal 8: Describe and demonstrate the transferable **cross-curricular** knowledge and skills as they pertain to plumbing and the pipe trades.

GLO 8.1: Read, interpret, and communicate **information.**

No applicable SLOs.

GLO 8.2: Apply knowledge and skills from **mathematics.**

No applicable SLOs.

GLO 8.3: Apply knowledge and skills from the **sciences**.

No applicable SLOs.

GLO 8.4: Apply knowledge and skills from **information and communication technology**.

No applicable SLOs.

Goal 9: Demonstrate an understanding of the **structure and scope** of plumbing and the pipe trades.

GLO 9.1: Demonstrate an understanding of the structure and scope of plumbing and the pipe trades, as well as associated occupations.

No applicable SLOs.

GLO 9.2: Demonstrate an understanding of **training and employment opportunities** in plumbing and the pipe trades, as well as in associated occupations.

SLO 12B.9.2.1 Demonstrate an understanding of training and its relationship to opportunities in various careers.

Goal 10: Demonstrate an awareness of **sustainability** as it pertains to plumbing and the pipe trades.

GLO 10.1: Describe the impact of **human sustainability** on the health and well-being of plumbers, tradespersons working in the pipe trades, and those who use the systems they construct.

SLO 12B.10.1.1 Demonstrate an understanding of long-term health concerns related to plumbing and the pipe trades.

GLO 10.2: Describe plumbing and the pipe trades' **sustainability practices and impact on the environment**.

SLO 12B.10.2.1 Demonstrate an understanding of sustainability practices and of the environmental impact of sanitary drainage systems with regard to their design, fabrication, and use.

SLO 12B.10.2.2 Demonstrate an understanding of where sanitary drainage systems are required.

SLO 12B.10.2.3 Demonstrate an understanding of the appropriate reuse of materials in the plumbing and piping industry.

GLO 10.3: Describe **sustainable business practices** within plumbing and the pipe trades.

SLO 12B.10.3.1 Demonstrate an awareness of the relationship between quality of work and the long-term sustainability of a business.

Goal 11: Demonstrate an awareness of the **ethical and legal standards, including codes**, as they pertain to plumbing and the pipe trades.

GLO 11.1: Demonstrate an understanding of **ethical and legal standards**.

SLO 12B.11.1.1 Demonstrate ethics by practising quality workmanship.

SLO 12B.11.1.2 Demonstrate ethics by creating and maintaining safe working conditions for all concerned.

SLO 12B.11.1.3 Demonstrate an understanding of codes and regulations related to sanitary drainage systems.

SLO 12B.11.1.4 Demonstrate an understanding of codes and regulations related to sanitary venting systems.

SLO 12B.11.1.5 Demonstrate an awareness of the legal requirements related to specialized procedures and testing of sanitary drainage systems.

Goal 12: Demonstrate **employability skills**.

GLO 12.1: Demonstrate fundamental **employability skills**.

SLO 12B.12.1.1 Demonstrate regular and punctual attendance.

SLO 12B.12.1.2 Demonstrate critical-thinking and problem-solving skills.

SLO 12B.12.1.3 Demonstrate accountability by taking responsibility for their actions.

SLO 12B.12.1.4 Demonstrate adaptability, initiative, and effort.

SLO 12B.12.1.5 Demonstrate the ability to accept and follow direction and feedback.

SLO 12B.12.1.6 Demonstrate teamwork skills.

SLO 12B.12.1.7 Demonstrate the ability to stay on task and use time effectively.

SLO 12B.12.1.8 Demonstrate the ability to communicate respectfully and effectively with teachers, supervisors, coworkers, and students.

GLO 12.2: Demonstrate an understanding of the **business operations** of a plumbing and pipe trades organization.

No applicable SLOs.

GLO 12.3: Demonstrate critical thinking skills.

No applicable SLOs.

GLO 12.4: Demonstrate an understanding of **culture** and its influence in the workplace.

SLO 12B.12.4.1 Demonstrate an awareness of cultural differences in the workplace.

Goal 13: Demonstrate an awareness of the **history, technological progression, and emerging trends** in plumbing and the pipe trades.

GLO 13.1: Demonstrate an awareness of the **history, technological progression, and emerging trends** in plumbing and the pipe trades.

SLO 12B.13.1.1 Demonstrate an awareness of the history of sanitary drainage.

SLO 12B.13.1.2 Demonstrate an awareness of green technologies in plumbing and the pipe trades.
