ANSWER SHEET • Cross Connection Control • PART 3

First Name: _____ Last Name: _____ Date: _____

Address: _____ City: _____ State: ____ ZIP: _____

License #: _____ Phone: _____ Email: _____

**** See instructions on the inside cover page to submit your exams and pay for your course**

1.	A B C D	16.	A B C D	31.	A B C D	46.	A B C D
2.	A B C D	17.	A B C D	32.	A B C D	47.	A B C D
3.	A B C D	18.	A B C D	33.	A B C D	48.	A B C D
4.	A B C D	19.	A B C D	34.	A B C D	49.	A B C D
5.	A B C D	20.	A B C D	35.	A B C D	50.	A B C D
6.	A B C D	21.	A B C D	36.	A B C D	51.	A B C D
7.	A B C D	22.	A B C D	37.	A B C D	52.	A B C D
8.	A B C D	23.	A B C D	38.	A B C D	53.	A B C D
9.	A B C D	24.	A B C D	39.	A B C D	54.	A B C D
10.	A B C D	25.	A B C D	40.	A B C D	55.	A B C D
11.	A B C D	26.	A B C D	41.	A B C D	56.	A B C D
12.	A B C D	27.	A B C D	42.	A B C D	57.	A B C D
13.	A B C D	28.	A B C D	43.	A B C D	58.	A B C D
14.	A B C D	29.	A B C D	44.	A B C D	59.	A B C D
15.	A B C D	30.	A B C D	45.	A B C D	60.	A B C D

Wisconsin Contractors Institute

CONTINUING EDUCATION FOR WISCONSIN PLUMBERS

Cross Connection Control

Course #961671

Part 3

2 CE hours (Master Plumber, Master Plumber Restricted Appliance, Master Plumber Restricted Service, Journeyman Plumber, Journeyman Plumber Restricted Appliance,Journeyman Plumber Restricted Service, Commercial Plumbing Inspector, Utility Contractor,Cross Connection Control Tester)

1 CE hour (UDC Plumbing Inspector)

WISCONSIN CONTRACTORS INSTITUTE

N16 W23217 Stone Ridge Drive, Suite 290
Waukesha, WI 53188

262-409-4282

www.wcitraining.com

CROSS CONNECTION CONTROL

Purpose of this course

The provisions of this section set forth the requirements for the protection of water within water supply systems when and where there is the possibility of contamination due to cross connections or backflow conditions.

Note: The Department of Natural Resources governs the operation and design of community water systems and under s. NR 810.15 requires the supplier of water to develop and implement a comprehensive cross connection control program.

Materials

All methods, devices, and assemblies intended to protect water supply systems from cross connections shall be of a type recognized and approved in accordance with ch. SPS 384 and as described in sub. (4).

All methods including barometric loops and air gaps intended to protect water supplies relative to cross connection or backflow shall be constructed of materials suitable for water supply systems in accordance with ch. SPS 384.

General Requirements

Water supply systems and the connection of each plumbing fixture, piece of equipment, appliance or nonpotable water piping system shall be designed, installed and maintained in such a manner to prevent the contamination of water supplies by means of cross connections.

Types of cross connection control

1. Water supply systems shall be protected against contamination due to cross connections or backflow conditions by one of the methods or devices specified in Table 382.41–1 depending upon the situation or Table 382.41–2 depending upon the specific application or use, and the limitations specified in sub. (4).
2. For the situations described in par. (b) 3., cross connection control shall be provided as part of the fixture fitting outlet or in the water supply piping for the fixture fitting outlet.

Part 3 Exam Questions

1. This course outlines requirements for the protection of water within water supply systems when and where there is the possibility of contamination due to cross connections or _____.

a. Unbroken networks
b. Backflow conditions
c. Continuous flow
d. None of the above

2. All devices, assemblies and mechanisms intended to _____ water supplies relative to cross connection or backflow shall be of a type recognized and approved in accordance with ch. SPS 384 and as described in sub. (4).

a. Protect
b. Maximize
c. Minimize
d. Deteriorate

3. **Water supply systems and the connection of each _____ shall be designed, installed and maintained in such a manner to prevent the contamination of water supplies by means of cross connections.**
   a. Plumbing fixture
   b. Piece of equipment or appliance
   c. Nonpotable water piping system
   d. All of the above

Classifications.

For the purposes of this section:

1. The designation of a high hazard or low hazard situation shall be determined on the basis of how a toxic or nontoxic solution is intended or recommended by the manufacturer of the solution to interface with the potable water supply system.
2. a. A continuous pressure situation shall be considered to exist when a pressure greater than atmospheric within the water supply system exists for more than 12 continuous hours.
   b. A noncontinuous pressure situation shall be considered to exist if the conditions in subd. 2. a. do not occur.
3. A high hazard cross connection situation shall be considered to exist for a connection of the water supply system to:
   a. Any part of the drain system; and
   b. Any other piping system conveying water from nonpotable sources, including but not limited to lakes, rivers, streams or creeks.
4. Except as provided in subd. 5., a high hazard cross connection situation shall be considered to exist at:
   a. A water supply hose bibb, faucet, wall hydrant, sill cock or other outlet which terminates with hose threads allowing a hose to be attached;
   b. A water supply faucet, wall hydrant or other outlet which terminates with a serrated nipple allowing a hose to be attached;
   c. A water supply faucet, hydrant or outlet serving a sink used for building maintenance in a public building;
   d. A chemical pot–feeder or automatic chemical feeder is installed to serve a boiler, cooling tower or chilled water system; and
   e. In the water supply piping connecting to the outlet of a fire hydrant for any purpose other than fire suppression

5. A cross connection shall not be considered to exist at the hose threaded outlet installed for the sole purpose of:
   a. Draining a water supply system or any portion thereof;
   b. Connecting individual portable dialysis machines when enclosed in a lockable box
   c. Connecting individual residential-type automatic clothes washers or dryers
6. a. A high hazard situation shall be considered to exist for the connection of 2 water supply systems one supplied by a public water supply and the other system supplied by a private well.
   b. Cross connection control devices used in conjunction with automatic fire sprinkler systems shall be listed by an acceptable testing agency for such an application under the standards governing the design and installation of automatic fire sprinkler systems.

7. A cross connection situation shall not be considered to exist when a multipurpose piping system serves a one– or 2– family dwelling provided the sprinkler system is constructed of materials and joints suitable for water distribution systems as specified in ss. SPS 384.30 (4) (e) and 384.40, respectively

Part 3 Exam Questions

4. The designation of a high hazard or low hazard situation shall be determined on the basis of how a _____ or _____ solution is intended or recommended by the manufacturer of the solution to interface with the potable water supply system.

a. Concentrated, diluted
b. Soluble, insoluble
c. Toxic, nontoxic
d. Biodegradable, radioactive

5. A continuous pressure situation shall be considered to exist when a pressure greater than atmospheric within the water supply system exists for more than _____ continuous hours.

a. 8
b. 9
c. 10
d. 12

6. A _____ pressure situation shall be considered to exist if the conditions in subd. 2. a. do not occur.

a. Constant
b. High intensity
c. Noncontinuous
d. Perpetual

7. True or false? A high hazard cross connection situation shall be considered to exist for a connection of the water supply system to any part of the drain system.

a. True
b. False

8. Which of the following is a nonpotable water source:

a. Lakes
b. Rivers
c. Streams or creeks
d. All of the above

9. A high hazard cross connection situation shall be considered at which of the following:

a. Obtaining water quality samples of the water supply
b. A chemical pot-feeder or automatic chemical feeder is installed to serve a boiler
c. Connecting individual residential automatic clothes washers
d. All of the above

10. A cross connection shall not be considered to exist at the hose threaded outlet installed for the sole purpose of which of the following:

a. Terminating a serrated nipple allowing a hose to be attached
b. Building maintenance in a public building
c. Draining a water supply system
d. All of the above

11. A high hazard situation shall be considered to exist for the connection of a _____ water supply systems, when one is supplied by a public water supply and the other system supplied by a private well.

a. 2
b. 3
c. 4
d. 5

12. Cross connection control devices used in conjunction with automatic_____ systems shall be listed by an acceptable testing agency.

a. lawn sprinkler
b. hose
c. chemical
d. fire sprinkler

13. A cross connection situation shall not be considered to exist when a multipurpose piping system serves a _____, provided the sprinkler system is constructed of materials and joints suitable for water distribution systems as specified.

a. Studio apartment
b. One– or two– family dwelling
c. Large office space
d. Public building

Containment.

1. For sewerage treatment facilities which are required to conform with ch. NR 110, in addition to the cross connection control required for each potable water usage or water outlet, a reduced pressure principle backflow preventer shall be installed:
   a. In the water service to each building or structure within the complex;
   b. In the private water main upstream of all water services serving the facility; or
   c. In the water distribution system upstream of all water outlets and in the process piping network upstream of all points of use, if both a water distribution system and a process network is contained within the same building or structure.

2. For marinas, wharves and docks where potable water outlets are provided to serve boats or ships, in addition to the cross connection control required for each potable water outlet or usage, a reduced pressure principle backflow preventer shall be installed in the water supply system to limit backflow into the water supply source.
3. The installation of a cross connection control device in the water supply system for a building or structure shall not alleviate the requirement to provide cross connection control for the connection of each plumbing fixture, piece of equipment, appliance or other piping system.

Prohibitions.

The use of a toxic solution as a heat transfer fluid in single–wall heat exchanger for potable water is prohibited.

Existing automatic fire sprinkler systems.

An alteration, modification or addition to an existing automatic fire sprinkler shall necessitate conformance with this section, if the:

1. Existing water supply line to the existing sprinkler system is increased in diameter; or
2. Existing device or method which had been previously recognized to address cross connection concerns is to be removed or replaced.

Part 3 Exam Questions

14. For sewerage treatment facilities which are required to conform with chapter _____, in addition to the cross connection control required for each potable water usage or water outlet, a reduced pressure principle backflow preventer shall be installed in specific locations.

a. NR 343
b. NR 110
c. NR 7
d. NR 315.4

15. True or false? If both a water distribution system and a process network are contained within the same building or structure, a reduced pressure principle backflow preventer should be installed.

a. True
b. False

16. For marinas, wharves and _____ where potable water outlets are provided to serve boats or ships, a reduced pressure principle backflow preventer shall be installed in the water supply system to limit backflow into the water supply source.

a. Harbors
b. Docks
c. Ports
d. Beaches

17. The installation of a cross connection control device in the water supply system for a building or structure shall not _____ the requirement to provide cross connection control for the connection of each plumbing fixture, piece of equipment, appliance or other piping system.

a. Aggravate
b. Upsurge
c. Alleviate
d. Increase

18. True or false? The use of a toxic solution as a heat transfer fluid in single–wall heat exchanger for potable water is allowed.

a. True
b. False

19. If the existing water supply line to the existing sprinkler system is _____ in diameter, an alteration, modification or addition to an existing automatic fire sprinkler shall necessitate conformance with this section.

a. Halved
b. Diminished
c. Decreased
d. Increased

Table 382.41–1

Acceptable Cross Connection Control Methods, Devices or Assemblies

Methods or Assemblies of Cross Connection Control (Standard)	Situations and Conditions							
	Backpressure				Back Siphonage			
	Low Hazard		High Hazard		Low Hazard		High Hazard	
	Continuous	Noncontinuous	Continuous	Noncontinuous	Continuous	Noncontinuous	Continuous	Noncontinuous
	Pressure		Pressure		Pressure		Pressure	
Air Gaps in Plumbing Systems (For Plumbing Fixtures and Water–Connected Receptors)/Air Gap Fittings for Use with Plumbing Fixtures, Appliances, and Appurtenances	X	X	X	X	X	X	X	X
Atmospheric Type Vacuum Breakers (ASSE 1001)/CSA B64.1.1						X		X
Anti–Siphon Fill Valves for Water Closet Tanks (ASSE 1002/ASME A112.1002/CSA B125.12)					X		X	

Methods or Assemblies of Cross Connection Control (Standard)	Situations and Conditions							
	Backpressure				Back Siphonage			
	Low Hazard		High Hazard		Low Hazard		High Hazard	
	Continuous	Noncontinuous	Continuous	Noncontinuous	Continuous	Noncontinuous	Continuous	Noncontinuous
	Pressure		Pressure		Pressure		Pressure	
Hose Connection Vacuum Breakers (ASSE 1011)/Hose Connection Backflow Preventers (ASSE 1052)/CSA B64.2 & B64.2.2	X	X	X	X	X	X	X	X
Backflow Preventers with Intermediate Atmospheric Vent (ASSE 1012)/Dual Check Valve Backflow Preventers with Atmospheric Port (CSA B64.3)	X	X			X	X		
Reduced Pressure Principle Backflow Preventers and Reduced Pressure Principle Fire Protection Backflow Preventers (ASSE 1013)/Reduced Pressure Principle (RP) Backflow Preventers (CSA B64.4)	X	X	X	X	X	X	X	X
Backflow Prevention Devices for Hand–Held Showers (ASSE 1014)		X		X		X		X
Double Check Backflow Prevention Assemblies and Double Check Fire Protection Backflow Prevention Assemblies (ASSE 1015)					X	X		

Methods or Assemblies of Cross Connection Control (Standard)	Situations and Conditions							
	Backpressure				Back Siphonage			
	Low Hazard		High Hazard		Low Hazard		High Hazard	
	Continuous Pressure	Noncontinuous Pressure	Continuous Pressure	Noncontinuous Pressure	Continuous Pressure	Noncontinuous Pressure	Continuous Pressure	Noncontinuous Pressure
Trap Seal Primer Valves– Potable Water Supplied (ASSE 1018)					X		X	
Wall Hydrant with Backflow Protection and Freeze Resistance (ASSE 1019)		X		X		X		X
Pressure Vacuum Breaker Assemblies (ASSE 1020)/Pressure Vacuum Breakers (CSA B64.1.2)					X	X	X	X
Backflow Preventer for Beverage Dispensing Equipment (ASSE 1022)					X	X	X	X
Dual Check Backflow Preventers (ASSE 1024)					X	X		
Dual Check Valve Type Backflow Preventers for Carbonated Beverage Dispensers, Post–Mix Type (ASSE 1032)					X	X	X	X
Laboratory Faucet Backflow Preventers (ASSE 1035)		X		X		X		X
Pressurized Flushing Devices for Plumbing Fixtures (ASSE 1037/ASME A112.1037/CSA B125.37)					X		X	

Methods or Assemblies of Cross Connection Control (Standard)	Situations and Conditions							
	Backpressure				Back Siphonage			
	Low Hazard		High Hazard		Low Hazard		High Hazard	
	Continuous	Noncontinuous	Continuous	Noncontinuous	Continuous	Noncontinuous	Continuous	Noncontinuous
	Pressure		Pressure		Pressure		Pressure	
Reduced Pressure Detector Fire Protection Backflow Prevention Assemblies (ASSE 1047)					X			
Double Check Detector Fire Protection Backflow Prevention Assemblies (ASSE 1048)					X			
Dual Check Backflow Preventer Wall Hydrants–Freeze Resistant Type (ASSE 1053)		X		X		X		X
Chemical Dispensers with Integral Backflow Protection (ANSI/CAN/ ASSE/IAPMO 1055)						X		X
Spill Resistant Vacuum Breakers (ASSE 1056)/Spill–Resistant Pressure Vacuum Breakers (CSA B64.1.3)					X	X	X	X
Freeze Resistant Sanitary Yard Hydrants with Backflow Protection (ASSE 1057)		X		X		X		X
Laboratory Faucet Backflow Preventers (ASSE 1035)		X		X		X		X

Methods or Assemblies of Cross Connection Control (Standard)	Situations and Conditions							
	Backpressure				Back Siphonage			
	Low Hazard		High Hazard		Low Hazard		High Hazard	
	Continuous	Noncontinuous	Continuous	Noncontinuous	Continuous	Noncontinuous	Continuous	Noncontinuous
	Pressure		Pressure		Pressure		Pressure	
Backflow Preventers with Integral Pressure Reducing Boiler Feed Valve and Intermediate Atmospheric Vent Style for Domestic and Light Commercial Water Distribution Systems (ASSE 1081)1	X	X	X		X	X		
Barometric Loop [s. SPS 382.41(5)(i)]					X	X	X	X
Vacuum Breaker Tee [s. SPS 382.41(5)(j)]					X	X	X	X

Part 3 Exam Questions

20. True or false? According to Table 382.41–1, air gaps are acceptable cross connection control methods for both continuous and noncontinuous high hazard backpressure.

a. True
b. False

21. According to Table 382.41–1, barometric loops are acceptable cross connection control methods for which of the following:

a. High hazard noncontinuous backpressure
b. Low hazard continuous backpressure
c. Low hazard continuous back siphonage pressure
d. All of the above

22. According to Table 382.41–1, backflow prevention devices for hand-held showers acceptable cross connection control methods for which of the following:

a. Low hazard non-continuous backpressure
b. High hazard non-continuous backpressure
c. Low hazard non-continuous back siphonage
d. All of the above

Limitations

A. Cross connection control devices shall be limited in use in accordance with the respective standard, unless otherwise specifically permitted under this subsection.

B. 1. Except for a deck–mounted device, a pipe applied atmospheric vacuum breaker shall be installed such that the bottom of the device or the critical level mark on the device is at least 6" above all of the following:

a. The flood level rim of the receptor serving the water supply port.

b. The highest point downstream from the device where back- pressure would be created.

c. The highest point of an injection or aspiration port.

C. A deck–mounted pipe applied atmospheric type vacuum breaker shall be installed such that the bottom of the device or the critical level mark on the device is at least one inch above all of the following:

a. The flood level rim of the receptor serving the water supply port.

b. The highest point downstream from the device where back- pressure would be created.

c. The highest point of an injection or aspiration port

D. 1. a. The use a of a hose connection backflow preventer, dual check backflow preventer wall hydrant– freeze resistant or a hose connection vacuum breaker in a continuous pressure situation shall be limited to campgrounds and marinas.

b. The use of a hose connection backflow preventer and a hose connection vacuum breaker shall be limited to the discharge side of a control valve such as a faucet or hose bibb

E. A hose connection backflow preventer and a hose connection vacuum breaker may not be employed in backpressure situations of more than 10 feet of water column.

D. A backflow preventer with intermediate atmospheric vent:

1. May not be employed in backpressure situations of more than 150 psig; and

2. May not serve boilers having a maximum steam pressure setting greater than 15 psig or a maximum water pressure setting greater than 30 psig.

DI. 1. A reduced pressure principle backflow preventer and a reduced pressure detector backflow preventer may not be subjected to a backpressure greater than twice the rated working pressure of the device.

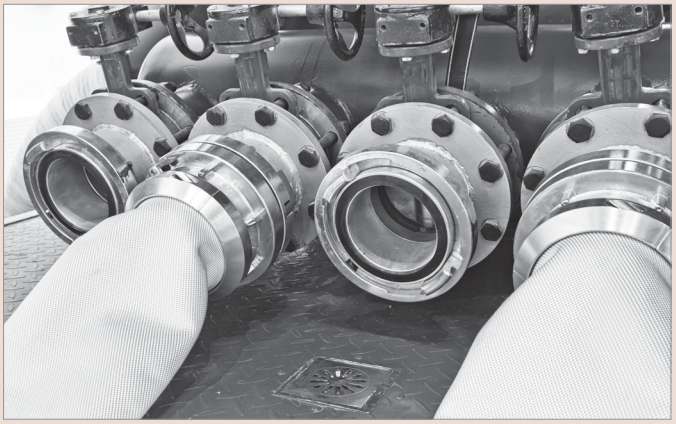
2. A reduced pressure principle backflow preventer and a reduced pressure detector backflow preventer which serve a water–based fire protection system may have a test outlet located between the number 2 check valve and the number 2 listed indicating control valve.

3. A reduced pressure principle backflow preventer and a reduced pressure detector backflow preventer which are 2” or smaller in size and which serve a water–based fire protection system are not required to have a test cock on the number one listed indicating control valve.

DII. A hand–held shower may not be employed in backpressure situations of more than 5 feet of water column.

DIII. 1. A double check backflow prevention assembly and a double check detector assembly backflow preventer may not be subjected to a backpressure greater than twice the rated working pressure of the device.

2. A double check backflow prevention assembly and a double check detector assembly backflow preventer which are 2" or smaller in size and which serve a water–based fire protection system are not required to have a test cock on the number one listed indicating control valve.



H. A water supply fed trap seal primer valve shall be installed such that the bottom of the device or the critical level as marked on the device is at least 12" above:

1. The connection to the trap; and
2. The highest point downstream from the device where backpressure would be created.

I. A vacuum breaker wall hydrant, freeze resistant automatic draining type or a freeze resistant sanitary yard hydrant, may not be employed in backpressure situations of more than 10 feet of water column.

K. 1. A pressure type vacuum breaker assembly shall be installed such that the bottom of the device or the critical level mark on the device is at least 12" above all of the following:

a. The flood level rim of the receptor serving the water supply port.
b. The highest point downstream from the device where backpressure would be created.
c. The highest point of an injection or aspiration port.

L. A laboratory faucet backflow preventer may not be employed in backpressure situations of more than 6 feet of water column.

M. The cross connection control device to serve a hose bibb or hydrant that penetrates an exterior wall of a heated structure may not prevent a hose bibb or hydrant from being freeze resistant automatic draining as required under s. SPS 382.40 (8) (a).

N. A spill resistant vacuum breaker shall be installed so that the bottom of the device or the critical level mark on the device is at least 12" above all of the following:

1. The flood level rim of the receptor serving the water supply port.
2. The highest point downstream from the device where back pressure would be created.
3. The highest point of an injection or aspiration port.

Part 3 Exam Questions

23. Except for a deck–mounted device, a pipe applied atmospheric vacuum breaker shall be installed such that the bottom of the device or the critical level mark on the device is at least _____ inches above all specific points.

a. 6
b. 8
c. 10
d. 12

24. Except for a deck–mounted device, a pipe applied atmospheric vacuum breaker shall be installed such that the bottom of the device or the critical level mark on the device must be a certain height above which of the following:

a. The flood level rim of the receptor serving the water supply port
b. The highest point downstream from the device where backpressure would be created
c. The highest point of an injection or aspiration port
d. All of the above

25. The use a of a hose connection backflow preventer, dual check backflow preventer wall hydrant–freeze resistant, or a hose connection vacuum breaker in a continuous pressure situation shall be limited to:

a. Offices and institutions
b. Campground and marinas
c. Schools and hospitals
d. Multi-family dwellings

26. The use of a hose connection backflow preventer and a hose connection vacuum breaker shall be limited to the _____ side of a control valve.

a. Supply
b. Packing
c. Discharge
d. Actuator

27. A backflow preventer with intermediate atmospheric vent may not be employed in backpressure situations of more than _____ psig.

a. 30
b. 50
c. 100
d. 150

28. A backflow preventer with intermediate atmospheric vent may not serve boilers having a maximum steam pressure setting greater than _____ psig or a maximum water pressure setting greater than _____ psig.

a. 10, 15
b. 15, 30
c. 30, 45
d. 45, 60

29. A reduced pressure principle backflow preventer and a reduced pressure detector backflow preventer may not be subjected to a backpressure greater than _____ the rated working pressure of the device.

a. Half
b. Twice
c. Thrice
d. None of the above

30. A reduced pressure principle backflow preventer and a reduced pressure detector backflow preventer which serve a water–based fire protection system may have a test outlet located between the number _ check valve and the number ____ listed indicating control valve.

a. 1, 3
b. 2, 2
c. 3, 3
d. 4, 2

31. A reduced pressure principle backflow preventer and a reduced pressure detector backflow preventer which are _____ inches or smaller in size and which serve a water–based fire protection system are not required to have a test cock on the number one listed indicating control valve.

a. 2
b. 3
c. 4
d. 5

32. A water supply fed trap seal primer valve shall be installed such that the bottom of the device or the critical level as marked on the device is at least _____ inches above specified points.

a. 12
b. 14
c. 16
d. 18

33. A water supply fed trap seal primer valve shall be installed such that the bottom of the device or the critical level as marked on the device is at least a certain amount of inches above the _____ point downstream from the device where backpressure would be created.

a. Final
b. Lowest
c. Highest
d. Bottom

34. A vacuum breaker wall hydrant, freeze resistant automatic draining type or a freeze resistant sanitary yard hydrant, may not be employed in backpressure situations of more than _____ feet of water column.

a. 10
b. 12
c. 14
d. 16

35. A pressure type vacuum breaker assembly shall be installed such that the bottom of the device or the critical level mark on the device is at least 12 inches above which of the following:

a. The flood level rim of the receptor serving the water supply port
b. The highest point downstream from the device where backpressure would be created
c. The highest point of an injection or aspiration port
d. All of the above

36. True or false? **A spill resistant vacuum breaker shall be installed so that the bottom of the device or the critical level mark on the device is at least 10" above specifications.**

a. True
b. False

37. **A laboratory faucet backflow preventer may not be employed in backpressure situations of more than _____feet of water column.**

a. 3
b. 4
c. 5
d. 6

38. **The cross connection control device to serve a hose bibb or hydrant that penetrates an exterior wall of a _____ structure may not prevent a hose bibb or hydrant from being freeze resistant automatic draining.**

a. Pressurized
b. Heated
c. Cooled
d. Ventilated

39. **A spill resistant vacuum breaker shall be installed so that the bottom of the device or the critical level mark on the device is at least 12 inches above which of the following:**

a. The flood level rim of the receptor serving the water supply port
b. The highest point downstream from the device where back pressure would be created
c. The highest point of an injection or aspiration port
d. All of the above

Installation

A. An air gap for cross connection control shall conform to ASME A112.1.2

B. Cross connection control methods, devices and assemblies shall be installed in accordance with the manufacturer's written installation specifications and this chapter. The methods, devices and assemblies shall be accessible for inspection, testing, maintenance and replacement.

C. Cross connection control devices shall be protected from freezing.

D. 1. A cross connection control device may not be located in uninhabitable spaces susceptible to flooding.

2. A cross connection control device which has one or more vent ports may not be located in a pit, vault or depression which is below the adjacent grade or floor level, even if the pit, vault or depression is provided with a drain at the bottom of the pit.

E. 1. Vent ports of cross connection control devices shall be positioned:

a. Away from areas where toxic gases and fumes may accumulate;

F. Downward or protected to protect the ports from falling debris; and

G. So as to drain dry.

2. Cross connection control devices or assemblies shall be so located that any vent ports are provided with an air gap so as to comply with s. SPS 382.33 or ASME A112.1.3.

3. a. If a reduced pressure principle backflow preventer or a reduced pressure detector backflow preventer is located within a building, a drain or receptor shall be provided to receive the discharge from the vent ports of the device. If a floor drain is to receive the discharge from the vent ports of a reduced pressure principle backflow preventer or a reduced pressure detector backflow preventer, the flow or pathway of the discharge may not create a nuisance.

b. Where drain piping is provided for the discharge from a vent port, an air gap in accordance with par. (a) shall be provided between the vent port and the drain piping.

c. Where a receptor is provided for the discharge from a vent port, an air gap in accordance with par. (a) shall be provided between the vent port and the receptor.

F. The installation of a reduced pressure principle backflow preventer, a reduced pressure fire protection principle backflow preventer, a reduced pressure detector backflow preventer, a reduced pressure detector fire protection backflow prevention assembly, a double check backflow prevention assembly, a double check detector assembly backflow preventer, a pressure vacuum breaker assembly and a spill resistant vacuum beaker shall conform to all of the following limitations:

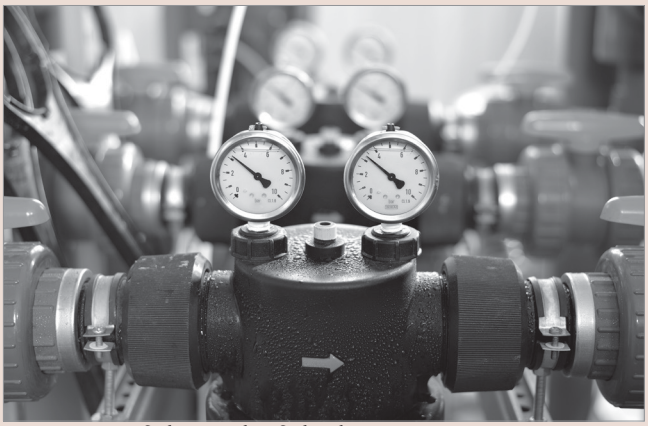
1. The minimum distance between the floor, surface or platform which is to provide access and the lowest point of the assembly may not be less than 12".
2. The maximum distance between the floor, surface or platform which is to provide access and the lowest point of the assembly may not be more than 7 feet.
3. The minimum distance between a ceiling or other obstruction and the highest point of the assembly may not be less than 18".
4. The minimum distance between a wall or other obstruction and the back and ends of the assembly may not be less than 4".
5. The minimum distance between a wall or other obstruction and the front of the assembly may not be less than 24".

G. The discharge outlet of local waste piping serving a cross connection control device shall be visible and not be located within a concealed space.

H. No control valve may be placed downstream from a pipe applied atmospheric type vacuum breaker or a laboratory faucet backflow preventer.

I. A barometric loop to provide cross connection control for backsiphonage shall be formed by creating a loop in the potable water supply piping upstream to the source of cross connection.

1. The loop shall extend at least 35 feet above:
   a. The highest point downstream from the loop where backpressure would be created; and
   b. The point of discharge.
2. No outlets for potable water use shall be installed downstream of the peak of the loop.



J. Vacuum breaker tees shall be assembled such that:

1. The bottom of the horizontal portion of the tee is installed at least one inch above the flood level rim of the receptor;
2. The inside diameter of the tee is equal to or greater than the inside diameter of the drain piping from the water treatment device;
3. The tee is installed in such a position that the discharge will not create a nuisance;
4. The piping upstream of the tee is of a type suitable for water distribution in accordance with s. SPS 384.30 (4) (e)
5. The vent portion of the tee is equal to or greater than the inside diameter of the drain piping from the water treatment device; and
6. The vent port of the tee is:
   a. Positioned away from areas where toxic gases and fumes may accumulate; and

b. Constructed to protect the port from falling debris.

K. A chemical dispensing system shall be connected to the water distribution system in either of the following manners:

1. The fixture supply shall be individually connected to the water distribution system.
2. The fixture supply shall be installed with a pressure bleeding device. The pressure bleeding device shall create a visually free flow of water through the atmosphere from the faucet connection into the fixture drain.

Part 3 Exam Questions

40. An air gap for cross connection control shall conform to ASME _____.

a. A342.5.1
b. A231.2.6
c. A112.1.2
d. A213.2.1

41. True or false? Cross connection control devices do not need to be protected from freezing.

a. True
b. False

42. A cross connection control device may not be located in _____ spaces susceptible to flooding.

a. Populated
b. Residential
c. Inhabitable
d. Uninhabitable

43. True or false? When a pit, vault or depression is provided with a drain at the bottom of the pit, a cross connection control device which has one or more vent ports may be located in the aforementioned locations.

a. True
b. False

44. Vent ports of cross connection control devices shall be positioned:

a. Away from areas where toxic gases and fumes may accumulate
b. Downward or protected to protect the ports from falling debris
c. So as to drain dry
d. All of the above

45. Cross connection control devices or assemblies shall be so located that any _____ are provided with an air gap so as to comply with s. SPS 382.33 or ASME A112.1.3.

a. Vent ports
b. Drains
c. Control devices
d. Pits

46. True or false? If a reduced pressure principle backflow preventer or a reduced pressure detector backflow preventer is located within a building, a drain or receptor shall be provided to receive the discharge from the vent ports of the device.

a. True
b. False

47. If a floor drain is to receive the discharge from the vent ports of a(n) _____ pressure principle backflow preventer or a reduced pressure detector backflow preventer, the flow or pathway of the discharge may not create a nuisance.

a. Increased
b. Augmented
c. Reduced
d. Amplified

48. Where drain piping is provided for the discharge from a vent port, an air gap in accordance with par. (a) shall be provided between the vent port and the:

a. Receptor
b. Drain piping
c. Pressure detector
d. Backflow preventer

49. Where a receptor is provided for the discharge from a vent port, an air gap in accordance with par. (a) shall be provided between the vent port and the:

a. Receptor
b. Drain piping
c. Pressure detector
d. Backflow preventer

50. The minimum distance between the floor, surface or platform which is to provide access and the lowest point of the assembly may not be less than _____ inches.

a. 8
b. 9
c. 10
d. 12

51. The maximum distance between the floor, surface or platform which is to provide access and the lowest point of the assembly may not be more than _____ feet.

a. 4
b. 5
c. 6
d. 7

52. The minimum distance between a ceiling or other obstruction and the highest point of the assembly may not be less than _____ inches.

a. 18
b. 20
c. 22
d. 24

53. The minimum distance between a wall or other obstruction and the back and ends of the assembly may not be less than _____ inches.

a. 4
b. 5
c. 6
d. 10

54. The minimum distance between a wall or other obstruction and the front of the assembly may not be less than _____ inches.

a. 24
b. 26
c. 28
d. 30

55. True or false? The discharge outlet of local waste piping serving a cross connection control device shall be visible and be located within a concealed space.

a. True
b. False

56. No control valve may be placed _____ from a pipe applied atmospheric type vacuum breaker or a laboratory faucet backflow preventer.

a. 10 feet
b. 20 feet
c. Downstream
d. Upstream

57. A barometric loop to provide cross connection control for _____ shall be formed by creating a loop in the potable water supply piping upstream to the source of cross connection.

a. Condensate return
b. Steam holding
c. Back pressure
d. Backsiphonage

58. The barometric loop shall extend at least _____ feet above the highest point downstream from the loop where backpressure would be created and the point of discharge.

a. 35
b. 40
c. 45
d. 50

59. True or false? No outlets for potable water use shall be installed downstream of the peak of the loop.

a. True
b. False

60. Vacuum breaker tees shall be assembled such that the bottom of the horizontal portion of the tee is installed at least _____ inch(es) above the flood level rim of the receptor.

a. 1
b. 1½
c. 2
d. 2½