

RED SEAL EXAM PREP

306A Plumber

Free 49-Question Mock Exam

Practice for the Red Seal / Certificate of Qualification exam

Pass mark: 70% · Aligned to the published occupational standard topic weightings
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Mock Exam — answer all questions, then check the key

Q1. What is the purpose of an overflow assembly in a bathtub?

- A) To allow draining the tub from both ends
- B) To increase drain capacity for a filled tub
- C) To prevent overflow if the drain is closed
- D) To connect the tub drain to the vent stack

Q2. ABS pipe joints are made using:

- A) ABS solvent cement — primer is optional per most codes
- B) Compression fittings with rubber O-rings
- C) Threaded connections
- D) ABS solvent cement only (no primer required)

Q3. A 306A plumber installs a wet vent serving a lavatory (DN50/2") that is 2.4m from the stack connection. The NPC limits wet vent length based on pipe diameter. Is this installation compliant?

- A) Yes — DN50 wet vent is permitted up to 2.4m per NPC
- B) Yes — wet vent length limit for DN50 is 1.8m, so this fails
- C) No — wet vent must be DN75 minimum for 2.4m length
- D) Wet venting is prohibited in Canada — use individual vents only

Q4. What material is NOT approved for gas piping in residential construction?

- A) Copper tubing for natural gas (not LP)
- B) CSST (corrugated stainless steel tubing)
- C) Black steel pipe (Schedule 40)
- D) PVC plastic pipe underground

Q5. What is a lockout/tagout (LOTO) procedure used for in plumbing work?

- A) To isolate energy sources before maintenance
- B) To mark pipe sizes during installation
- C) To lock plumbing fixtures during inspection
- D) To tag pipes for pressure testing

Q6. A new residence has copper water pipe that shows blue-green staining on fixtures and pinhole leaks after 2 years. What is the MOST likely cause and recommended solution?

- A) The joints were soldered with 95/5 solder instead of lead-free solder
- B) Copper pipe was installed in direct contact with concrete
- C) Acidic (low pH) water is corroding the pipe — adjust pH or replace pipe
- D) Type M copper was used — upgrade to Type L

Q7. What is the function of a cleanout in a DWV system?

- A) To provide access for rodding and clearing drain blockages
- B) To test drain slope during installation
- C) To allow venting of sewer gas during maintenance
- D) To allow water to drain from the pipe during freeze-up

Q8. When threading black steel gas pipe, the correct pipe thread standard is:

- A) NPS (National Pipe Straight)
- B) BSP (British Standard Pipe)
- C) Metric ISO threads
- D) NPT (National Pipe Taper)

Q9. What is the purpose of the "flood level rim" reference in plumbing code?

- A) The fixture edge from which water would overflow
- B) The maximum fill level of a water heater
- C) The maximum water level allowed in a river before flooding affects plumbing
- D) The top of a water closet tank

Q10. What is the purpose of a P-trap in plumbing?

- A) To reduce water hammer in the drain line
- B) To increase water pressure to the fixture
- C) To hold a water seal that blocks sewer gas
- D) To filter debris from the drain

Q11. A 306A plumber completes rough-in for a 3-piece bathroom in a new residential build. Before proceeding with drywall, what inspections are typically required in most Canadian jurisdictions?

- A) A rough-in inspection before concealment plus a final inspection
- B) Self-certification by the licensed plumber is sufficient in most provinces
- C) Only the authority having jurisdiction (AHJ) determines if inspection is required
- D) Only a final plumbing inspection after all fixtures are installed

Q12. A pipe wrench should NOT be used on which type of pipe?

- A) Copper or plastic pipe
- B) Black steel pipe
- C) Cast iron pipe
- D) Galvanized steel pipe

Q13. What is the minimum insulation required for hot water supply pipes in an unconditioned space?

- A) Insulation is only required for pipes in exterior walls
- B) No insulation required
- C) Minimum R-1 insulation per energy codes
- D) Insulation required only for pipes exceeding 75 mm diameter

Q14. What is the difference between high-pressure and low-pressure gas distribution?

- A) High pressure: commercial only; low pressure: residential only
- B) High pressure uses CSST; low pressure uses black steel only
- C) High pressure serves street mains; low pressure serves appliances
- D) There is only one pressure level for all distribution

Q15. What is a potable water system cross-connection?

- A) A tee fitting in the water supply system
- B) A connection between hot and cold supply lines
- C) A pipe that crosses from one building to another
- D) A connection between potable water and a contamination source

Q16. What is the purpose of a wax ring when installing a water closet?

- A) To absorb vibration from the toilet
- B) To align the toilet with the drain
- C) To seal the toilet horn to the closet flange
- D) To secure the toilet to the floor structurally

Q17. What is the purpose of the authority having jurisdiction (AHJ) in plumbing inspections?

- A) To train plumbing apprentices
- B) To certify plumbing products and materials
- C) To sell plumbing permits to homeowners
- D) To inspect work and enforce the plumbing code

Q18. What is the minimum hot water temperature at the water heater to prevent Legionella growth?

- A) 60°C (140°F)
- B) 70°C (158°F)
- C) 80°C (176°F)
- D) 45°C (113°F)

Q19. What is the purpose of a pressure/temperature (P&T) relief valve on a water heater?

- A) To reduce cold water supply pressure entering the heater
- B) To prevent thermal expansion in the supply line
- C) To control hot water delivery temperature to fixtures
- D) To release water automatically on excess pressure or temperature

Q20. What is the maximum flush volume for a water closet (toilet) in Canada per current water efficiency standards?

- A) 6 L (1.6 gpf)
- B) 3.8 L (1.0 gpf)
- C) 13.2 L (3.5 gpf)
- D) 4.8 L (1.28 gpf)

Q21. What is a backflow preventer and when is it required?

- A) A check valve that prevents water hammer
- B) A device preventing backflow into the potable supply
- C) A pressure reducer for high-pressure zones
- D) A valve that prevents hot and cold water from mixing

Q22. A 306A plumber notices that a fixture drain trap loses its water seal overnight even though the fixture is not used. No gurgling is observed and there is no evidence of leakage. What is the MOST likely explanation?

- A) Trap evaporation — fixture is not used frequently enough
- B) Back pressure from the drain stack pushing water out
- C) Capillary action pulling the water seal away
- D) Siphoning from an adjacent draining fixture

Q23. What are the two main types of natural gas distributed in Canada?

- A) Methane and propane
- B) Hydrogen and methane
- C) Butane and natural gas
- D) Acetylene and propane

Q24. What is the purpose of a drip leg (sediment trap) in a gas line?

- A) To reduce gas pressure to the appliance
- B) To serve as a shutoff valve location
- C) To equalize pressure between high and low pressure gas
- D) To trap condensate and debris before the appliance

Q25. What is a dual-flush toilet and what is its advantage?

- A) A toilet that can be flushed from either side
- B) A toilet with two tanks for higher flush volume
- C) A toilet offering a partial flush and a full flush option
- D) A toilet with both siphon-jet and washdown flushing action

Q26. When using a pipe threading machine, the correct lubricant to use is:

- A) Water
- B) Threading (cutting) oil
- C) Motor oil
- D) No lubricant needed for power threading

Q27. What is the minimum slope (grade) for a 3-inch (75 mm) horizontal drain pipe?

- A) 1% (1/8 in per foot)
- B) 4% (1/2 in per foot)
- C) No slope required for drain pipes
- D) 2% (1/4 in per foot)

Q28. PEX tubing must not be used within what distance of a water heater connection?

- A) 600 mm (24 in)
- B) 300 mm (12 in)
- C) 450 mm (18 in)
- D) 150 mm (6 in)

Q29. What is the correct procedure before opening a gas line for work?

- A) The line self-purges when opened
- B) Shut off the gas, purge the line, and test
- C) Work quickly to minimize gas release
- D) Open windows for ventilation only

Q30. What prevents a running trap (full S-trap) from being used in modern plumbing?

- A) They are not compatible with modern ABS pipe
- B) They are too expensive to install
- C) They require too much head room below the fixture
- D) S-traps self-siphon and lose their seal

Q31. What is the purpose of a stack vent vs. a vent stack?

- A) Stack vent is for commercial; vent stack is for residential
- B) Stack vent is underground; vent stack is above the roof
- C) They are interchangeable terms
- D) Stack vent extends the soil stack; vent stack is a separate pipe

Q32. A plumber is soldering copper pipe using an open-flame torch in a wall cavity near wood framing. What is the SAFEST procedure to prevent fire?

- A) Use a heat shield behind the fitting and keep a fire watch afterward
- B) Soak the framing with water before soldering
- C) Keep a fire extinguisher within 3 metres and proceed normally
- D) Use push-fit fittings instead — open flame prohibited near wood

Q33. A 306A plumber is replacing a bathroom exhaust fan that vents through the roof. The duct run is 7m with two 90° elbows. The manufacturer minimum CFM is 50 CFM. Per ASHRAE 62.2, what is the minimum ventilation requirement for a typical bathroom and is the fan adequate?

- A) No minimum standard applies to residential bathrooms in Canada
- B) ASHRAE requires 50 CFM intermittent — fan meets minimum, verify duct losses
- C) ASHRAE requires 20 CFM minimum — fan is adequate
- D) ASHRAE requires 100 CFM for all bathrooms — fan is undersized

Q34. A hot water heater is producing discoloured (rusty) water but the cold water is clear. What should the plumber suspect FIRST and recommend?

- A) The water main has a main break upstream — flush the system
- B) The anode rod has depleted — replace the sacrificial anode
- C) Water softener malfunction — check salt levels
- D) Hot water piping corrosion — replace all copper piping

Q35. What is the minimum horizontal distance between a water closet and a side wall or bathtub?

- A) 200 mm (8 in) from centre to wall
- B) 150 mm (6 in) from centre to wall
- C) 350 mm (13.75 in) from centre to wall
- D) 450 mm (18 in) from centre to wall

Q36. What is a floor drain trap primer?

- A) A device that automatically adds water to maintain the trap seal
- B) A backflow preventer for floor drains
- C) A chemical treatment to kill bacteria in floor drain traps
- D) A primer applied to the drain pipe before installing the trap

Q37. What is the maximum length of a trap arm (distance from trap weir to vent)?

- A) Varies by pipe diameter — set by NPC venting tables
- B) Equal to pipe diameter in inches $\times$ 1 foot
- C) Fixed at 600 mm (24 in) for all pipes
- D) Unlimited if slope is maintained

Q38. What is the purpose of an air admittance valve (AAV)?

- A) To bleed air from pressurized water supply lines
- B) To supply air to the combustion chamber of a water heater
- C) To admit outside air into a septic system
- D) To admit air into the drain to prevent trap siphonage

Q39. When is a sanitary drainage system required to have an interceptor other than a grease trap?

- A) Only in industrial zones
- B) When drainage velocity exceeds 1 m/s
- C) When waste could damage or endanger the sewer
- D) In all buildings with more than 5 fixtures

Q40. What is the standard leak test for gas piping after installation per CSA B149.1?

- A) Leak detection spray at fittings only
- B) Visual inspection only
- C) Pressure test with air or nitrogen
- D) Fill with water and check for leaks

Q41. Where must a main water supply shutoff valve be located?

- A) At the outdoor water meter location only
- B) Inside the building at the service entry
- C) At the street property line
- D) In the basement only

Q42. What is a wet vent?

- A) A submerged vent in a septic tank
- B) A vent with a water trap installed
- C) A pipe serving as both a drain and a vent
- D) A vent pipe exposed to weather

Q43. What is the difference between a sanitary sewer and a storm sewer?

- A) Sanitary sewer carries sewage; storm sewer carries surface water
- B) Sanitary sewer is deeper; storm sewer is shallower
- C) They are the same in modern buildings
- D) Sanitary sewer is for commercial buildings; storm sewer is for residential

Q44. What is the "one-third rule" for venting in plumbing?

- A) One-third of fixtures can share a common vent
- B) One-third of a drain pipe must be air space for proper drainage
- C) Vent pipes must extend one-third of the building height above the roof
- D) A vent may not be smaller than one-third the drain diameter it serves

Q45. What is the purpose of dielectric unions when connecting copper pipe to galvanized steel pipe?

- A) To allow for easy disconnection for maintenance
- B) To reduce pressure at the connection point
- C) To allow thermal expansion between the two materials
- D) To prevent galvanic corrosion between copper and galvanized steel

Q46. What is a condensate drain line used for in HVAC/plumbing?

- A) To drain water softener backwash
- B) To collect rainwater from condensing boilers
- C) To drain pool water from above-ground swimming pools
- D) To drain condensate from AC and high-efficiency furnaces

Q47. What is the purpose of a thermostatic mixing valve (TMV or ASSE 1016)?

- A) To mix hot and cold water to a set temperature
- B) To maintain pressure balance during simultaneous use
- C) To pre-heat cold water supply for energy efficiency
- D) To mix water with a chemical disinfectant

Q48. What is required when a plumber discovers unapproved (non-permitted) plumbing work during a renovation?

- A) Proceed with the renovation and do not report it
- B) Nothing — historical non-permitted work is grandfathered
- C) The plumber must refuse all work on the property
- D) Inform the owner and recommend a permit and inspection

Q49. What is the primary hazard when cutting galvanized pipe with a torch?

- A) Risk of electric shock
- B) Zinc oxide fumes causing metal fume fever
- C) Pipe collapse from heat
- D) Carbon monoxide from acetylene combustion

Answer Key & Explanations

Q1. Answer: C

The overflow assembly provides an emergency drain opening at the upper end of the tub. If the drain is blocked or closed and the tub fills, water enters the overflow, preventing spillage onto the floor.

Q2. Answer: D

ABS plastic pipe is joined using ABS solvent cement only. Unlike PVC, ABS does not require a separate primer under most Canadian provincial codes (although some jurisdictions require it).

Q3. Answer: A

NPC wet vent length limits vary by pipe size. DN32 (1.25"): max 1.2m. DN38 (1.5"): max 1.5m. DN50 (2"): max 2.4m. DN75 (3"): max 4.5m. A 2.4m wet vent in DN50 pipe is at the maximum permitted length — compliant. Wet venting is permitted and commonly used in NPC jurisdictions for lavatory/sink installations.

Q4. Answer: D

PVC plastic pipe is not approved for gas distribution in buildings. Approved materials include black steel (most common above ground), CSST, and copper (for natural gas, not LP — propane corrodes copper).

Q5. Answer: A

LOTO ensures energy sources — water, gas, and electrical — are isolated and de-energized before performing maintenance. In plumbing, this includes closing and locking valves and tagging them to prevent accidental re-energization.

Q6. Answer: C

Blue-green staining on fixtures indicates copper dissolution — the water is attacking the pipe from inside. Acidic water (pH below 6.5) aggressively corrodes copper, causing blue-green deposits on fixtures and eventually pinhole leaks. Solutions: pH adjustment (neutralizing filter), water softener bypass, or replace with plastic pipe (PEX, CPVC) that resists acidic water. Report to local water authority.

Q7. Answer: A

Cleanouts provide access points for drain cleaning tools (rods, snakes, hydro-jet) to clear blockages. Required by code at specific locations (changes of direction, ends of horizontal runs, etc.).

Q8. Answer: D

Gas piping uses NPT (National Pipe Taper) threads, which create a pressure-tight seal as the tapered male and female threads engage. Must use yellow PTFE tape or pipe thread compound rated for gas.

Q9. Answer: A

The flood level rim (FLR) is the top edge of a fixture from which water would overflow (top of a sink bowl, edge of a bathtub). Code uses FLR to set minimum fixture placement height and supply/trap requirements.

Q10. Answer: C

The P-trap retains a water seal (38–100 mm) that blocks sewer gas (including hydrogen sulphide and methane) from entering the living space through the drain.

Q11. Answer: A

Most provincial plumbing codes require a rough-in inspection before any work is concealed — two inspections minimum. This allows the AHJ (inspector) to verify pipe sizing, venting, drainage grades, and pressure test results before walls are closed. A final inspection after fixture installation is also typically required. Self-certification is not permitted for plumbing in most Canadian jurisdictions.

Q12. Answer: A

Pipe wrenches are designed for steel pipe. Using them on copper or plastic pipe crushes the softer material, causing leaks and damage.

Q13. Answer: C

Provincial energy codes and the National Energy Code of Canada require minimum R-1 insulation on hot water distribution pipes in unconditioned spaces to reduce heat loss and energy consumption.

Q14. Answer: C

Natural gas is distributed at high pressure (above 7 kPa) through street mains and reduced at the meter regulator to low pressure (below 1.75 kPa / 7 in WC) for residential service to individual appliances. Individual appliances may have further regulators.

Q15. Answer: D

A cross-connection is any actual or potential physical connection between the potable water supply and a non-potable source of contamination (irrigation systems, chemical tanks, sewer, etc.). Cross-connections must have appropriate backflow prevention.

Q16. Answer: C

The wax ring creates a flexible, watertight seal between the toilet's horn (outlet) and the closet flange, preventing sewer gas and sewage leaks at the floor connection.

Q17. Answer: D

The AHJ (typically a municipal building department or provincial authority) enforces the adopted plumbing code by reviewing permit applications and plans, issuing permits, inspecting installations, and issuing compliance certificates.

Q18. Answer: A

Legionella bacteria thrive at 35–45°C. Storage water heaters must maintain at least 60°C (140°F) to kill Legionella. Mixing valves (TMV) then blend to safe delivery temperature.

Q19. Answer: D

The T&P relief valve is a safety device that opens automatically if pressure exceeds 1100 kPa or temperature exceeds 99°C, preventing a potentially explosive failure of an overheated or overpressurized water heater. Discharge pipe must be run to a drain or floor.

Q20. Answer: A

Canadian efficiency standards and NPC restrict water closets to a maximum of 6 L per flush (6 Lpf). High-efficiency toilets (HET) use 4.8 L or less. Some provinces have stricter limits. Ontario (residential Group C) and British Columbia limit new water closets to 4.8 L/flush.

Q21. Answer: B

Backflow preventers protect the potable water supply from contaminated water flowing backward into the system under back-siphonage or back-pressure conditions. Required at cross-connections.

Q22. Answer: A

Trap evaporation occurs in infrequently used floor drains and fixtures. A standard P-trap holds 25-50mm of water. In low-humidity environments, this evaporates in 3-7 days without use. The solution is a trap primer, deep-seal trap (100mm seal depth), or regular manual filling. This is distinct from siphoning (which causes gurgling) or capillary action (requires wick material in the trap).

Q23. Answer: A

Natural gas distributed through municipal pipelines is primarily methane (CH₄). Propane (LP gas/LPG) is stored in cylinders or tanks and used where natural gas is unavailable.

Q24. Answer: D

A drip leg is a vertical pipe extension below the horizontal run, installed just before the gas appliance. It collects condensate, debris, and scale from the gas supply before they reach the appliance regulator or valve.

Q25. Answer: C

Dual-flush toilets provide two flush volumes: approximately 3 L (half-flush) for liquid waste and up to 6 L (full flush) for solid waste — compared to older single-flush toilets that used 13–20 L per flush. This meets the National Energy Code and provincial water efficiency requirements. Wrong answers: dual-flush toilets do not use higher pressure than standard toilets (pressure-assist is a different technology); they do not require a different trap arm size; the 3L/6L volumes are the maximum, not guaranteed usage (actual consumption depends on water pressure). Under the Canadian Model National Energy Code and many provincial codes, dual-flush or low-consumption toilets (≤6 L) are now required in new construction. Red Seal point: know that 6 L is the maximum flush volume allowed for new toilets in Canada — not 13 L.

Q26. Answer: B

Threading oil (cutting oil) lubricates and cools the die head during the threading operation, preventing die wear, reducing friction, and producing clean, accurate threads with proper form. Wrong answers: water or general lubricant (WD-40, grease) are not acceptable — water causes corrosion and does not provide adequate lubrication for cutting; WD-40 is a penetrant/light lubricant not formulated for metal cutting. Pipe dope or Teflon tape are used for sealing threaded joints after assembly, not during cutting. If threading oil is not used, the result is torn, ragged threads (not to NPT standard), accelerated die wear, and fittings that will leak. Black pipe threading oil is typically dark coloured; some jobs use white threading oil for stainless pipe.

Q27. Answer: D

NPC requires a minimum 2% slope ($\frac{1}{4}$ in/ft or 20 mm/m) for horizontal drain pipes 3 in (75 mm) and larger. Smaller pipes may require steeper slope.

Q28. Answer: A

PEX is not rated for temperatures near a water heater connection point. Most manufacturer specifications and codes require metal pipe (copper or CPVC) for the first 450–600 mm from the heater.

Q29. Answer: B

Before opening any gas line: shut off at the meter or upstream valve, purge the line of remaining gas, and use a calibrated gas detector to verify the atmosphere is below 10% LEL before any ignition sources.

Q30. Answer: D

S-traps (with both an upward and downward dip) self-siphon — the flowing water creates enough suction to pull the water seal through the second curve, losing trap protection.

Q31. Answer: D

Stack vent: the portion of the soil or waste stack above the highest drainage connection that extends through the roof for ventilation. Vent stack: a separate vertical pipe installed solely for venting, connected at the bottom to the building drain.

Q32. Answer: A

Heat shields (flame spreaders or fire-resistant barriers) protect adjacent combustibles and fire watch is required after torch work. Smoldering fires in wood framing can ignite hours after work is complete. Provincial fire codes require a 30-60 minute fire watch after open-flame work near combustibles. A metal heat shield reflects heat away from wood. Push-fit fittings are an alternative but not always required.

Q33. Answer: B

ASHRAE 62.2 bathroom ventilation: 50 CFM intermittent or 20 CFM continuous. The fan meets the minimum CFM, but published fan ratings are at 0 static pressure. Each 90° elbow adds ~ 7.5 Pa of resistance; 7m of duct adds more. Total static pressure in the duct system may reduce actual CFM below 50. Verify fan CFM at the expected system static pressure using the fan curve.

Q34. Answer: B

Rusty hot water with clear cold water indicates tank corrosion — the sacrificial anode rod in the hot water tank has failed. Magnesium or aluminum anode rods protect the glass-lined steel tank through galvanic action. Once depleted, the tank corrodes internally. Replacing the anode rod early extends tank life. If the tank interior is already significantly corroded, replacement of the whole tank may be more cost-effective.

Q35. Answer: C

NPC requires minimum 350 mm (13.75 in) from the centre of the water closet to the side wall or obstruction. This ensures minimal usable clearance (approximately 45 mm) at the side.

Q36. Answer: A

Floor drain traps can dry out (evaporate) if seldom used. A trap primer automatically supplies a small amount of water to maintain the seal, preventing sewer gas entry.

Q37. Answer: A

The maximum trap arm length (distance from trap weir to the vent connection) is specified in NPC tables based on pipe diameter. Exceeding this causes trap siphonage.

Q38. Answer: D

An AAV (Studor valve) opens to admit air when negative pressure develops in the drain, preventing trap siphonage without requiring a vent pipe through the roof. It closes under positive pressure to contain sewer gas.

Q39. Answer: C

NPC requires interceptors for waste containing flammable liquids (gas stations), sand/grit (car washes), grease (commercial kitchens), and other materials that could damage sewers or create hazards.

Q40. Answer: C

CSA B149.1 (Natural Gas and Propane Installation Code) requires a pressure test with air or nitrogen at 1.5× working pressure for a minimum of 10 minutes before inspection and connection to appliances.

Q41. Answer: B

NPC requires a main shutoff valve inside the building at the point where the water service enters, accessible at all times for emergency shutoff of water to the entire building without specialized tools.

Q42. Answer: C

A wet vent carries waste from one fixture while also acting as a vent for other fixtures connected downstream. NPC permits wet venting under specific conditions (fixture types, pipe sizes, distances).

Q43. Answer: A

Sanitary sewers carry domestic and commercial sewage and wastewater to treatment plants. Storm sewers collect rain and surface runoff, often discharging directly to waterways. In modern construction, they must be kept separate (separated sewer).

Q44. Answer: D

This is the NPC minimum vent size guideline: a vent pipe diameter must be not less than one-third of the drain pipe it serves, but not less than 32 mm (1.25 in) minimum vent size for any individual vent.

Q45. Answer: D

Copper and galvanized steel (zinc-coated iron) form a galvanic cell when in contact with water, accelerating corrosion of the steel (zinc sacrificial anode effect). Dielectric unions isolate the two metals.

Q46. Answer: D

Air conditioners and high-efficiency condensing furnaces produce significant condensate water. The condensate drain line (typically small-diameter PVC or vinyl tubing) routes this water to a floor drain, sump, or utility sink.

Q47. Answer: A

A TMV blends hot and cold water to a constant pre-set delivery temperature (typically 49°C/120°F) and maintains it even if supply pressures change, preventing scalding especially for vulnerable users.

Q48. Answer: D

Discovering unapproved work creates liability concerns. The plumber should document the finding, inform the owner, and recommend obtaining retroactive permits and inspections for the unapproved work to protect all parties.

Q49. Answer: B

Heating galvanized (zinc-coated) steel produces zinc oxide fumes which cause metal fume fever — flu-like symptoms. Requires LEV (local exhaust ventilation) and respiratory protection.

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