BURIAL DEPTHS
For Yard Piping
B-12

Development Services
Building Division
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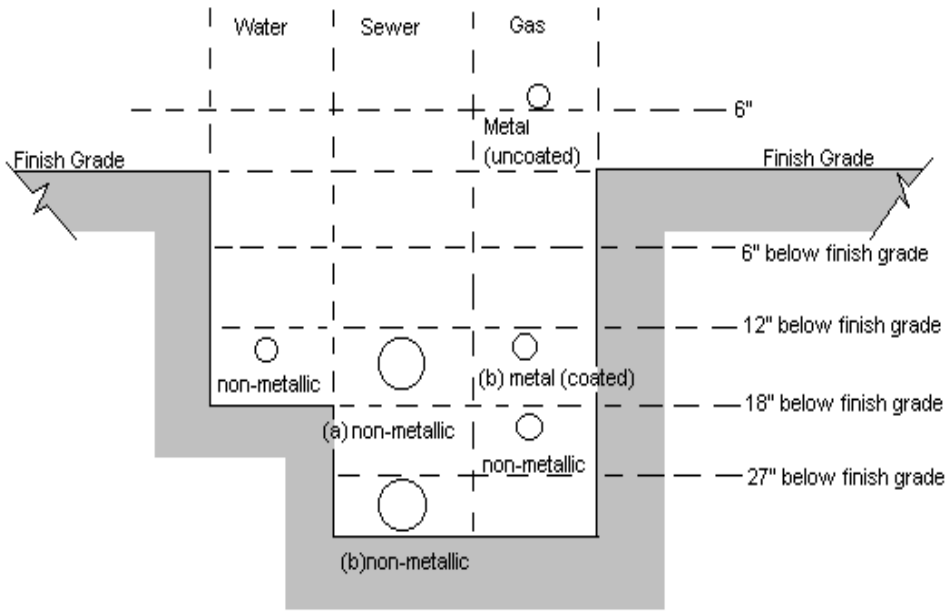
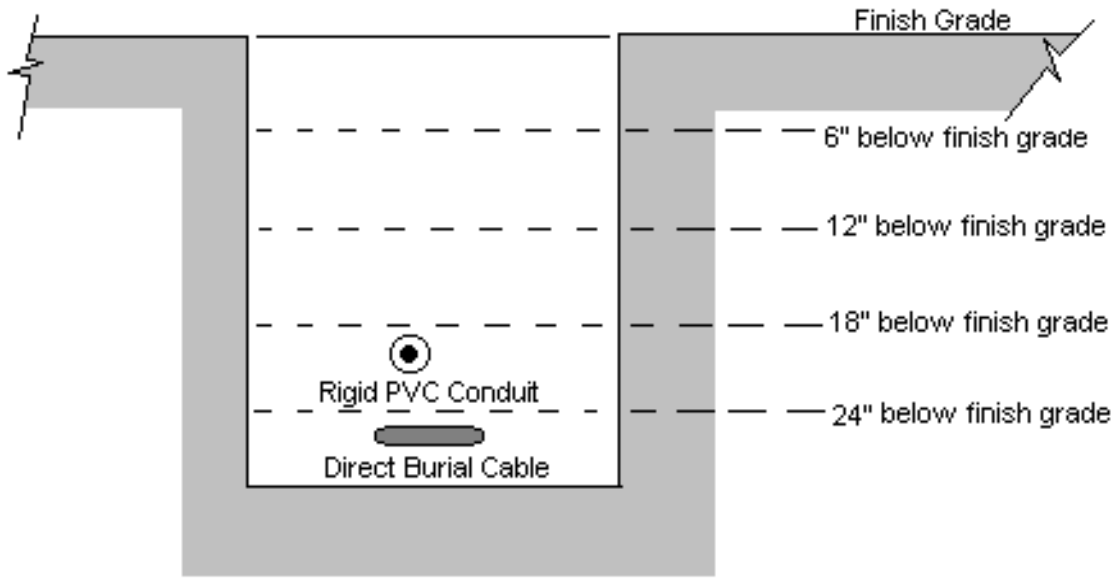
These burial depths apply outside of buildings within private property subject to the following provisions:

- These are not applicable to public utility piping.
- Pipes may be laid in the same trench without horizontal separation except as noted for water and sewer lines.
- These depths are not applicable in mobilehome parks.



WATER Piping	DRAIN - Waste Piping	FUEL GAS Piping
Metallic piping shall be a minimum of 12” below finish grade.	Metallic piping shall be a minimum of 12” below finish grade.	Metallic piping must be 6” minimum above finish grade or factory wrapped w/ protective coating
Non - Metallic piping shall be a minimum of 12” below finish grade	(a) 12” minimum below finish grade (b) For pipe not listed to be used inside buildings, the sewer must be 12” below the water piping. The water pipe shall be to one side on a solid shelf - total depth to the top of the sewer 27”	Non-metallic gas piping must be 18” minimum below finish grade. **Note:** riser to be metallic. Horizontal metallic portion of the riser shall extend 30” minimum before connecting to the plastic piping. Use of a factory transition fitting is required. All metal fittings must be primed and wrapped with minimum of 40 mils of approved pipe wrap tape. Number 14 awg copper tracer wire shall be attached to non-metallic piping and shall terminate above grade at both ends. Pipe depths may be reduced by 6” when a minimum of 4” of concrete is placed over the trench.

Burial Depths for ELECTRICAL Lines on Private Property	
Rigid Non-metallic Conduit	18” Minimum 24” Under areas subject to vehicular traffic
Direct Burial Cable	24 “ Minimum **Note:** A reduction to 12” deep is allowed for any wiring method for a 120 V, 20 Ampere or less rated circuit that is GFCI protected
Metallic Conduit	Not recommended except per San Diego ICBO Newsletter 345-346-348
Note: These depths may be reduced 6 “ when minimum of 2” of concrete cover is placed in the conduit trench	



The above burial depths are not applicable for the following uses:

- Mobilehome Parks
- SDG&E Service Laterals
- Exterior concrete slabs or Underneath building slabs a minimum of 3 ½ “ thick. (conduit may be installed directly underneath slabs)
- Locations where solid rock is encountered. Check with field inspector for possible solutions
- Vehicular traffic areas

Any trenching near or through septic systems must be reviewed by the County Health Department as well as the Building Division.

Gas and air combustion mixers incorporating double diaphragm "zero" or "atmosphere" governors or regulators shall require no further protection unless connected directly to compressed air or oxygen at pressures of 5 psi (34 kPa) or more. [NFPA 54:5.10.1.1 – 5.10.1.2]

» **1208.11.1 Protective Devices.** Protective devices shall include, but not be limited to the following:

(1) Check valves.

(2) Three-way valves (of the type that completely closes one side before starting to open the other side).

(3) Reverse flow indicators controlling positive shutoff valves.

(4) Normally closed air-actuated positive shutoff pressure regulators. [NFPA 54:5.10.2]

» **1208.12 Low-Pressure Protection.** A protective device shall be installed between the meter and the appliance or equipment if the operation of the appliance or equipment is such that it could produce a vacuum or a dangerous reduction in gas pressure at the meter. Such protective devices include, but are not limited to, mechanical, diaphragm-operated, or electrically operated low-pressure shutoff valves. [NFPA 54:5.11]

» **1208.13 Shutoff Valves.** Shutoff valves shall be approved and shall be selected giving consideration to pressure drop, service involved, emergency use, and reliability of operation. Shutoff valves of size 1 inch (25 mm) National Pipe Thread and smaller shall be listed. [NFPA 54:5.12]

» **1208.14 Expansion and Flexibility.** Piping systems shall be designed to prevent failure from thermal expansion or contraction. [NFPA 54:5.14.1]

» **1208.14.1 Special Local Conditions.** Where local conditions include earthquake, tornado, unstable ground, or flood hazards, special consideration shall be given to increased strength and flexibility of piping supports and connections. [NFPA 54:5.14.2]

1209.0 Excess Flow Valve.

1209.1 General. Where automatic excess flow valves are installed, they shall be listed to CSA Z21.93 and shall be sized and installed in accordance with the manufacturer's instructions. [NFPA 54:5.13]

1210.0 Gas Piping Installation.

1210.1 Piping Underground. Underground gas piping shall be installed with sufficient clearance from any other underground structure to avoid contact therewith, to allow maintenance, and to protect against damage from proximity to other structures. In addition, underground plastic piping shall be installed with sufficient clearance or shall be insulated from sources of heat to prevent the heat from impairing the serviceability of the pipe. [NFPA 54:7.1.1]

1210.1.1 Cover Requirements. Underground piping systems shall be installed with a minimum of 12 inches (305 mm) of cover. The minimum cover shall be increased to 18 inches (457 mm) if external damage to the pipe or tubing from external forces is likely to result. Where a minimum of 12 inches (305 mm) of cover cannot be provided, the pipe shall be installed in conduit or bridged (shielded). [NFPA 54:7.1.2.1 (A) (B)]

1210.1.2 Trenches. The trench shall be graded so that the pipe has a firm, substantially continuous bearing on the bottom of the trench. [NFPA 54:7.1.2.2]

1210.1.2.1 Backfilling. Where flooding of the trench is done to consolidate the backfill, care shall be exercised to see that the pipe is not floated from its firm bearing on the trench bottom. [NFPA 54:7.1.2.3]

1210.1.3 Protection Against Corrosion. Steel pipe and steel tubing installed underground shall be installed in accordance with Section 1210.1.3.1 through Section 1210.1.3.9. [NFPA 54:7.1.3]

1210.1.3.1 Zinc Coating. Zinc coating (galvanizing) shall not be deemed adequate protection for underground gas piping. [NFPA 54:7.1.3.1]

1210.1.3.2 Underground Piping. Underground piping shall comply with one or more of the following unless approved technical justification is provided to demonstrate that protection is unnecessary:

(1) The piping shall be made of a corrosion-resistant material that is suitable for the environment in which it will be installed.

(2) Pipe shall have a factory-applied, electrically insulating coating. Fittings and joints between sections of coated pipe shall be coated in accordance with the coating manufacturer's instructions.

(3) The piping shall have a cathodic protection system installed, and the system shall be maintained in accordance with Section 1210.1.3.3 or Section 1210.1.3.6. [NFPA 54:7.1.3.2]

1210.1.3.3 Cathodic Protection. Cathodic protection systems shall be monitored by testing, and the results shall be documented. The test results shall demonstrate one of the following:

(1) A pipe-to-soil voltage of −0.85 volts or more negative is produced, with reference to a saturated copper-copper sulfate half cell.

(2) A pipe-to-soil voltage of −0.78 volts or more negative is produced, with reference to a saturated KCl calomel half cell.

(3) A pipe-to-soil voltage of −0.80 volts or more negative is produced, with reference to a silver-silver chloride half cell.

(4) Compliance with a method described in Appendix D of Title 49 of the code of Federal Regulations, Part 192. [NFPA 54:7.1.3.3]

1210.1.3.4 Sacrificial Anodes. Sacrificial anodes shall be tested in accordance with the following:

(1) Upon installation of the cathodic protection system, except where prohibited by climatic con-