larger than the pipe to be laid.

315.3 Open Trenches. Excavations required to be made for the installation of a building drainage system or any part thereof, within the walls of a building, shall be open trench work and shall be kept open until the piping has been inspected, tested, and accepted.

315.4 Excavations shall be completely backfilled as soon after inspection as practicable. Adequate precaution shall be taken to ensure proper compactness of backfill around piping without damage to such piping. Trenches shall be backfilled in thin layers to 30cm (1 ft.) above the top of the piping with clean earth, which shall not contain stones, boulders, cinderfill, construction debris, other materials that would damage or break the piping or cause corrosive action. Mechanical devices such as bulldozers, graders, etc., shall be permitted to then be used to complete backfill to grade. Fill shall be properly compacted. Suitable precautions shall be taken to ensure permanent stability for pipe laid in filled or made ground.

316.0 Joints and Connections.

316.1 Types of Joints.

316.1.1 Threaded Joints. Threads on tubing shall be approved types. Threads on plastic pipe shall be factory cut or molded. Threaded plastic pipe shall be Schedule 80 minimum wall thickness. Tubing threads shall conform to fine tubing thread standards. When a pipe joint material is used, it shall be applied only on male threads, and such materials shall be approved types, insoluble in water and nontoxic. Cleanout plugs and caps shall be lubricated with water-insoluble, nonhardening material or tape. Thread tape or thread lubricants and sealants specifically intended for use with plastics shall be used on plastic threads. Conventional pipe thread compounds, putty, linseed-oil-based products, and unknown lubricants and sealants shall not be used on plastic threads.

316.1.2 Mechanical Joints. When pipe is joined by means of flexible compression joints, such joints shall conform to approved standards and shall not be considered as slip joints. Mechanical joints shall be installed in accordance with the manufacturer's instructions.

316.1.3 Solvent Cement Plastic Pipe Joints. Plastic pipe and fittings designed to be joined by solvent cementing shall comply with applicable Standards referenced in Table 14-1 or equivalent International Standard(s) approved by the Authority Having Jurisdiction.

ABS pipe and fittings shall be cleaned and then joined with solvent cement(s).

CPVC pipe and fittings shall be cleaned and then joined with listed primer(s) and solvent cement(s).

Exception: Listed solvent cements that do not require the use of primer shall be permitted for use with CPVC pipe and fittings, manufactured in accordance with ASTM D2846 or equivalent International Standard(s) approved by the Authority Having Jurisdiction, 15mm through 50mm in diameter (0.5 in. - 2 in.).

PVC pipe and fittings shall be cleaned and joined with primer(s) and solvent cement(s).

A solvent cement transition joint between ABS and PVC building drain and building sewer shall be made using a listed transition solvent cement.

316.1.4 Pressure-Lock-Type Connection. This is a mechanical connection that depends on an internal retention device to prevent pipe or tubing separation. Connection is made by inserting the pipe or tubing into the fitting to a prescribed depth.

316.1.5 Push-Fit Fitting. This is a mechanical connection for joining PEX and CPVC tubing. The connection is hand assembled by pushing the tubing into the fitting. The connection seals with an "O" ring.

316.1.6 Heat-Fusion Weld Joints. This type of joining method involves the preparation of surfaces to be fused, heating of the surfaces to proper fusion temperatures, and bringing the surfaces together in a manner to form the fusion bond. Plastic pipe and fittings designed to be joined by heat-fusion shall comply with one of the specific methods as follows:

(1) A butt heat-fusion joint shall be joined by a device that holds the heater element square to the ends of the piping, compresses the heated ends together, and holds the pipe in proper alignment while the plastic hardens.

(2) A socket heat-fusion joint shall be joined by a device that heats the mating surfaces of the joint uniformly and simultaneously to essentially the same temperature. Proper alignment devices shall be used to hold the pipe and socket fitting together during the joining process.

(3) An electro-fusion joint shall be joined, utilizing the equipment and techniques of the fitting manufacturer's equipment. This technique involves the resistance wire that is