

**948 PIPE LINER MATERIALS.**  
**(REV 9-21-00) (FA 1-17-01) (7-01)**

SECTION 948 (Pages 891-893) is expanded by the following:

**948-4 Pipe Liner.**

**948-4.1 Cured-In-Place Pipe Liner:** Cured-in-place pipe liner shall be continuous, resin impregnated, flexible tubing that meets the requirements of ASTM D 5813 and ASTM F 1216.

**948-4.2 Deformed Pipe Liner:** Deformed pipe liner shall be manufactured in an out of round state, usually collapsed circumferentially and folded on the long axis. After installation in a host pipe, the liner is rounded by means of heat and pressure to fit the host pipe. Deformed pipe liner, when installed, shall extend from one structure to the next in one continuous length with no intermediate joints.

(1) Polyethylene: Deformed polyethylene pipe liner shall meet the requirements of ASTM D 3350 or ASTM F 714 with a minimum cell classification of 335420c.

(2) Polyvinyl Chloride: Deformed polyvinyl chloride pipe liner shall meet the requirements of ASTM F 1504 and shall have a minimum cell classification of 12456b.

**948-4.3 Discrete Pipe Liner:** Discrete pipe liner shall be round, flexible or semi-rigid liner, manufactured in lengths that may be joined in a manhole or access pit before insertion in a host pipe.

(1) Polyethylene: Discrete polyethylene pipe liner shall meet the requirements of ASTM D 3550 or ASTM F 714 and shall have a minimum of cell classification of 335420c.

(2) High Density Polyethylene Profile Wall: Discrete high density polyethylene pipe liner shall meet the requirements of ASTM F 894 and shall have a minimum cell classification of 335420c.

(3) Polyvinyl Chloride: Discrete polyvinyl chloride pipe liner shall meet the requirements of ASTM F 789, ASTM F 794, or ASTM F 949 and shall have a minimum cell classification of 12456b.

(4) Fiberglass: Discrete fiberglass pipe liner shall meet the requirements of ASTM D 3262.

**948-4.4 Spiral Wound Pipe Liner:** Spiral wound pipe liner shall consist of coils of profile strips that are wound into a host pipe helically, after which a cementitious grout is injected into the annular space between the liner and the host pipe, forming a rigid composite structure.

(1) Polyvinyl Chloride: Polyvinyl chloride spiral wound pipe liner shall meet the requirements of ASTM F 1697 or ASTM F 1698 and shall have a minimum cell classification of 12454b.

**948-4.5 Paneled Pipe Liner:** Paneled pipe liner consists of custom-cut flat or curved panels that are formed to the inside circumference of a host pipe.

(1) Polyvinyl Chloride: Polyvinyl chloride paneled pipe liner shall meet the requirements of ASTM F 1698 and shall have a minimum cell classification of 12454b.

**948-4.6 Point Pipe Liner:** Point pipe liner may consist of any materials covered by this specification when used to repair and rehabilitate an isolated portion of an existing storm drain pipe. Materials which are restricted (as primary components) to point repair are; steel, which shall meet the requirements of AASHTO M 167M, ASTM A 167, or ASTM A 240; aluminum, which shall meet the requirements of AASHTO M 196M, and rubber; which shall meet the requirements of ASTM C 923.

**948-4.7 Coated Pipe Liner:** Coated pipe liner consists of liquid, slurry, foam or gel that is spread or sprayed over the interior surface of an existing pipe to rehabilitate it. Materials that may be used for coating are hydrophilic urethane gel, epoxy resin, polyester resin, gunite, shotcrete, low density cellular concrete, and cementitious grout.