line. The weep holes located in the subdrain clamping ring shall be protected from becoming clogged during the placement of finish materials. The drain shall be of such design that there will be not less than 2" (51 mm) depth from the top of the sub-drain flange to top of the strainer. Unless otherwise approved by the Administrative Authority, drains shall be located in the approximate center of the shower area. [UPC 411.6]

4.2 **Sloping Sub-Floor and Shower Membrane** All lining materials shall be pitched one quarter (1/4) inch per foot (20.8 mm/m) to weep holes in the sub-drain by means of a smooth and solidly formed sloping sub-base. All such lining materials shall extend upward on the side walls and rough jambs of the shower opening to a point not less than three (3) inches (76 mm) above the top of the finished dam or threshold and shall extend outward over the top of the rough threshold and be turned over and fastened on the outside face of both the rough threshold and the jambs.

4.2.1 Non-metallic shower sub-pans or linings may be built-up on the job site of not less than three (3) layers of standard grade fifteen (15) pound (6.8 kg) asphalt impregnated roofing felt. The bottom layer shall be fitted to the formed sub-base and each succeeding layer thoroughly hot-mopped to that below, with hot asphalt conforming to Fed. Spec. SS-A0666 Type Z, Grade 2, Class A on the basis of twenty (20) pounds (9.1 kg) of asphalt per layer per square. All corners shall be carefully fitted and shall be made strong and water-tight by folding or lapping, and each corner shall be reinforced with suitable webbing hot-mopped in place. All folds, laps, and reinforcing webbing shall extend at least four (4) inches (102 mm) in all directions from the corner and all webbing shall be of approved type and mesh, producing a tensile strength of not less than fifty (50) pounds per square inch (344.5 kPa per square meter) in either direction.

4.2.2 Non-metallic shower sub-pans or linings may also consist of single or multi-layers of other approved equivalent materials, suitably reinforced and carefully fitted in place on the job site, as elsewhere required in this section according to manufacturer's recommended installation procedures. Where flexible plastic sheet membranes are used, corners shall be carefully constructed by folding or bonding of prefabricated reinforcing corner. Joints in flexible plastic sheeting shall be constructed with the appropriate solvent bonding liquid, bodied solvent cement, or thermal welding.

4.2.3 Where lead and copper pans are used as membranes, the installation shall be made in similar manner as required for felt membranes except the asphalt moppings, and in addition the pans shall be insulated from all concrete and mortar surfaces and from all conducting substances other than their connecting drain by 15 lb. (6.8 kg) asphalt saturated felt or an approved equivalent hot mopped to the lead or copper pan. Joints in lead and copper pans shall not be soldered, but shall be burned or silver brazed respectively.

4.2.4 All linings shall be properly recessed and fastened to approved backing so as not to occupy the space required for the wall covering and shall not be nailed or perforated at any point which will be less than one (1) inch (25.4 mm) above the finished dam or threshold.

4.3 **Tests.** Upon installation, all linings shall be tested for water tightness by being filled to the top of the rough threshold with water for a period of time sufficient to establish their water tightness. (Usually twenty-four (24) hours with no loss of water. See the local Administrative Authority for exact time limit.)

A test plug shall be so placed that both the upper and under sides of the lining shall be subjected to test at its point of contact with the sub-drain. When the test plug is removed, all of the test water shall drain out by gravity through the weep holes. A ring of non-absorbent material must be placed around the weep holes to keep them open when the finish materials are installed.

4.4 **Receptor.** Shower floor shall be of ceramic tile set in portland cement mortar mixed in the proportion of one (1) part portland cement to four (4) parts of mortar sand by volume and shall be provided with an approved shower drain designed to make a water-tight joint at the floor. The mortar mixture shall be of such consistency that a troweled surface readily assumes a smooth screeded surface. All