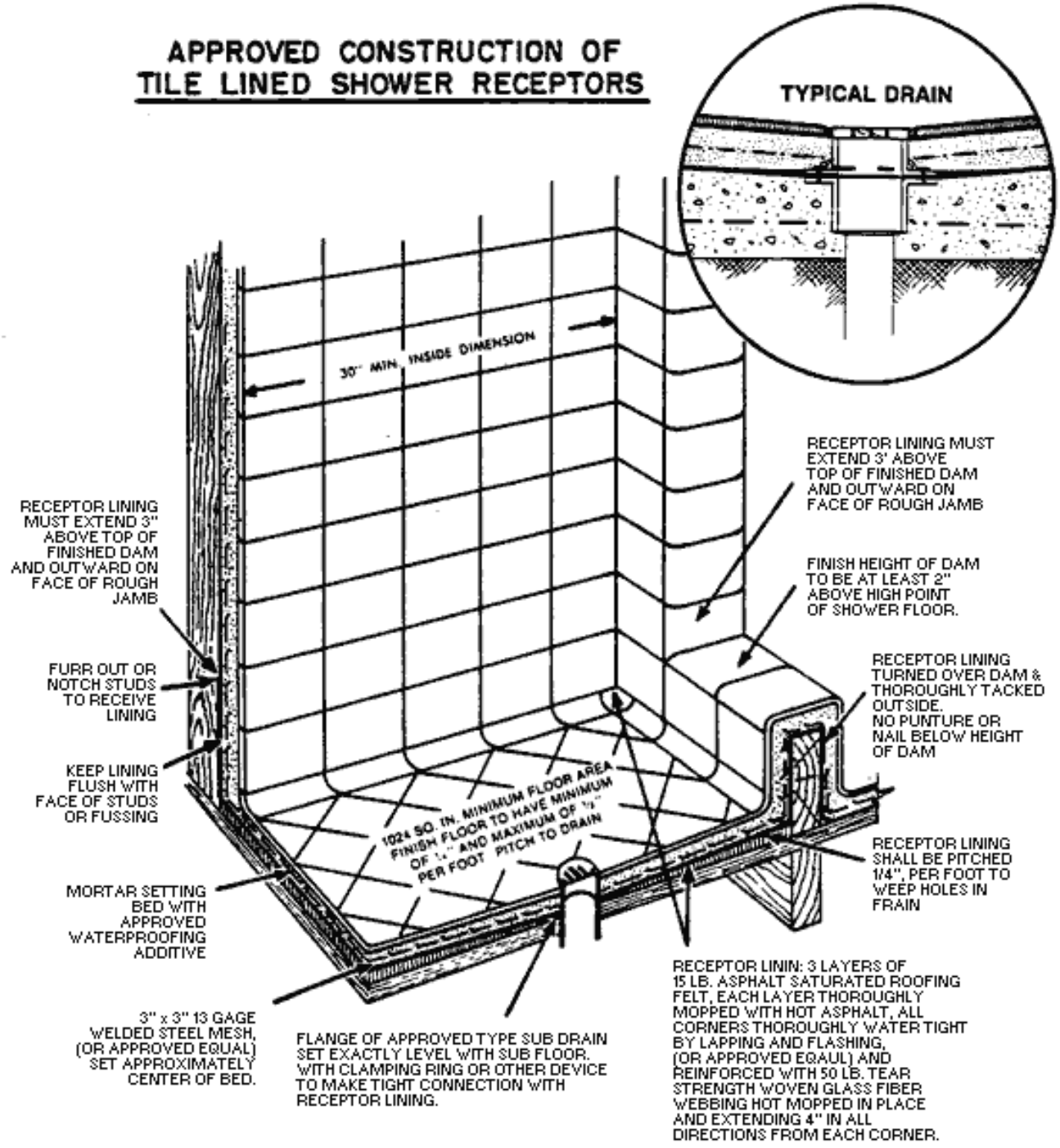
City of Oceanside
Building Division
300 N. Coast Hwy
Oceanside, CA 92054

Ceramic Tile Shower Pan Construction

(May be used as a "standard drawing")



1. **GENERAL**

1.1 Inspection of Work-All surfaces prepared by others shall be inspected by the tile installer before starting tile work and all unsatisfactory conditions reported to the Administrative Authority. Starting tile work by the tile installer shall be considered as acceptance of surfaces prepared by others.

1.2 Surfaces-All surfaces to receive tile work shall be clean, structurally_ sound, and conform in every way to the local building code.

(**Note:** No tile work shall proceed until the pan and drain construction has been inspected and approved by the Administrative Authority where required.)

2. **MATERIALS**

2.1 Tile Quality and Grade-Tile shall comply with ANSI A137.1 (Tile Council of America Recommended Standard Specifications for Ceramic Tile or CTI 69.5.

2.2 Cement-Cement shall be portland cement type I or type II conforming to ASTM C-150.

2.3 Sand-Sand shall be damp, clean and graded ASTM C-144.

2.4 Water-Water shall be potable.

2.5 Reinforcing shall be 3.4 galvanized metal lath conforming to ANSI A42.3 or 2" x 2" 16/16 gauge or 3" x 3" mesh, 13 x 13 gage or 1½ x 2 mesh. 16 x 13 gage steel wire conforming to ASTM A82-34 and A185-37.

2.6 Asphalt shall conform to Federal Specification SS-AO666 Type Z. Grade 2, Class A.

2.7 Plastic Roof Cement shall conform to Federal Specifications SS-C-153

2.8 Waterproof Felt Membrane-The waterproof felt membrane shall be at least 15 lb. asphalt saturated felt conforming to Type I Federal Specification HH-F-191 (a), or ASTM D226.

2.9 Other Membranes-Where the Administrative Authority approves their use, non-metallic sub-pans or linings or lead sheets weighing not less than 4 lbs. per sq. foot and copper pans of at least No. 24B & S gage Brown & Sharp 0.0201 inches or greater in thickness may be used.

2.10 Waterproofing Admixture-The mortar bed of the receptor shall be mixed with a waterproof admixture approved by the Administrative Authority in the amounts allowed by such approval.

CURRENTLY APPROVED MORTAR ADDITIVES

Anti-Hydro-1 qt. per sack of cement
Plastiment-1 lb. of powder per sack of cement
Plastiment-2 oz. of fluid per sack of cement
Silka 3A-1 qt. per sack of cement
Suconem (Red Label)-1 pint per sack of cement

3. **INSTALLATION**

3.1 Shower Drains-An approved type shower floor drain %with sub-drain shall be installed with every such shower membrane. Flange of each sub-drain shall be accurately set exactly level with sloping sub-floor and shall be equipped with a clamping ring or other approved device to make a tight connection between the membrane and the sub-drain. The sub-drain shall have weep holes into the waste line. The drain shall be of such design that there will be not less than 2" depth from the top of the sub-drain flange to top of the strainer.

3.2 Sloping Sub-Floor and Shower Membrane-All lining materials shall be pitched one quarter (".) inch per foot 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 iambs of the shower opening to a point not less than three (3) inches 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.

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 asphalt impregnated roofing felt. The bottom laver shall be fitted to the formed sub-base and each succeeding layer thoroughly hot-mopped to that below, with hot asphalt on the basis of twenty pounds 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 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 in either direction. Non-metallic shower sub-pans or linings may also consist of 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 manufacturers recommended installation procedures.

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 above the finished dam or threshold.

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. 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.

3.3 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 24 hours with no loss of water, see 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 absorbent material must be placed around the weep holes to keep them open when the finish materials are installed.

3.4 Receptor-Shower floor shall be of ceramic tile set in portland cement mortar mixed in the proportion of one part portland cement to four 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 slickened surface. All concrete mortar bases shall be mixed with an approved waterproofing admixture and properly reinforced with 3.4 galvanized metal lath or 3" x 3" mesh, 13 x 13 gage or 1'k x 2 mesh, 16 x 13 gage cold drawn welded steel wire fabric located in the approximate center of the mortar bed and extending at least 3" up the side walls but in no case less than 1 " above the finished dam. Corners shall be lapped and the reinforcing shall extend over the dam. The total thickness of the mortar base shall not be less than 1'/. " at any point. The finished floor shall be not less than 2" measured from the top surface of the membrane. The high point of the tile floor shall be not less than 2" or more than 9" below the top of the finished dam and shall have a minimum of 'k" and a maximum of 'k" per foot pitch toward the drain. Shower walls to a minimum height of 3" and not less than 1" above the finished dam shall be lined with ceramic tile set in portland cement mortar.

3.5 Floors of public shower rooms shall have a non-skid surface and shall be drained in such a manner that waste water from one bather will not pass over areas occupied by other bathers. Gutters in public or gang shower rooms shall have rounded corners for easy cleaning and shall be sloped not less than two (2) percent toward drains. Drains in such gutters shall be spaced not more than eight (8) feet from side walls or more than sixteen (16) feet apart.

3.6 Shower walls. including shower walls over bathtubs, shall be constructed of dense, non-absorbent waterproof materials such as ceramic tile set in portland cement mortar to a height of not less than six (6) feet above the floor.

Exception: Special use shower compartments for wheelchair use may eliminate the curb or threshold. The required slope and depth shall be maintained from the door or entry to the drain opening.

The minimum distance between the door or entry to the drain opening shall be 4 FT.

4. **REPLACEMENT**

4.1 The purpose of this section is to provide the necessary criteria for the installations of those shower liners which have been found necessary to be replaced.

5. **SCOPE**

5.1 Requirements listed in 6.. Replacement Modifications. will prevent the unnecessary removal of tile that would be necessary if compliance with the code requirements. for new work, were followed.

5.2 Requirements for replacement liners. that are not necessary in new installations, which shall be properly complied with are listed in 7., Additional Requirements for Replacements.

6. **REPLACEMENT MODIFICATIONS**

6.1 Top of lining may be lower than three inches (3") on interior wall surfaces, but in no case shall it be lower than one inch (1") above the top of the rough dam. The lining shall be sealed to the existing sound tile with hot asphalt or plastic roof cement.

6.2 Lining need not be turned down and fastened outside the rough threshold and jamb but it shall be sealed to the existing sound mortar with hot asphalt or plastic roof cement.

6.3 When existing sound tile is lower than three inches (3") on the jambs, the membrane shall be sealed tight to that sound tile. In no case shall the membrane turn up and be sealed to the sound tile less than three-quarters of an inch ('/a") above the rough threshold.

6.4 If there is room for a minimum of one-half inch (½") of mortar plus the thickness of the tile on the vertical walls. the lining does not have to be recessed flush to the studs.

7. **ADDITIONAL REQUIREMENTS FOR REPLACEMENTS**

7.1 Flashing behind the existing sound tile work and over the top of the new lining. Flashing is to be fifteen pound (15) lb. felt or equivalent, backed up with wire mesh for stiffness to hold it in place. See Figure 2. Flashing shall be cut to fit between the studs and behind the existing sound tile and large enough to nail securely to the studs prior to installing the replacement tile.

7.2 Continuous bead of caulking between existing sound mortar and replacement mortar bed.

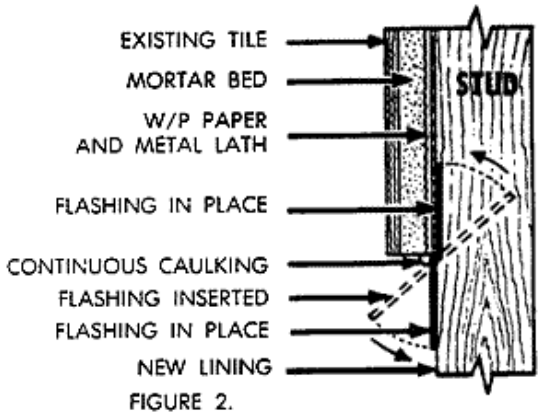


FIGURE 2.