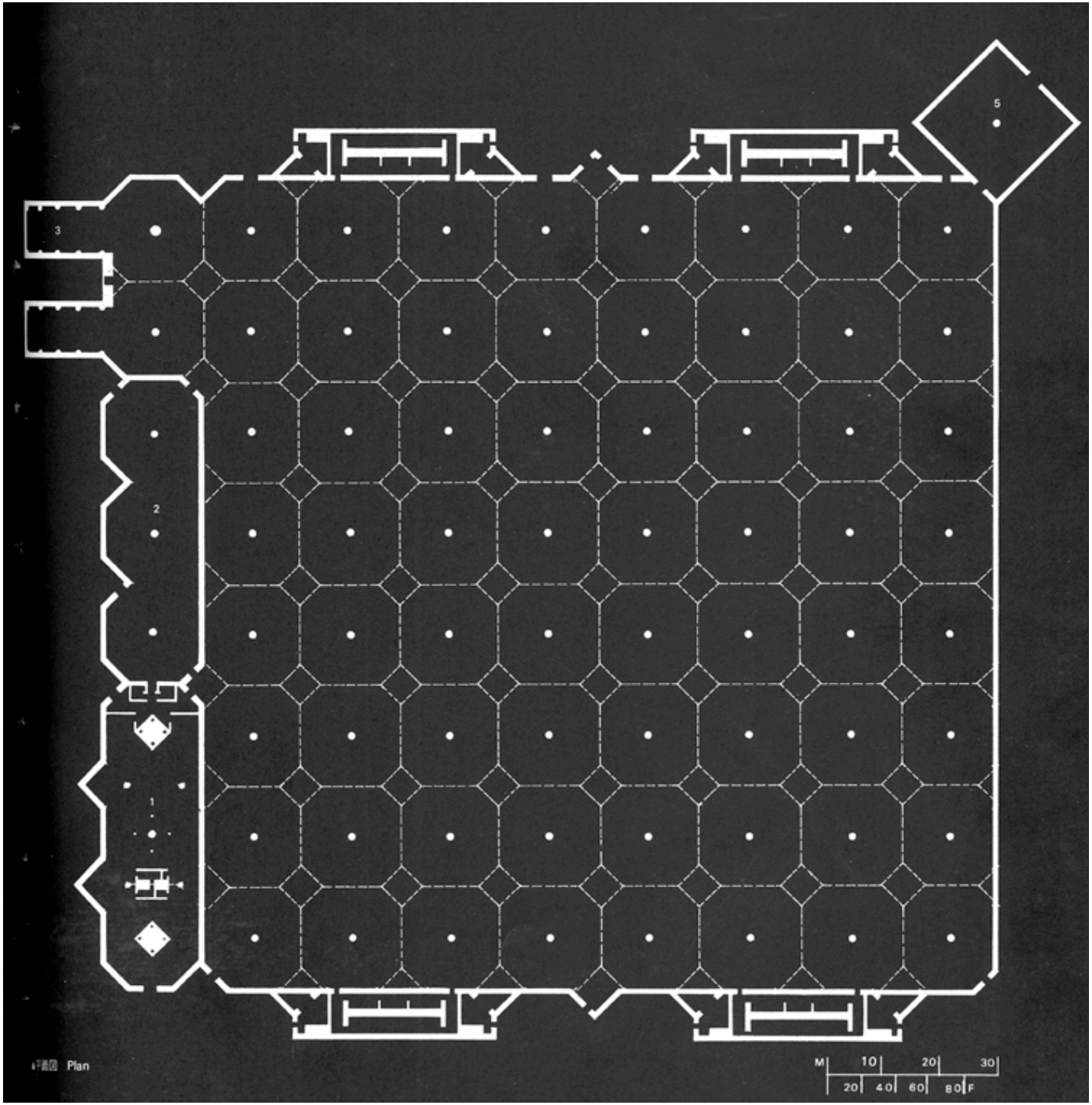
The Olivetti Warehouse in Harrisburg, Pennsylvania.
: designed by Louis I. Kahn, 1966
: structural engineer, August Kommendant

- primary structure, reinforced concrete “mushroom” columns
- primary enclosure, painted CMU



平面図 Plan

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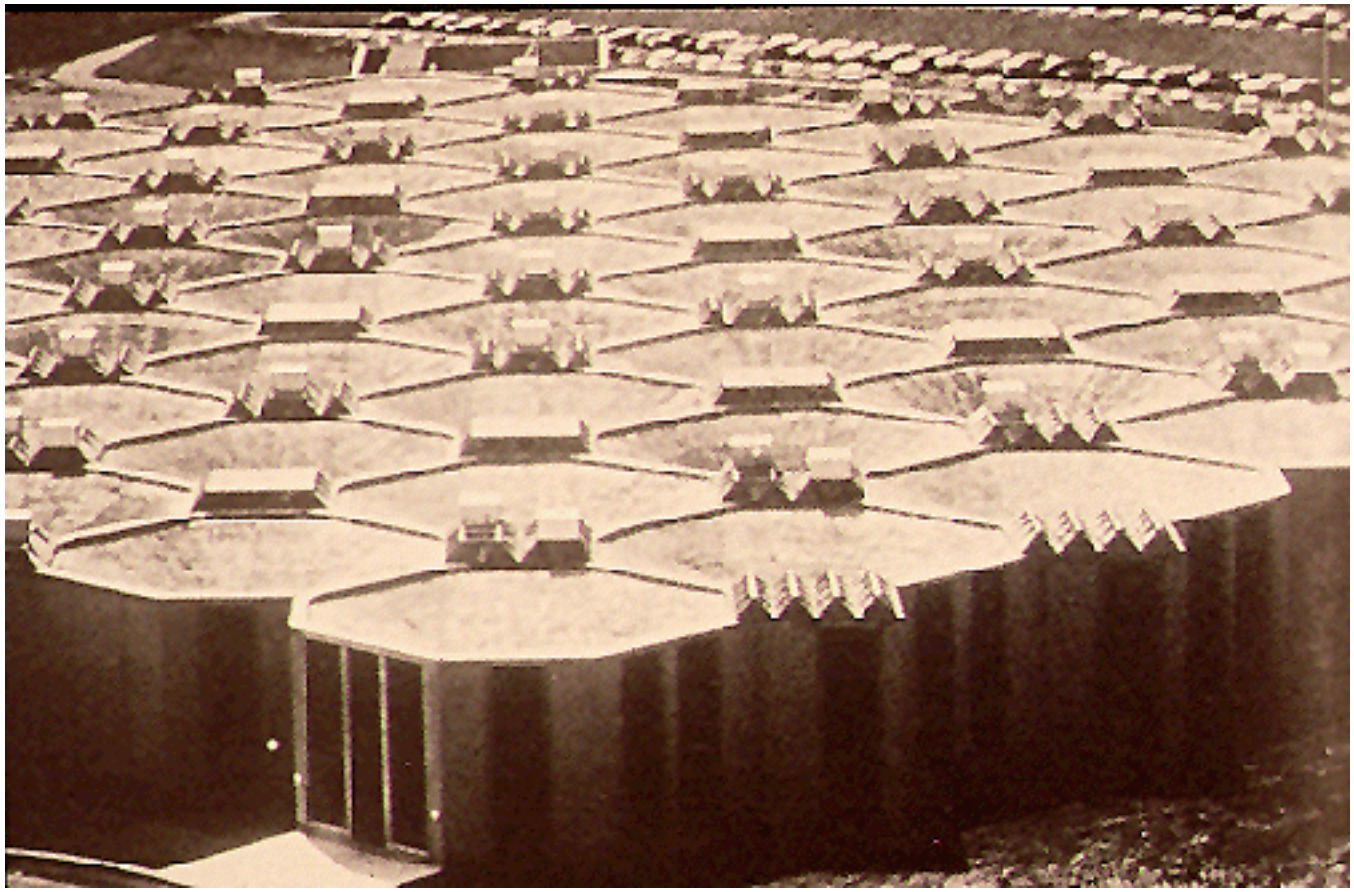
The mushroom columns provide large structural bays, reducing the overall number of columns in the warehouse.

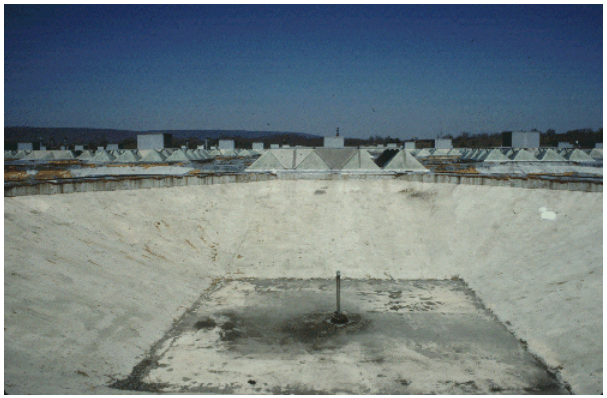
At the perimeter, concrete block walls fill between square concrete columns. Fiberglass pyramids admit daylight into the warehouse.

In this project, Kahn attempted to “order” the various pipes, conduits and equipment to fit the grid pattern of the structure, something that proved to be exceedingly difficult. From this project forward, his office brought structure, material and ductwork into an exposed order of construction, but left plumbing and electrical conduit hidden.

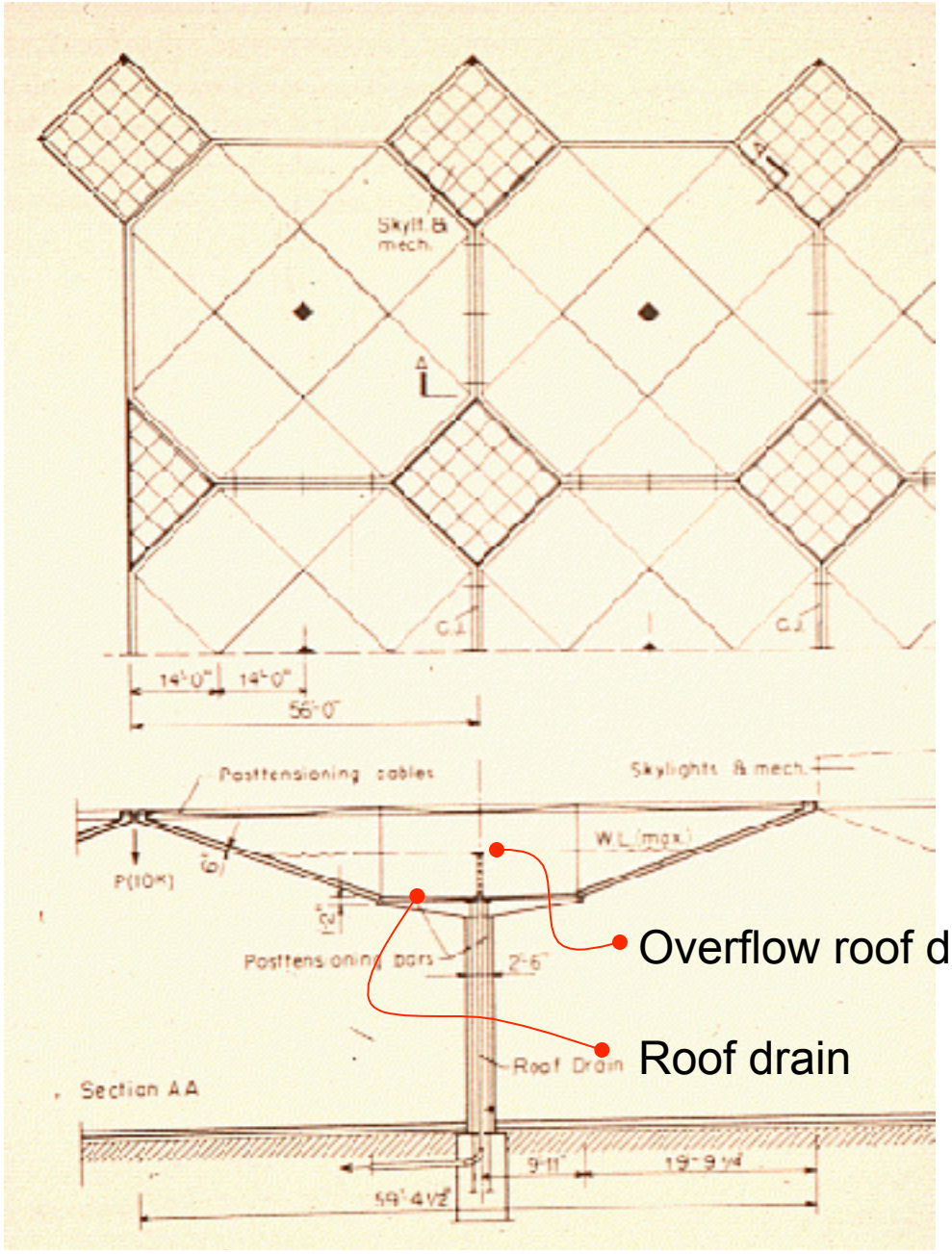


This aerial view shows each mushroom column as a structural bay. The rotated square at the intersection of the bays was the place for the fiberglass skylights

Drawing source: Eighteen Years with Louis I. Kahn, by August Kommendant
NA737 K32 K65

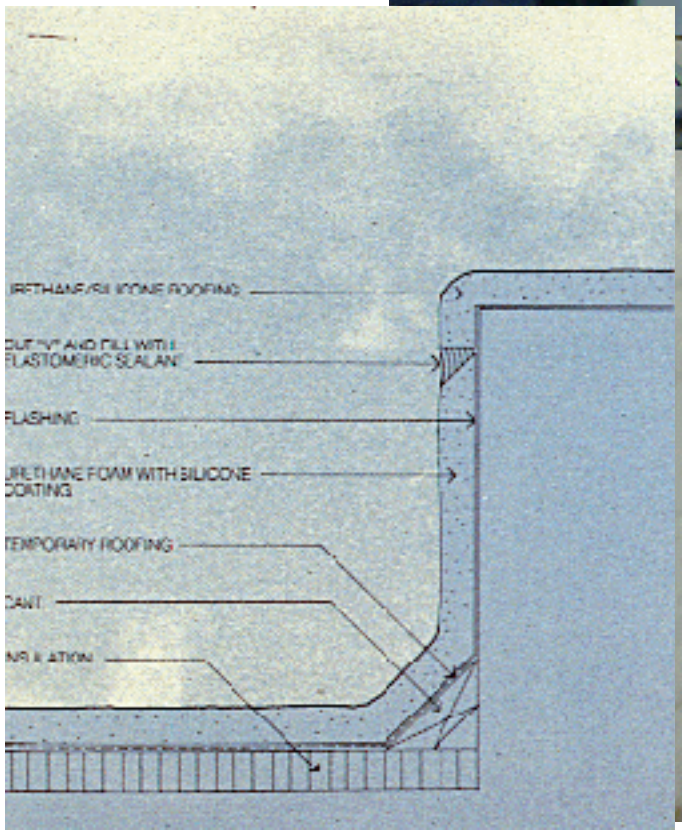


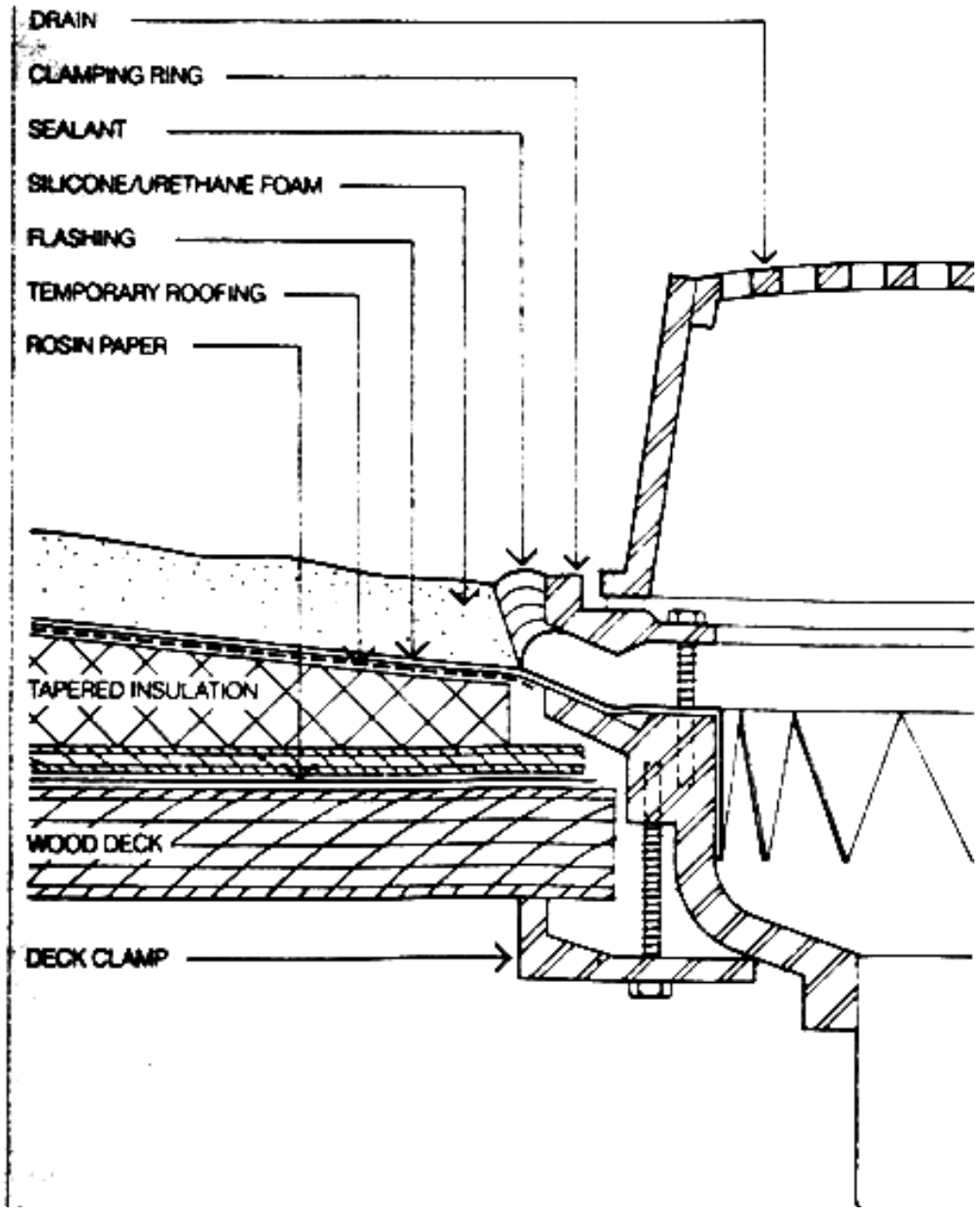
Each column held up a bowl-shaped shear head and slab almost 60 feet wide.
Roofing the interior of the bowl was accomplished with sprayed on urethane insulation with a silicone skin for waterproofing.



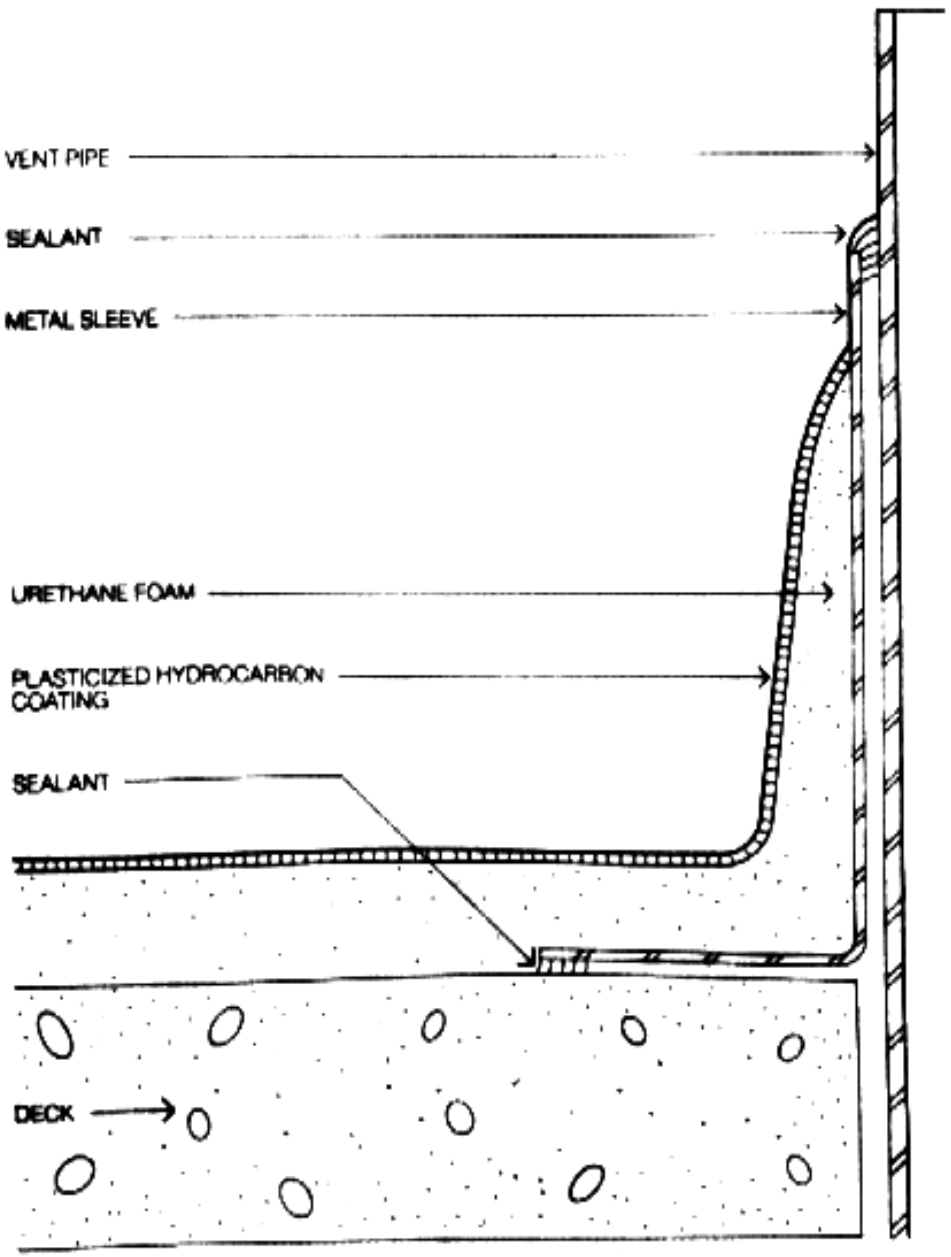
The urethane shrinks as it cures. The shrinkage force is concentrated at the corners where the slab changes directions from sloped to vertical to horizontal. This caused tearing in the urethane/silicone roofing, accelerating the deterioration of the roofing.

Contemporary detailing recommends a cant strip to reduce the stress on the urethane, and a control joint just below the horizontal surface to take up the dimensional change due to shrinkage.

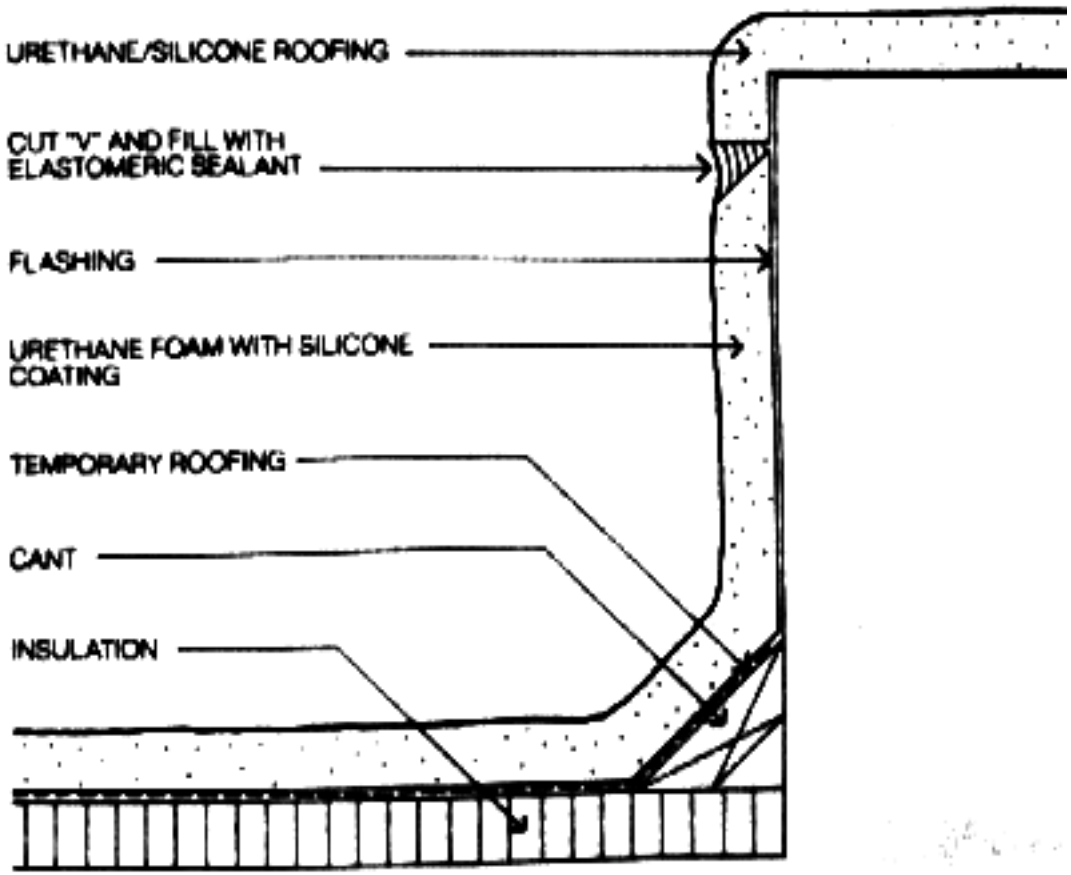




At the roof drain, the urethane/silicone roof is supposed to be sprayed right up to the drain's hub (unlike most other roofing which extend into the hub) the sealant joint between the silicone/urethane roofing and the drain is all that keeps water out of the building. No real redundancy is evident.



At vents through the silicone/ urethane roofing, (vtr) a simple cylindrical flashing with a base flange is slipped over the vent pipe, the spray applied silicone/ urethane roofing adheres to the flange and cylinder, sealing the opening.


URETHANE/SILICONE ROOFING
CUT "V" AND FILL WITH ELASTOMERIC SEALANT
FLASHING
URETHANE FOAM WITH SILICONE COATING
TEMPORARY ROOFING
CANT
INSULATION