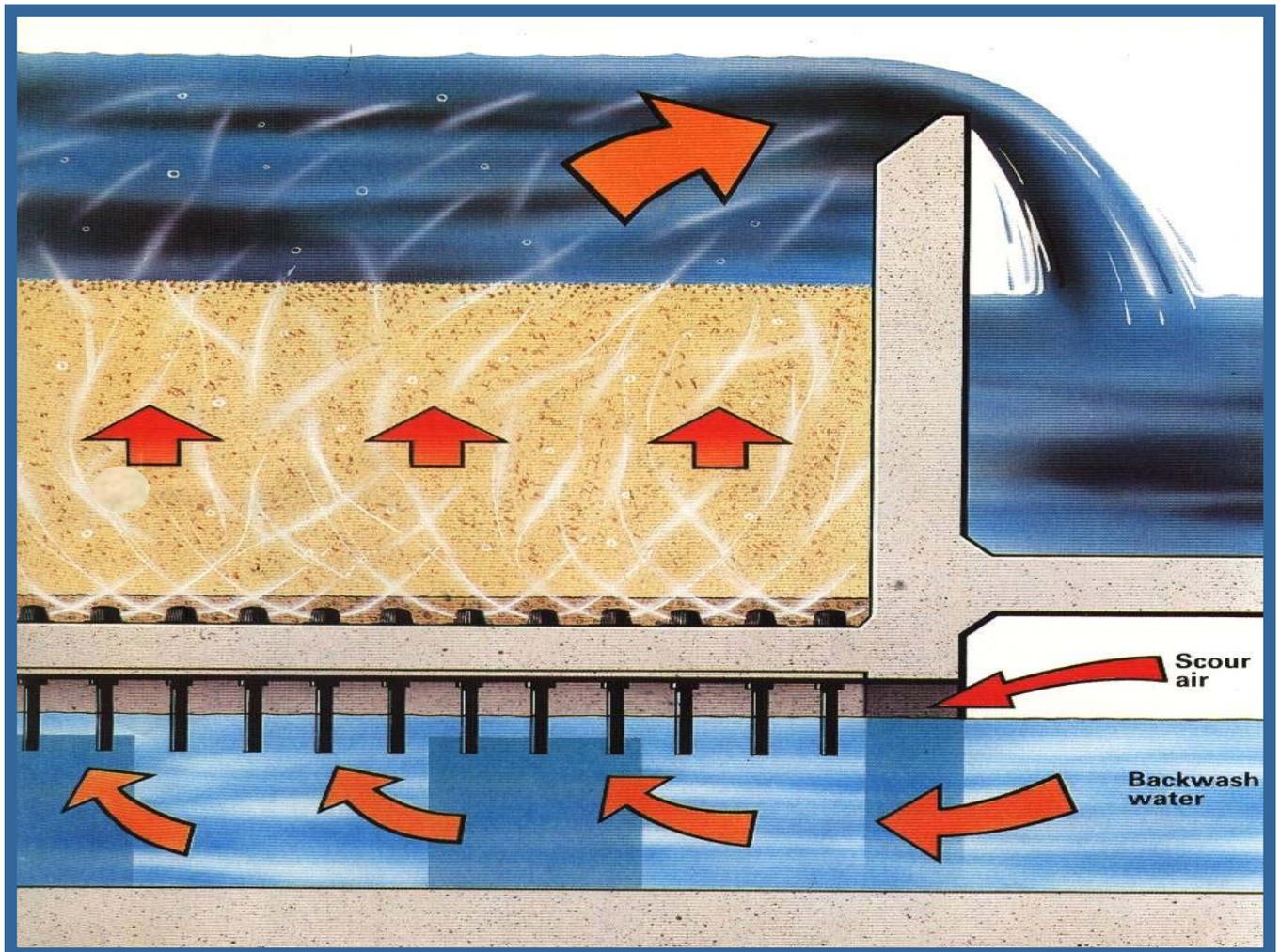


# TYPE K

**Suspended Filter Floor  
Monolithic Construction  
Adjustable Nozzles  
For Airscour Wash System**

The PCI K-Floor meets all the needs of modern filtration practice in a single design.

- ▶ Potable or wastewater
- ▶ Deep or shallow beds
- ▶ Coarse or fine media
- ▶ High or low rates
- ▶ Single or dual media
- ▶ Constant or declining rate mode
- ▶ Combined or separate air and water wash
- ▶ Large or small filters



PCI AFRICA

Paterson Candy International (SA) (PTY) Limited t/a PCI AFRICA | Company Registration Number 53/001821/07

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## Strength with Precision

The K-Floor is a single suspended slab of reinforced concrete some 200mm thick, cast (in situ) upon support walls to form a plenum for the passage of air and water.

The lightweight permanent formwork panels, for the underside of the floor, serve also as accurate assembly jigs that guarantee precise spacing of the precision-moulded airscour/backwash nozzles. Every nozzle can be quickly leveled to water-meniscus or laser beam accuracy after construction, ensuring even air and washwater distribution.

The filter sub-floor's reinforcement extends into that of the support walls, which in turn, is tied into the reinforcing mesh of the nozzle floor. The whole forms a single, seismic-resistant, reinforced concrete structure of immense strength, making the K-Floor far stronger and more rugged than any other airscour floor on the market.

The filter can be pressure tested to 5 meters water gauge upwards and to the filter's full head of water downwards after construction before fitting the nozzles. This is far in excess of any normal differential pressure across the floor during operation.

## Designed for ease of construction

Simple and swift to build either using traditional methods or employing modern formwork and concrete placement techniques.

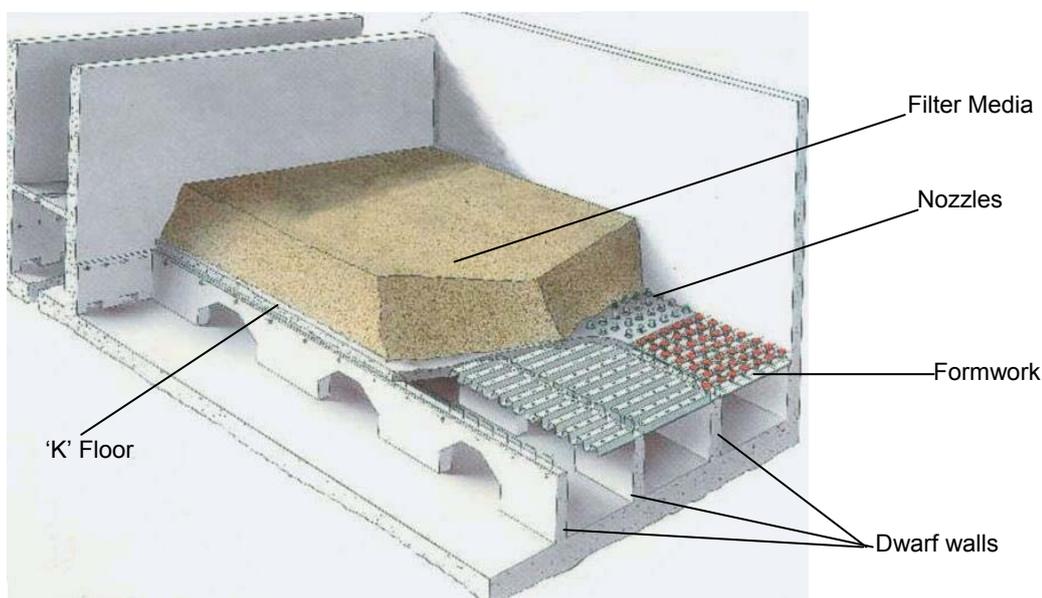
Wide spaced 1200mm support walls require minimum of concrete.

Air/water metering stem completely protected from damage by high strength dome.

Finished floor fully accessible to contractor's staff and media supplier.

### PCI Provide:-

- ▶ Detailed drawings for the filter floor and dwarf walls
- ▶ The lightweight permanent, preformed, high strength formwork panels in high impact polystyrene
- ▶ The polypropylene filter nozzle assemblies
- ▶ Nozzle site assembly tools and full instructions
- ▶ Site supervision, if required



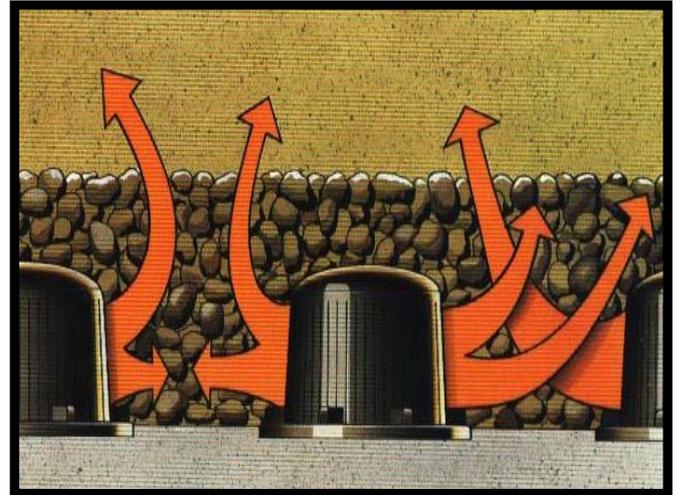
*The K-Floor is the most tolerant filter floor yet devised when it comes to floor leveling, final assembly, strength and long-term integrity.*

The K-Floor, whilst different in a number of respects from PCI's lateral system, is an evolution of the original Type A nozzle floor first patented in 1921. Attention has been concentrated on ensuring the correct and equal distribution of the air and water over the whole filter during the cleaning process to guarantee that the media is maintained in optimum condition throughout its working life.

The specially developed precision moulded nozzles have up to 72, near vertical, fine strainer slots, which eliminate air/wash dead areas between nozzles at floor level.

The K-Floor does not require complex multiple/gravel packing layers although a single 75mm gravel layer is recommended. This avoids the problems of trying to place successive gravel layers of consistent depth. It also eliminates the twin risks of physical intermixing of the gravel layers during placement and during filter washing.

High performance means to PCI production of an acceptable filtrate at all times. It means being able to continue to keep the media clean when raw water quality slips and this without extra downtime or lengthy periods when the filter is taken out for service for hand cleaning of the media. With such performance comes PCI's guarantees: guarantees on materials, strength and hydraulic distribution.



#### The PCI K-Floor is:-

- ▶ PROVEN
- ▶ COMPETITIVE
- ▶ RELIABLE
- ▶ RUGGED
- ▶ UNIVERSAL
- ▶ GUARANTEED



# THE PCI K-NOZZLE

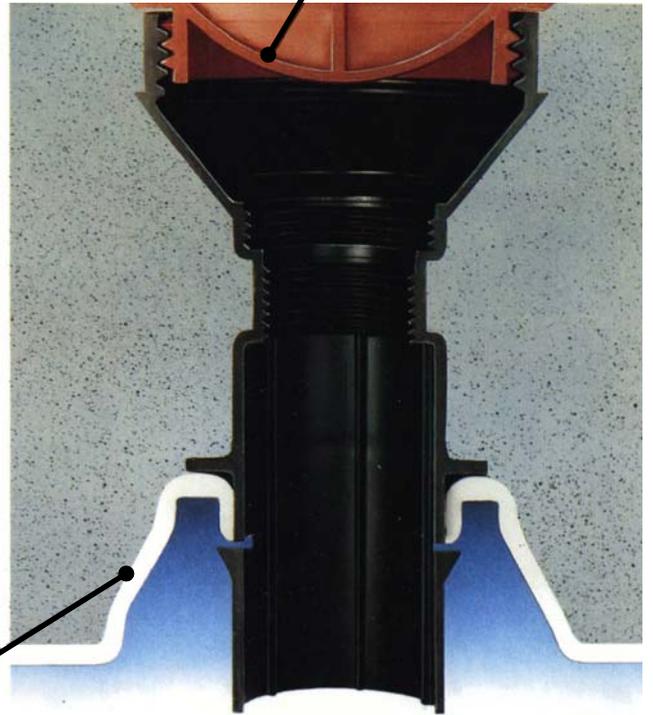


## **NOZZLE DOME**

A precision polypropylene injection moulding – with a choice of strainer slot widths from 0.25mm to 0.9mm to suit all normal media grades. The dome is screwed into bush after pressure testing and has moulded lugs, which engage with ratchet teeth in the bush to lock the dome and prevent loosening during filter washing.

## **DISPOSABLE SEALING CAP**

The bush is supplied fitted with pressure-tight, screwed, sealing cap to prevent ingress of concrete during the casting of the floor and to permit floor strength pressure tests.



**NOZZLE BUSH** moulded in food-grade polypropylene, is inserted into performed holes in the permanent formwork panels and held in position by two-stage snap locks.

**PERFORMED FORMWORK**, in food-grade polystyrene, with ribbed reinforcement and sockets to receive the snap-in nozzle bushes. Panels can be trimmed by ordinary handsaw or circular saw to match filter construction.

**NOZZLE STEM**, injection-moulded in polypropylene, for screwing into bush from above the floor after floor strength testing. The stem incorporates a top air control orifice available in varying diameters to meet a wide range of airflow requirements. At the tail of the stem, three slots act as narrow weirs to provide secondary air control during airscour-only periods. The stem is vertically adjustable through 50mm (2 inches) to compensate for variations in the finished floor level. A fin, moulded to the side of the stem, engages with lugs on the inside of the bush and prevents unintentional rotation during plant operation.



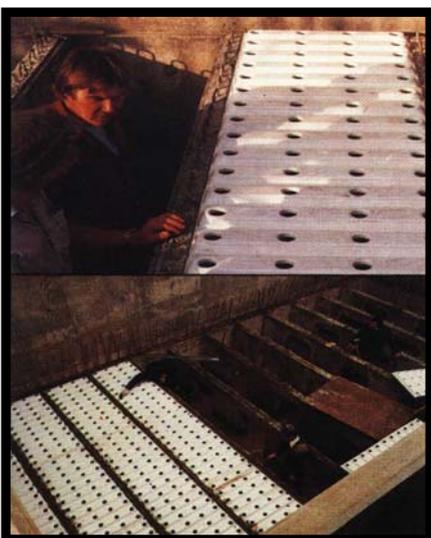
1. PCI provide full civil engineering details and drawings to allow construction of the K-Floor to suit the filter shell design and standards specified by the Engineer.



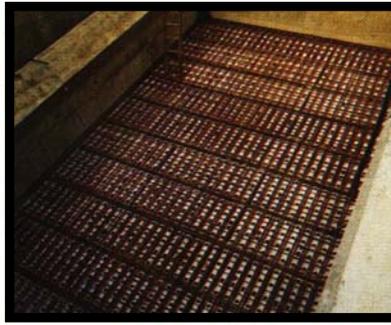
2. Construct filter shell to Engineer's requirements, leaving starter bars in the base for dwarf walls and rebates in the side-walls



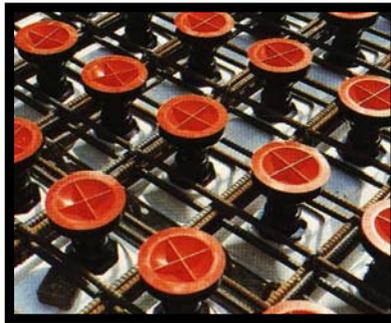
3. Form dwarf walls using either traditional or modern formwork methods or use PCI's optional pre-formed permanent wall formwork



4. Place PCI pre-formed formwork panels (for underside of floor) across dwarf walls to form a plenum.



5. Lay and fix the K-Floor rebar matrix on top of the panels to details provided by PCI



6. Insert snap lock nozzle bushes (with sealing caps) into holes performed in the formwork.



7. Pour and pump concrete into place, vibrate into position and level off flush with the sealing caps.

8. After the concrete has cured, apply pressure tests both upwards and downwards to prove floor constructional strength to the Engineer's satisfaction.

9. Remove sealing caps, fill plenum with water and insert nozzle stems, using a hexagon key to screw each down to the same level as determined by the water surface. The unique nozzle design compensates for an error of up to 2" in floor levelling across each filter.



10. Screw in self-locking nozzle domes.

11. When the plant's permanent airscour blowers and pipework are installed and are operational, the water level can be raised to about 600mm (2ft) above the floor and a trail airscour applied. Any unevenness of air distribution will be shown up and can be simply corrected by re-adjusting the appropriate nozzle stems, as above.

12. Charge filter with media.