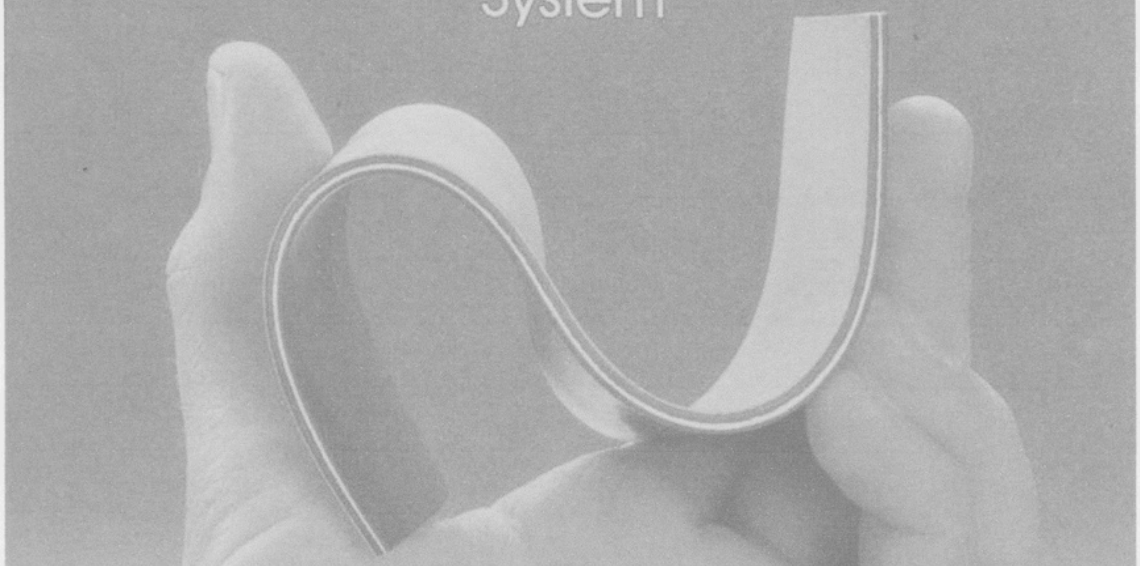
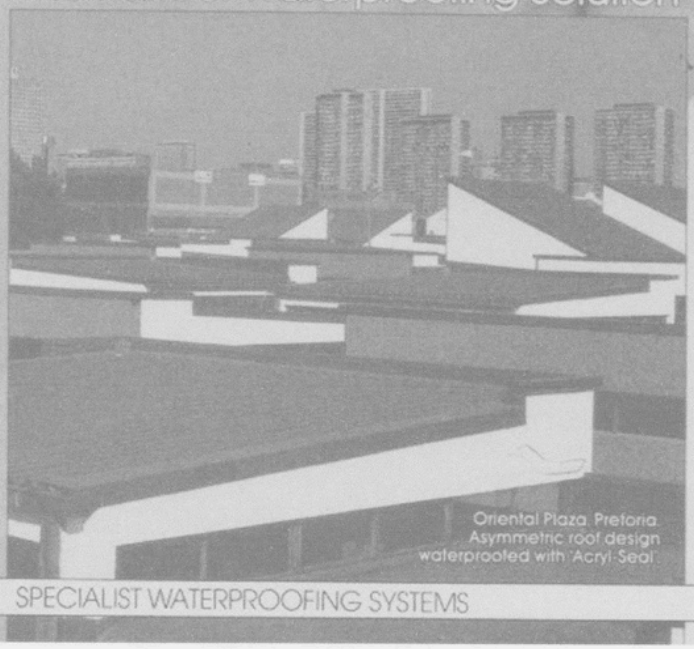
Pekay 'Acryl-Seal'

Seamless Waterproofing System



The Perfect Waterproofing Solution



Oriental Plaza, Pretoria.
Asymmetric roof design
waterproofed with 'Acryl-Seal'.

PEKAY

SPECIALIST WATERPROOFING SYSTEMS

APPLICATION OF THE 'ACRYL-SEAL' SEAMLESS WATERPROOFIN

PREPARATION

SUBSTRATE DETAILS

Pekay 'Acryl-Seal' can be laid over a variety of surfaces, for example:

- New concrete roof slabs or screeds.
- Vertical concrete or brickwork.
- Plastered surfaces.
- Metals such as galvanised iron.
- Insulation board.
- Existing waterproofing systems.

Surfaces should ideally be sound, clean and dry. All surface contamination should be removed before application can commence.

The recommended fall on any flat roof system is a maximum of 1:80. Falls less than this lead to ponding, which can affect the long-term durability of the system.

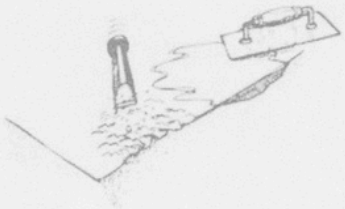
Expansion joints should be carefully inspected; while the system permits a limited amount of movement it is best to consult with the structural engineers as to the expected joint movements. (Further detail on expansion joint design is given elsewhere in this brochure.)

Applicators must satisfy themselves as to the soundness of the substrate to be overlaid – a large proportion of failures and delaminations can be attributed to an unsound or inadequately prepared surface.

SURFACE PREPARATION

NEW CONCRETE ROOFS

1. Wash off dust and building debris and leave to dry.
2. Scrape down rough spots.
3. Apply cementitious filler to fill depressions and uneven areas.



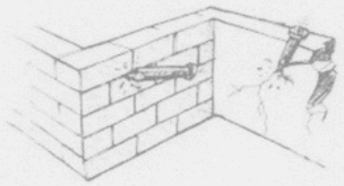
Note: Brand-new roofs must allow for a suitable ageing period before over-coating can commence. This period depends on local ambient conditions but generally does not exceed 21 days.
The use of a moisture-tester will ensure that the screed is sufficiently dry – a moisture content below 5% is recommended.

METAL SURFACES

1. All rust and corrosion must be removed, preferably by abrasive cleaning.
2. Apply D99 Degreaser and Rust Remover (see separate data sheet).
3. Rinse off and allow to dry.

VERTICAL CONCRETE OR BRICKWORK

1. Remove loose flakes, grime and dirt – ensure that the substrate is clean, dry and stable.
2. Using a chisel, vee out all cracks and joints before filling with cementitious filler.



PLASTERED SURFACES

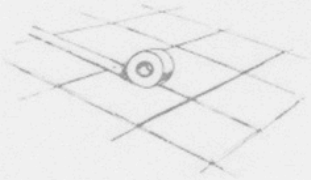
1. Plaster should be tapped lightly to ensure that no delamination has occurred.
2. Old loose or cracked plaster must be scraped or brushed off.
3. Fill with cementitious filler.

EXISTING WATERPROOFING SYSTEMS

Due to the variety of waterproofing systems in use, there is no standard treatment that can be applied to prepare them.
Old waterproofing need not necessarily be removed if it is sound and free from bubbling and disbonding.
Areas where the waterproofing has cracked or broken away must be completely removed and allowed to dry out as water entrapment will have invariably occurred.
A neat circular area must be cut around the damage.
After a suitable drying period, fill the depression with cementitious filler and proceed in the usual way.

INSULATION BOARD

1. Apply 10 cm masking or similar tape over all joint areas.
2. Ensure surface is clean and free of surface contaminants.



POLYURETHANE FOAMED-IN-PLACE COATINGS

1. Allow the polyurethane to age for 3-5 days in good sunlight.
2. Clean thoroughly with undiluted D99 Pekaklene Degreaser and Rust Remover, rinse with water and allow to dry.
3. Smooth all rough areas.

PRIMING

CONCRETE AND CELLULAR SCREEDS

Apply Pekay 224 Primer undiluted using a brush, roller or spray equipment. The coating rate should not exceed 6 m²/ℓ. Care must be taken to prevent ponding of primer in cracks and crevices.
Allow to dry for ½ – ¾ of an hour at 25°C before continuing.
On exceptionally porous surfaces, a second coat may need to be applied.
"Green" concrete that has been freshly applied should be allowed to age for at least one week before priming.

METAL SURFACES

Metal surfaces should first be treated with D99 Pekaklene to remove rust and dirt. After rinsing off and allowing to dry, apply a coat of Pekaten 828 One-Pack Etch Primer and allow to dry for 30-60 minutes before continuing with the 835 'Acryl-Seal' system.

WOOD AND FIBROUS INSULATION SHEETING

Apply an undiluted coat of AL30 matt acrylic emulsion at a rate of 4-5 m²/ℓ to seal the porosity in the surface.
Proceed with the 835 system in the usual way.

RIGID POLYURETHANE FOAM INSULATION

Apply a coat of No. 147 Acrylic coating at a rate of 6-7 m²/ℓ, preferably by means of a brush or spray equipment, before proceeding with the 835 system.

APPLICATION METHODS

Step 1:
APPLICATION OF THE 835 BASE COAT

A generous layer of 835 in any colour is applied, preferably with a brush or roller, to the freshly prepared substrate, at a coating rate of 1,5 – 2 m²/ℓ.
Apply no more than 1-2 m² before proceeding to Step 2.
Whilst the Base Coat is still wet, proceed to Step 2.

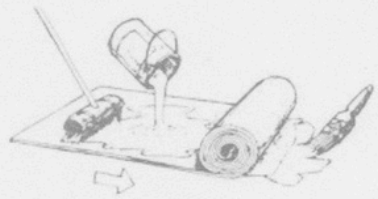
Step 2:
EMBEDDING OF THE SUPPORTING MEMBRANE

Embed the supporting membrane into the still-wet 835 base coat using a chalk-line to align the material. Suitable supporting membrane includes non-woven needle-punched polyester or poly-propylene fibre such as Polyfelt 022T or Bidim U14. Widths of 1 to 1,5 m are the most convenient and economical to use. Ensure that all overlaps are at least 150 mm wide.
Tamp down well to ensure maximum saturation. Special care must be taken to push the fabric into corners and crevices: an old hard brush should be used for this purpose.
Fabric should be taken over the top of parapet walls. If any vertical drain pipes or full bores have to be covered then neatly cut a "bandage" and use it as an extra collar or reinforcing around the outlet/protrusion. Box gutters should be cut to shape beforehand. The base of the box gutter should consist of a single piece of membrane and should be placed last.

Step 3:
APPLICATION OF THE 836 IMPREGNATION COAT (YELLOW)

Using a hard brush or firm broom, squee-gee the 836 over the membrane, applying sufficient pressure to ensure penetration. The 836 should be poured onto the surface and then spread out immediately. A coating rate of 1,2 – 1,5 ℓ/m² is needed for complete saturation. For best results the 836 should be applied as soon as possible after the base coat (Step 1) has been applied.

The use of a firm broom is vital to ensure saturation – on no account should soft rollers be used at this stage.



Once this step has been completed the saturated membrane should be left to dry fully before proceeding to Step 4.

Step 4:
APPLICATION OF THE FIRST TOPCOAT

Before applying the topcoat, check that the saturated material (made up in Step 3) has fully adhered to the base coat. Any bubbling or loose spots noticed must be cut open and patched with a patch of at least twice the area opened.
Apply 835, in any colour, over the dry saturated material at a coat rate of 2,0 – 2,5 m²/ℓ. A soft brush or lambswool roller should be used for this purpose, although airless spraying is also suitable. The colour selected for this topcoat should preferably be similar to the final colour chosen to facilitate overcoating.
Allow the 835 to touch-dry before proceeding to Step 5.

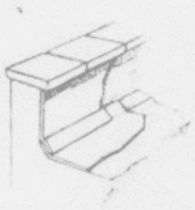
Step 5:
APPLICATION OF THE FINAL TOPCOAT(S)

Apply another coat of 835 in the final chosen colour in the manner described in Step 4 above. The coating rate of this step must be such that the total coating rate for the entire system (Step 1 through Step 5) is 2,5 ℓ/m². This may mean that Step 5 can be left out completely should there be sufficient material applied at the end of Step 4; alternatively, Step 5 may need two or even three coats of 835 to build up the required coating rates.
Allow the system to dry fully (3-4 hours at 25°C) before putting into use: should a rain-shower occur before the system has dried sufficiently, a further coat of 835 may be necessary to replace material washed away.

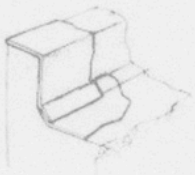
WATERPROOFING DETAILS

PARAPET WALLS

All corners must be rounded off where vertical sections occur. This may be achieved using a triangular infil, or by shaping the concrete screed.
Where the parapet wall is topped by a coping stone the membrane must be taken at least two-thirds of the way up the wall. It should be split into two sections: the base piece should be brought up the side for at least 20 cm while a counter-flash strip, coming from two thirds of the way up the vertical face, should be brought down to overlap the base piece by at least 20 cm.

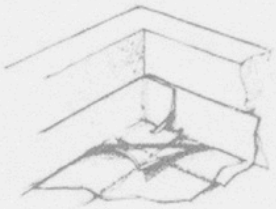


Flat-topped parapet walls must be completely covered to the edge of the outside wall. The 835 system which forms the base piece must be taken up the side of the parapet wall for at least 20 cm, while a second 835 system must be drawn down from the top of the parapet wall to overlap the first by at least 20 cm.



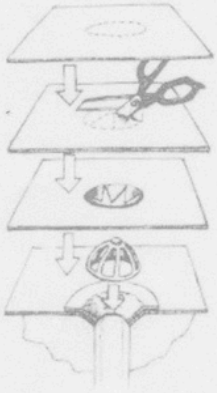
BOX GUTTERS

The 835 system must be applied up the vertical walls of the box gutter so that it extends at least 20 cm above the maximum water level. The side pieces are done first: they must round the corners for 10 cm and must extend 20 cm into the base. The base piece is to be laid first and must consist of a single piece cut to size.
The top of the membrane, where it extends up the wall, should be counter-flashed with 835 impregnated "Textoglass".



FULL-BORE OUTLETS

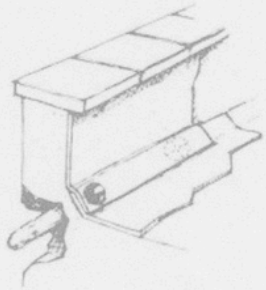
The waterproofing system must be installed before the full-bore assembly can be put in place.
The outlet hole should be completely covered when the 835 system is laid. While the system is still wet, the portion over the hole must be opened by slicing the membrane into segments and adhering the segments to the inside surface of the outlet.
A bandage of the 835 system must be prepared and used to cover the exposed areas of the outlet.



The full-bore should be fitted in place while the 835 system is still wet to allow it to conform to the shape of the full-bore.

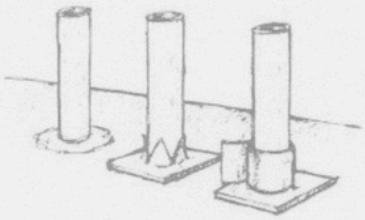
GARGOYLE-TYPE RAINWATER OUTLETS

The 835 system must be applied in exactly the same way as for the full-bore outlets described above. Since a gargoyle-type outlet will usually be found on a vertical surface the 835 system must in this case be taken up the side of the vertical to a point at least 30 cm beyond the top of the outlet. The membrane must be sliced and dressed as before.



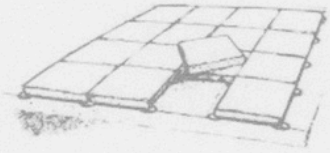
VERTICALLY PROTRUDING PIPES

When vertically protruding pipes are encountered on a roof deck, a suitably-sized hole should be cut in the membrane to accommodate the pipe while the system is being laid. Later, a separate dressing must be made around the protrusion. The dressing should be approximately square and extend away from the protrusion for at least 30 cm on all sides. Slits should be cut in the centre of the dressing and the membrane drawn up the pipe.
The upstand portion is then covered with a bandage of 835 impregnated membrane to a height of at least 20 cm.



WALKWAYS

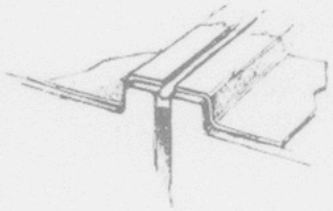
The 835 system may be used without modification on areas where light pedestrian traffic is expected, for example washing line areas. Regular inspection is however, necessary as there is a greater possibility of mechanical damage occuring, and no long-term maintenance-free guarantees can be given. Where medium to heavy pedestrian traffic is expected, paving stones must be loose-laid onto the roof deck. Ideally, rubber rings should be used to lift the paving stones off the surface and, therefore, prevent mechanical damage.



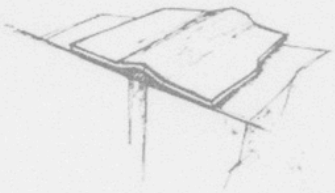
Where paving is required for roof gardens, it is necessary to lay a "double" 835 system first. Consultation with a Pekay technician is needed for a detailed specification of this type of system.
A 20 mm thick bed of coarse river sand must be laid on top of the water-proofing and the paving laid into this.

FLAT ROOF EXPANSION JOINTS

Expansion joints are a particularly critical area on any roof as they are sensitive to water leakage, especially if they are incorrectly designed.
The roof design should be such that water runs away from the expansion joint; the joint should preferably be raised 10-15 cm above roof level. To obtain a watertight joint, the roof deck should be saw-cut and sealed with tailor-made sealants such as Pekay 673 Polyurethane Joint Sealant. The 835 system must be taken right up to the edge of the joint and, if necessary, be counter-flashed with 835 impregnated "Textoglass".



For expansion joints where the total movement is less than 10 mm a "slip-sheet" system may be used in place of a joint sealant. The joint is covered with a 40-50 mm wide PVC or polyethylene tape. The 835 system is laid to the edges of the tape on both sides. Thereafter a 150 mm wide strip of the 835 system is laid on top of the entire assembly.



Expansion joints thus treated should be inspected regularly.

(011) 474-8867/68/69

PEKAY 'ACRYL-SEAL' SEAMLESS WATERPROOFING SYSTEM

SYSTEM SPECIFICATIONS

CHARACTERISTICS

The system consists of three components; a primer for porous surfaces, a high-build emulsion and a low molecular weight saturant used in conjunction with non-woven needle-punched polypropylene or polyester fabric. The following table gives a breakdown of their salient details:

	PRIMER Code 224	'ACRYL-SEAL' Code 835	IMPREGNATION COAT Code 836
BASE	Acrylic polymer	Acrylic polymer	Acrylic polymer
SOLIDS CONTENT	25 ± 2%	60 ± 2%	60 ± 2%
VISCOSITY	Water – thin	Buttery	Thin, free-flowing
MASS PER LITRE	1,02 kg	1,27 kg	1,27 kg
DRYING TIME AT 25°C			
touch dry:	30 mins	30 mins	30 mins
hard dry:	2 hours	2 hours	2 hours
COLOUR	Opaque	White, Grey, Red, Green, Mushroom, Terracotta	Yellow
SOLVENT	Water	Water	Water
FLAMMABILITY	Non Flammable	Non Flammable	Non Flammable
SPREAD RATE	4 – 5 m²/ℓ	1 – 2 m²/ℓ	1,0 – 1,5 ℓ/m²
APPLICATION TEMPERATURE LIMITS	5° – 40°C	5° – 40°C	5° – 40°C

Suitable supporting membrane includes Bidim U14, Bidim WP, Polyfelt 022T or Ecovelt 021T needle punched fabrics. Supplier's literature is available on these products.

PROPERTIES OF THE COMPLETED MEMBRANE

ULTIMATE COATING RATE	: 2,0 – 2,5 ℓ/m²
WEIGHT OF DRY FILM	: 1,85 – 1,95 kg/m²
NUMBER OF COATS	: 5, excluding membrane
DRY FILM THICKNESS	: 1,5 – 2,0 mm including membrane
TENSILE STRENGTH	: 12,4 kN/M minimum
ELONGATION AT BREAK	: Up to 50%
FLEXIBILITY	: Embrittles below –15°C
SERVICE TEMPERATURE LIMITS	: –20° to 80°C
LIQUID WATER PERMEABILITY	: 0,07 x 10⁻⁴ mℓ/cm²
RESISTANCE TO ARTIFICIAL WEATHERING	: Tested 1 000 hrs; no effect
FIRE RESISTANCE	: Non flammable wet, sustains flame dry
OZONE AND U.V. RESISTANCE	: Excellent
RESISTANCE TO ALKALINE AND ACIDIC ATMOSPHERES	: Good, minimal staining
SALT SPRAY RESISTANCE	: Excellent
MOULD AND FUNGUS RESISTANCE	: Excellent

LIMITATIONS AND PRECAUTIONS

Where the system is laid over a foam screed do not proceed if:

- The screed contains more than 8% moisture
- The screed has a pH of +8
- DO NOT APPLY IN INCLEMENT WEATHER.
- Surfaces to be coated must be dry.
- Not suitable for flat roofs with falls less than 1:100.
- Not suitable for permanent immersion in water.
- New concrete surfaces should be allowed to cure for 2-3 weeks before overcoating.
- Suitable for light pedestrian traffic only (walkways are advisable for heavy pedestrian traffic).
- Do not dilute

NO GUARANTEE IS EXPRESSED OR IMPLIED.
Should a 10 year guarantee be required, an approved applicator will be appointed and a guarantee will be issued by the Company in writing.

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