



MEMBRANE WATERPROOFING SYSTEMS: SIKAPROOF

BRUCE ZHU

ENGINEERED WATERPROOFING

SIKA

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BUILDING TRUST



SIKA IN WATERPROOFING HISTORY AND NOW



Sika was founded in Switzerland in **1910**.

The first key project:

- Waterproofing of the Gotthard Tunnel (at the time, longest railway tunnel in the world) with the waterproofing admixture Sika-1.
- Over 100 year of experience in below grade concrete waterproofing.



In **2025**, global leader of construction chemicals

Key Figures:

- Broad range of product from basement to roof
- Over 25,000 employees
- Local subsidiaries in over 100 countries
- Over 300 plants worldwide

PRODUCTS WE OFFER

- ▲ Sarnafil Roofing – PVC & Liquid Applied
- ▲ Concrete – Admixtures, shrinkage reducers, crystalline waterproofing
- ▲ CRSB – Sealants, Concrete Repair & Protection
 - ▲ Balconies and Parking Garages – Epoxy and Urethane
- ▲ Industrial Flooring – Epoxy, Urethane, Underlayments
- ▲ Waterproofing - Sheet Membranes, Greenstreak Waterstops, Injections
- ▲ Decorative Concrete – Scofield, Butterfield Color
- ▲ Insulation – RMAX
- ▲ Emseal
- ▲ Fibermesh (Propex)
- ▲ American Hydrotech
- ▲ MBCC

WATERTIGHT BASEMENTS WHY FULLY BONDED MEMBRANE SYSTEMS?

BUILDING TRUST



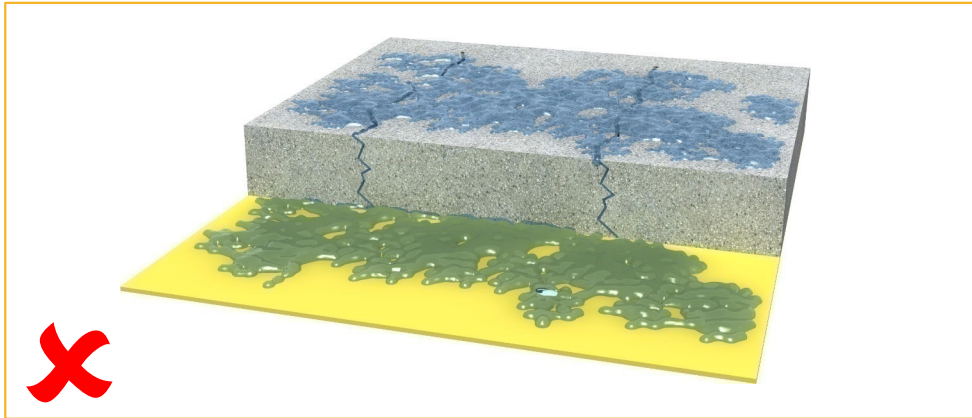
SHEET WATERPROOFING SYSTEMS

WATERTIGHT BASEMENT – FULLY BONDED SYSTEMS



SHEET WATERPROOFING SYSTEMS

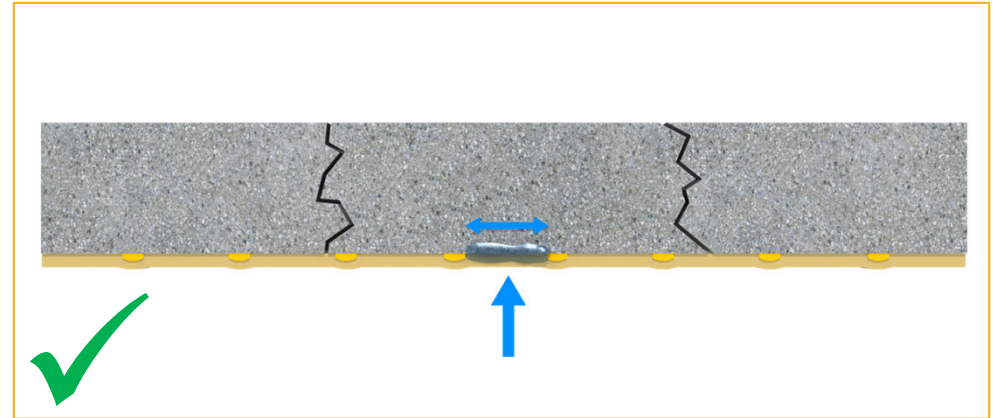
WATERTIGHT BASEMENT – FULLY BONDED SYSTEMS



No Lateral Water Migration

- The fully bonded systems prevents lateral water migration in case of puncture or damage.
- Potential water ingress is contained in a small area and can be repaired cost-efficiently.

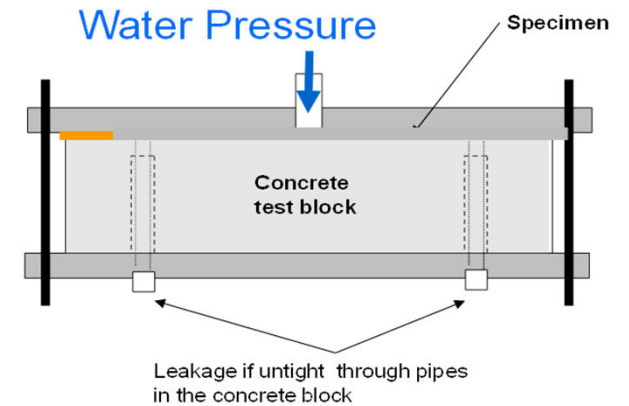
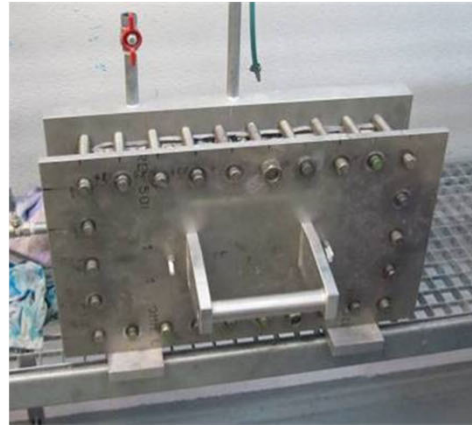
✓ Risk and Damage Control



SHEET WATERPROOFING SYSTEMS

FULLY BONDED MEMBRANE SYSTEM TESTING

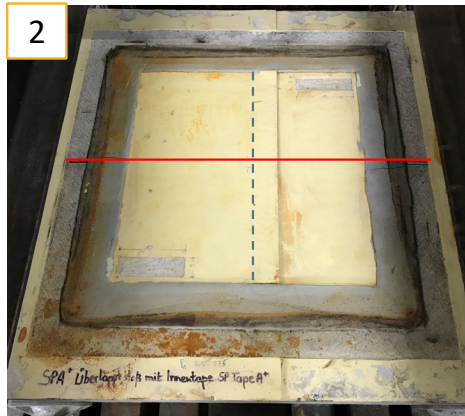
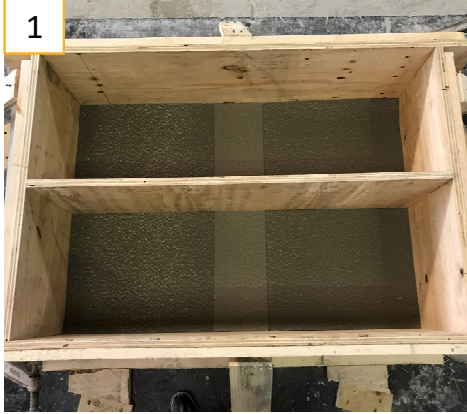
FUNCTION TESTS PER ASTM D 5385 MOD.



No lateral water migration tested up 7 bar (~101 psi) water pressure

WATERTIGHT BASEMENTS

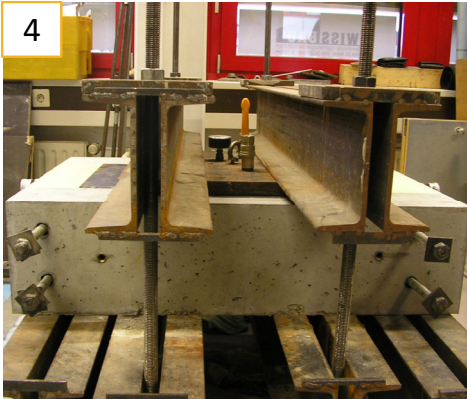
SikaProof® A+ SYSTEM – SYSTEM DURABILITY



Durability Testing

System Testing

- System tested up to 5 bar / 72 psi
- 2 mm (1/16 in) crack width
- Simulated damage: 3 in x 1 in
- 28 days exposure



Accelerated Ageing Testing

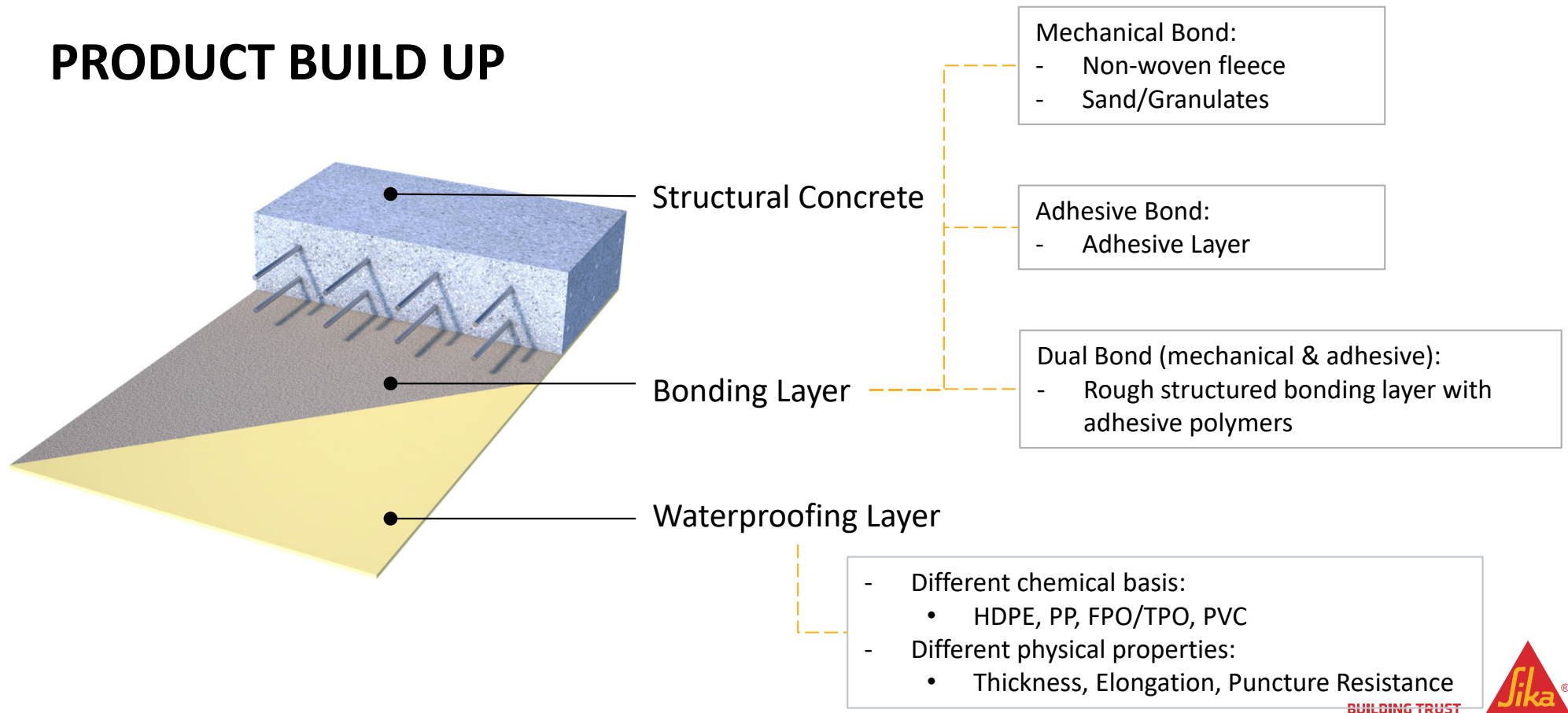
Exposure test of material to different chemicals

- 5% H_2SO_3 (sulfurous acid)
- 50% H_2SO_4 (sulfuric acid)
- Saturated $\text{Ca}(\text{OH})_2$ (calcium hydroxide)
- 10% Na^+Cl^- (sodium chloride / salt water)

SHEET WATERPROOFING SYSTEMS

WATERTIGHT BASEMENT – FULLY BONDED SYSTEMS

PRODUCT BUILD UP



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WHAT IS SikaProof A+® ?



SikaProof® A+ System

The second generation of fully bonded, pre-applied waterproofing membranes from Sika

Soiling during installation

- Easily washable **bonding layer** with up to **90 days UV Exposure**

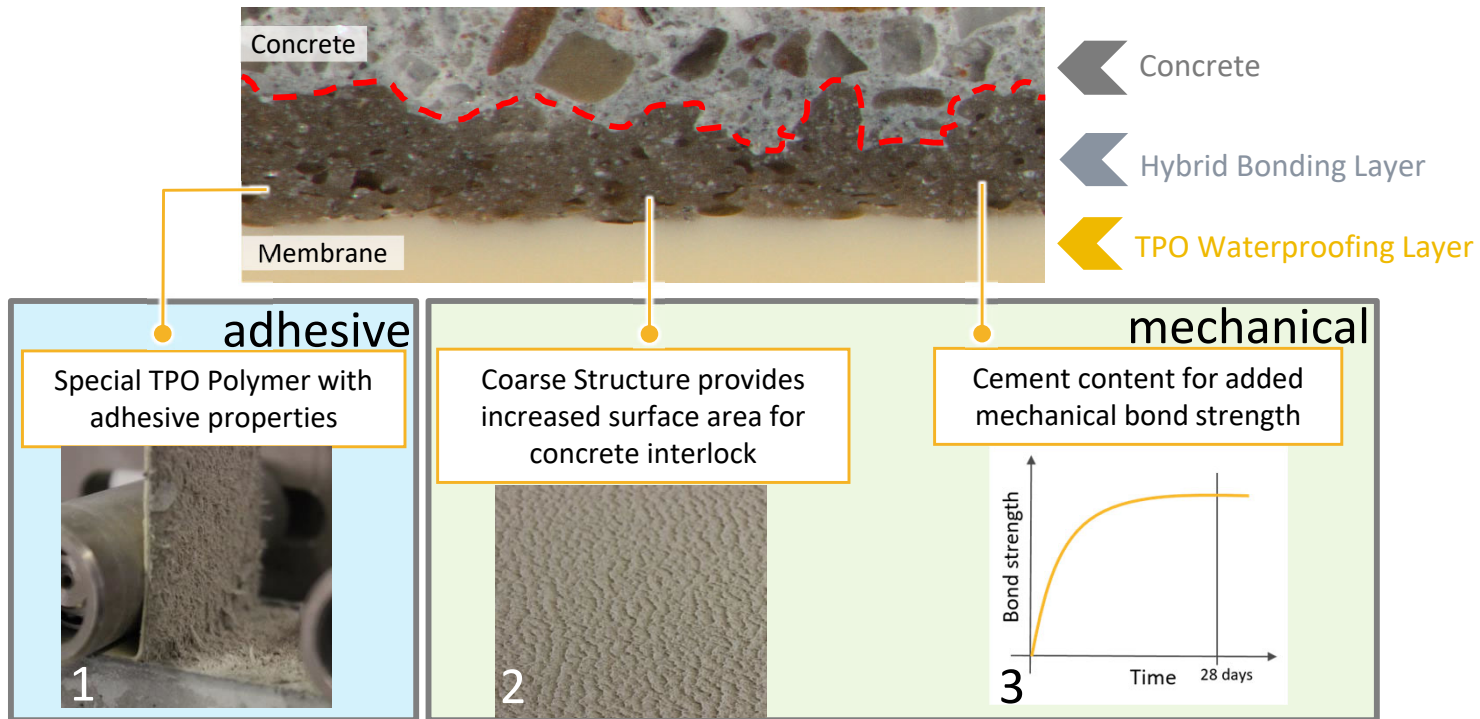
Seams and details

- Fully tested self-adhesive **Tape OR Thermal jointing** with hot air welding equipment

Dual Bond Technology

- Chemical and Mechanical Bond

SIKAPROOF® A+ TECHNOLOGY



WATERTIGHT BASEMENTS

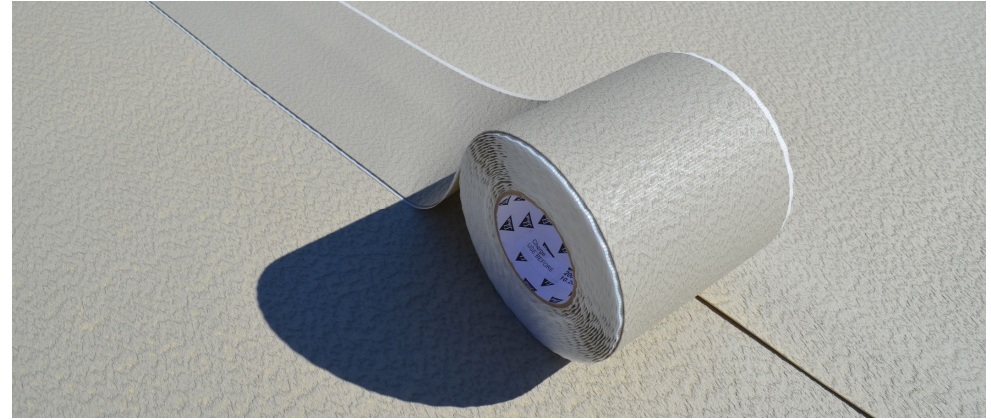
SikaProof® A+ SYSTEM – PRODUCTS



SikaProof® A+ 12

Membrane rolls in two widths:

- 6.5 ft x 65.6 ft (430 sqft) / 2 m x 20 m (40 m²)
- 3.2 ft x 65.6 ft (215 sqft) / 1 m x 20 m (20 m²)



SikaProof® Tape A+ N

Tape roll dimension in two widths:

- A+N: 4.70 in x 82.0 ft / 0.20 m x 25 m

WATERTIGHT BASEMENTS

SikaProof® A+ PRE-APPLIED SYSTEM – SEAMS AND DETAILS



Self-Adhesive Edge



Taping



Welding

WATERTIGHT BASEMENTS

SikaProof® A+ PRE-APPLIED SYSTEM – SEAMS AND DETAILS



WATERTIGHT BASEMENTS

SikaProof® A+ PRE-APPLIED SYSTEM – SEAMS AND DETAILS

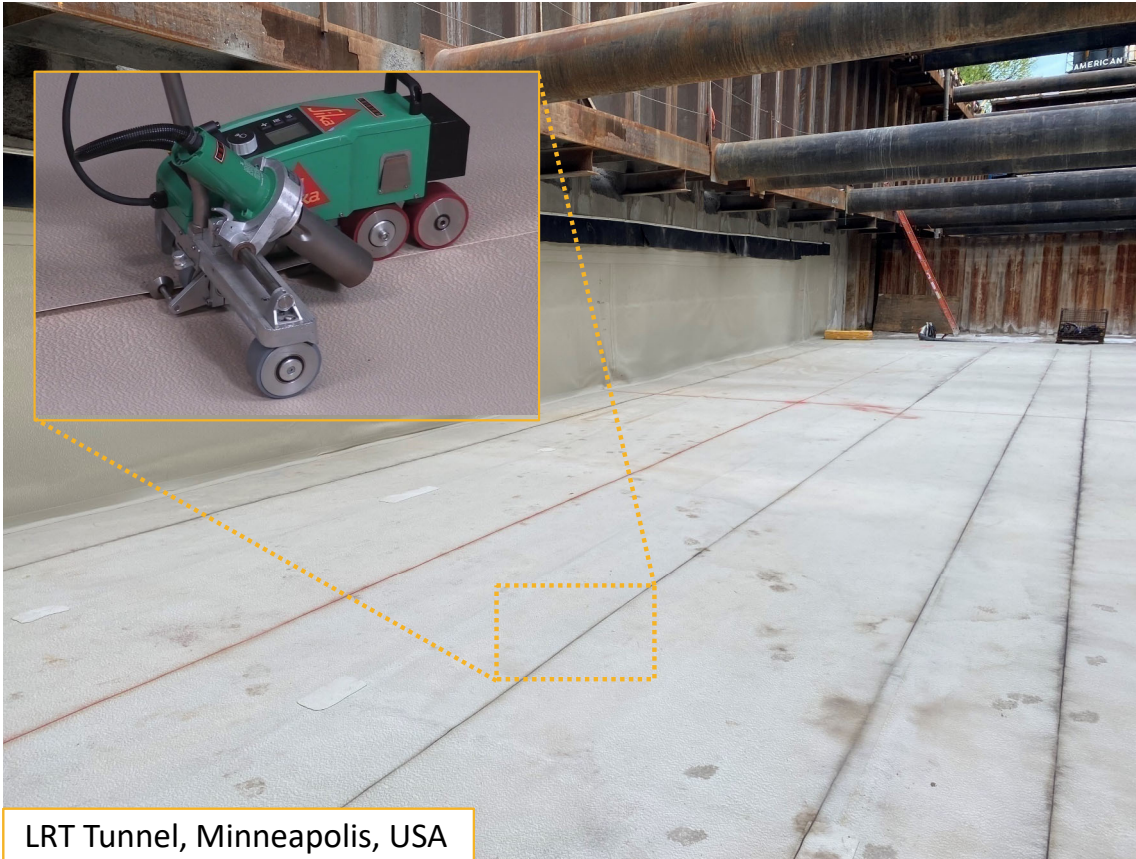


Student Center, Maryland, USA



WATERTIGHT BASEMENTS

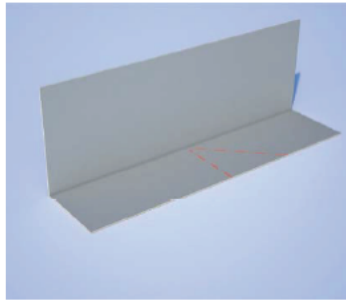
SikaProof® A+ PRE-APPLIED SYSTEM – SEAMS AND DETAILS



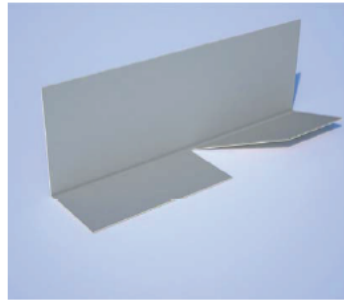
WATERTIGHT BASEMENTS

SikaProof® PRE-APPLIED SYSTEM – SEAMS AND DETAILS

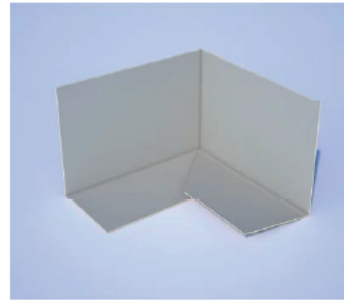
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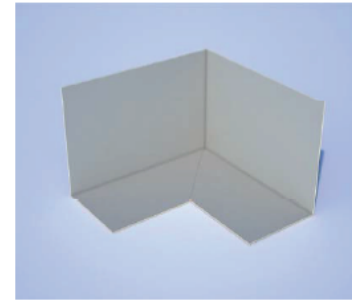
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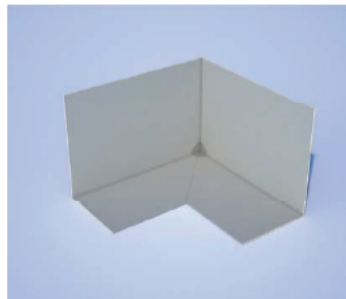
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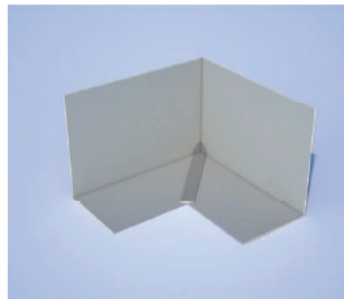
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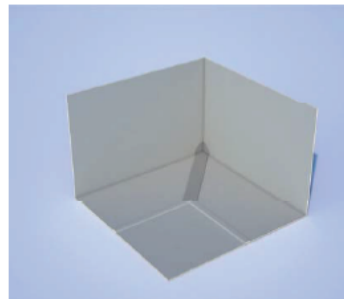
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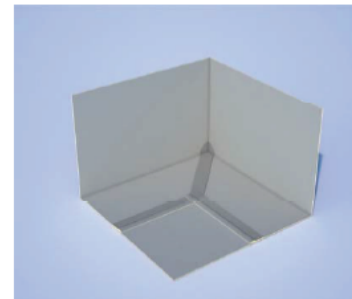
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7



8



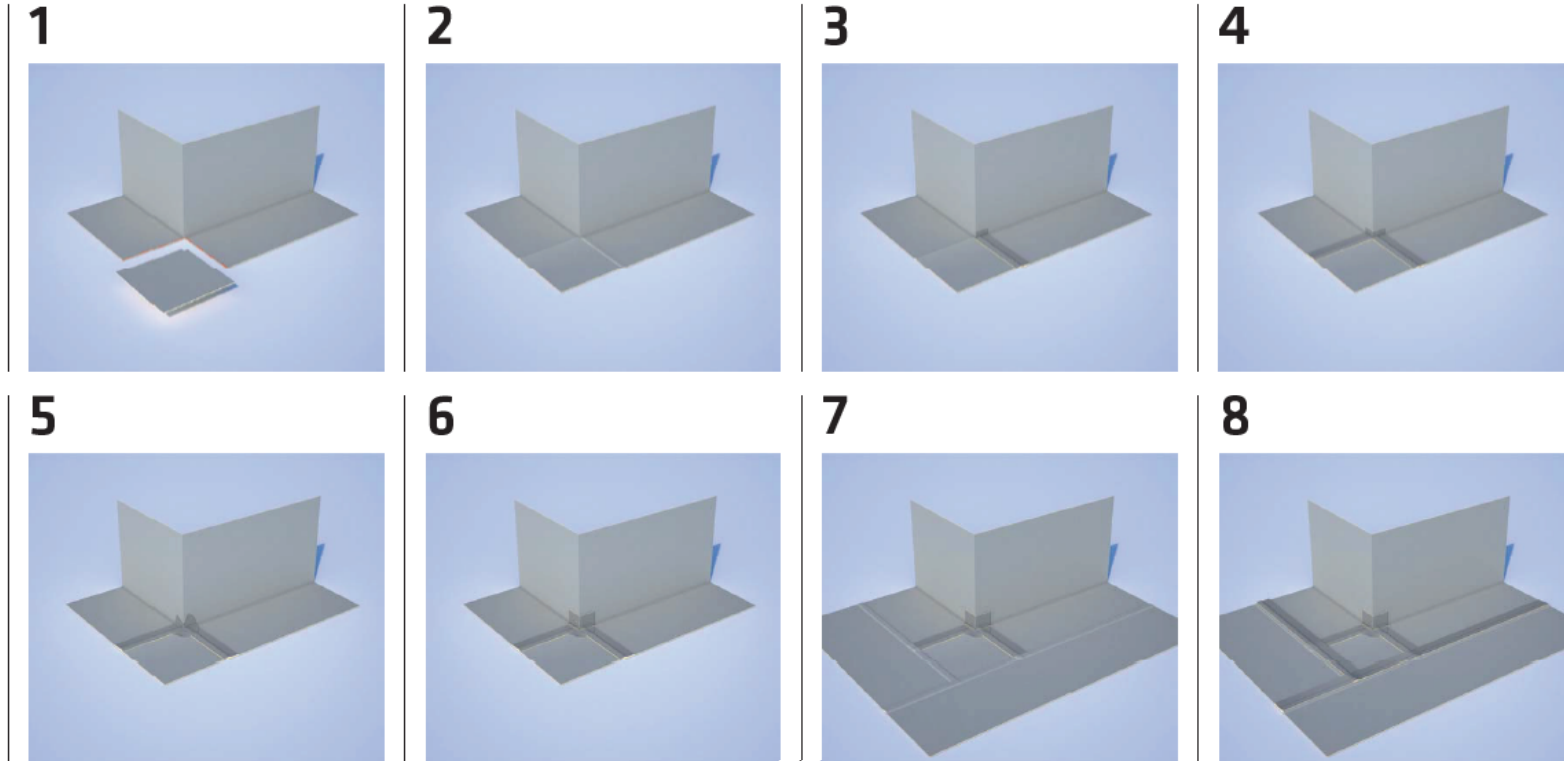
Inside Corners

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WATERTIGHT BASEMENTS

SikaProof® PRE-APPLIED SYSTEM – SEAMS AND DETAILS



Outside Corners

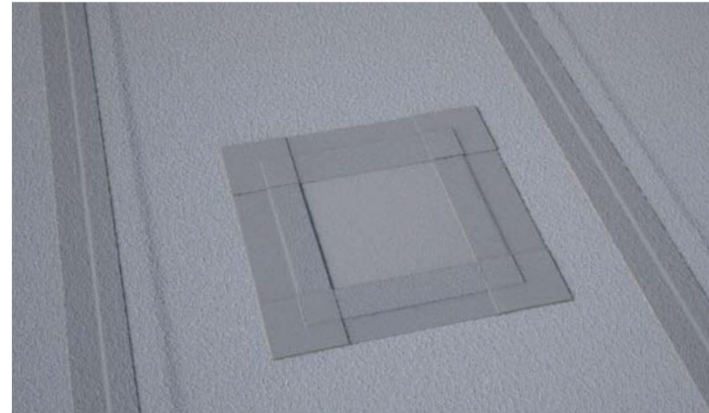
WATERTIGHT BASEMENTS

SikaProof® A+ PRE-APPLIED SYSTEM – SEAMS AND DETAILS



Membrane Damage $\leq 1/2"$

- Patch with A+ Tape



Membrane Damage $\geq 1/2"$

- Cover Damaged area with membrane Patch
- Overlap edges by 2"
- Seal and Bond Repair Patch with SikaProof Tape A+ on all sides.

WATERTIGHT BASEMENTS

SikaProof® A+ PRE-APPLIED SYSTEM – SEAMS AND DETAILS

1



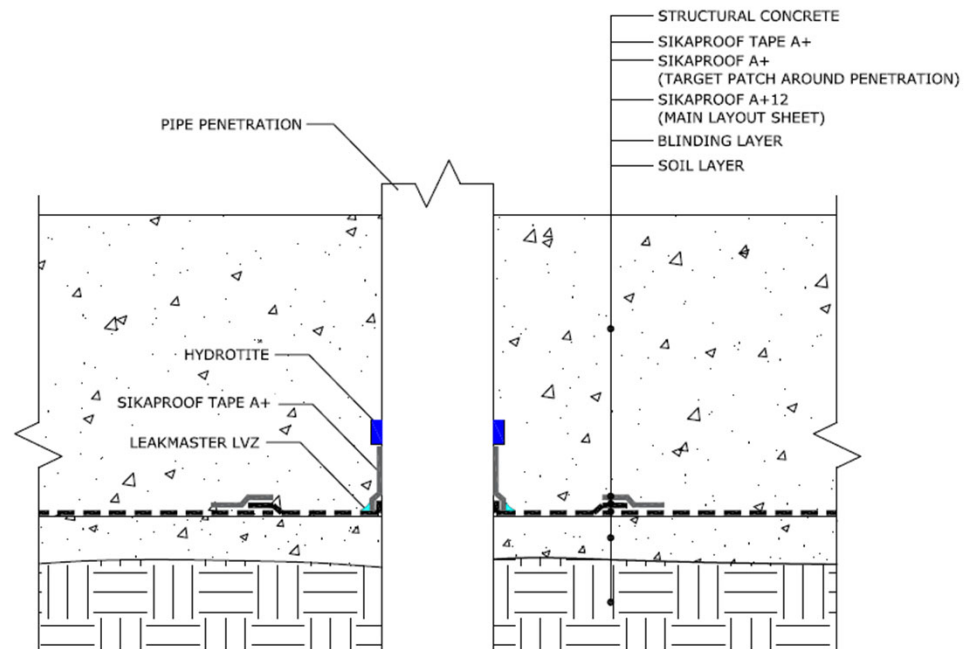
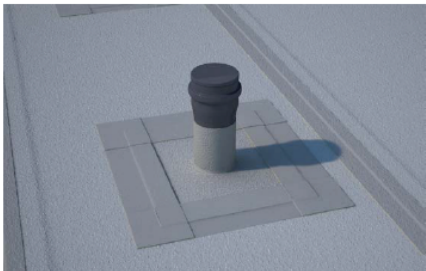
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3



4

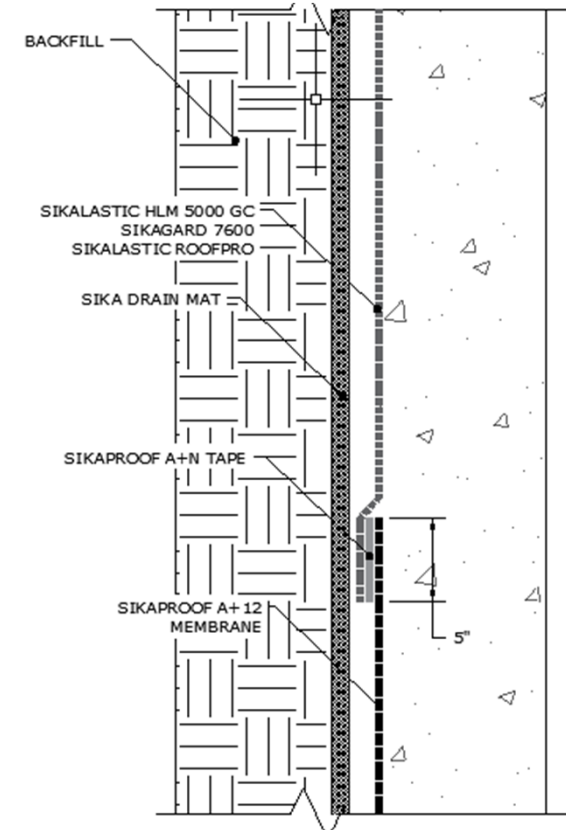
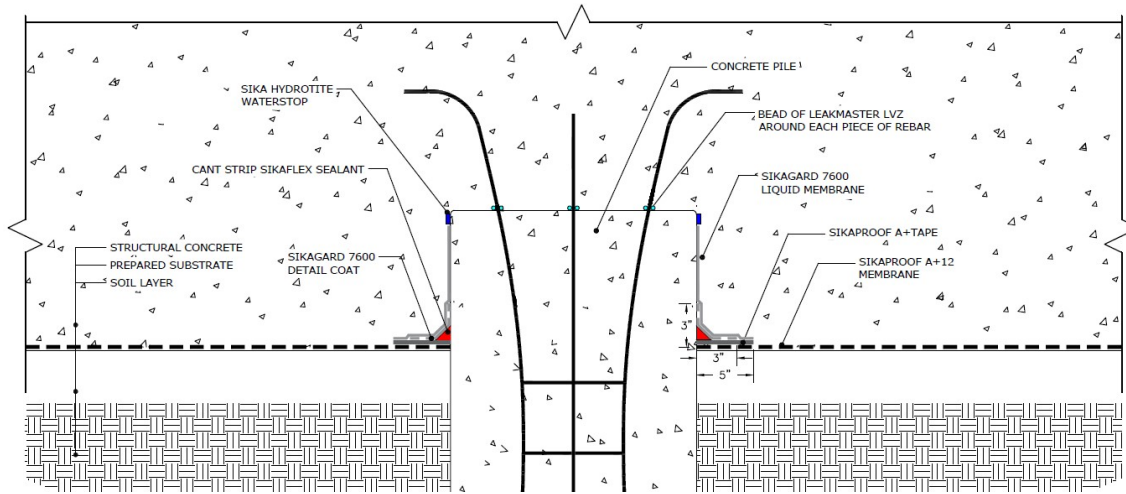


BUILDING TRUST



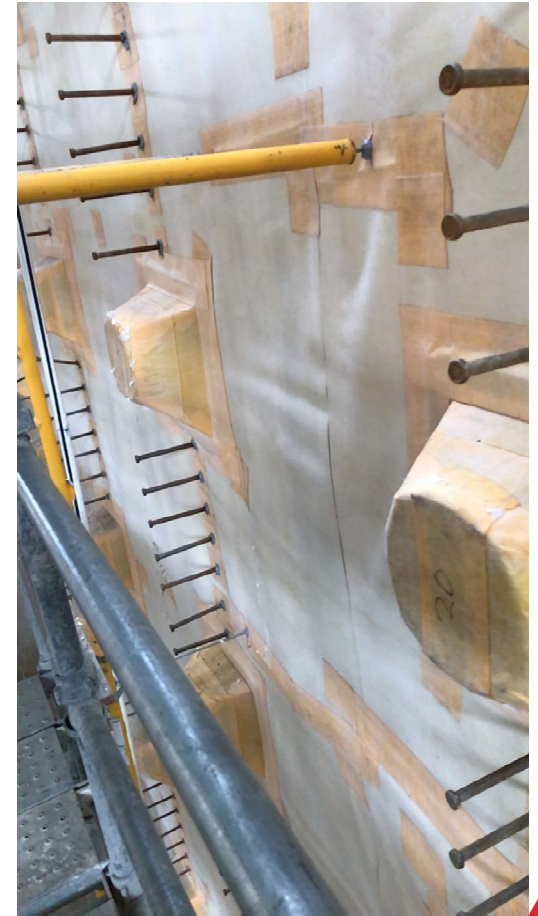
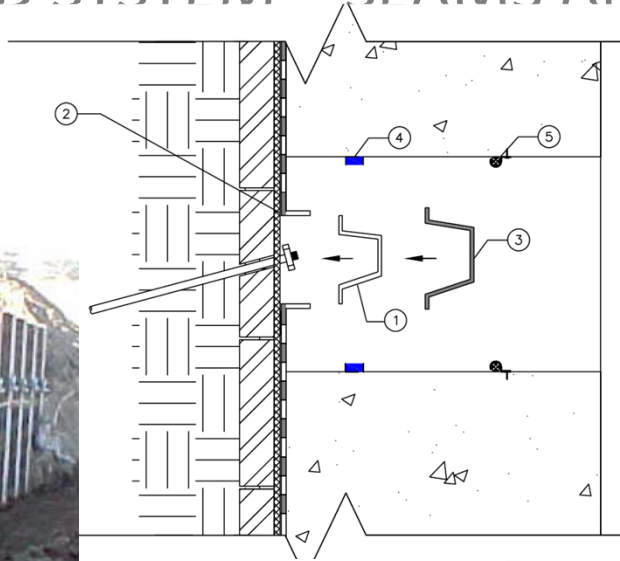
WATERTIGHT BASEMENTS

SikaProof® A+ PRE-APPLIED SYSTEM – SEAMS AND DETAILS



WATERTIGHT BASEMENTS

SikaProof® A+ PRE-APPLIED SYSTEM – SEAMS AND DETAILS

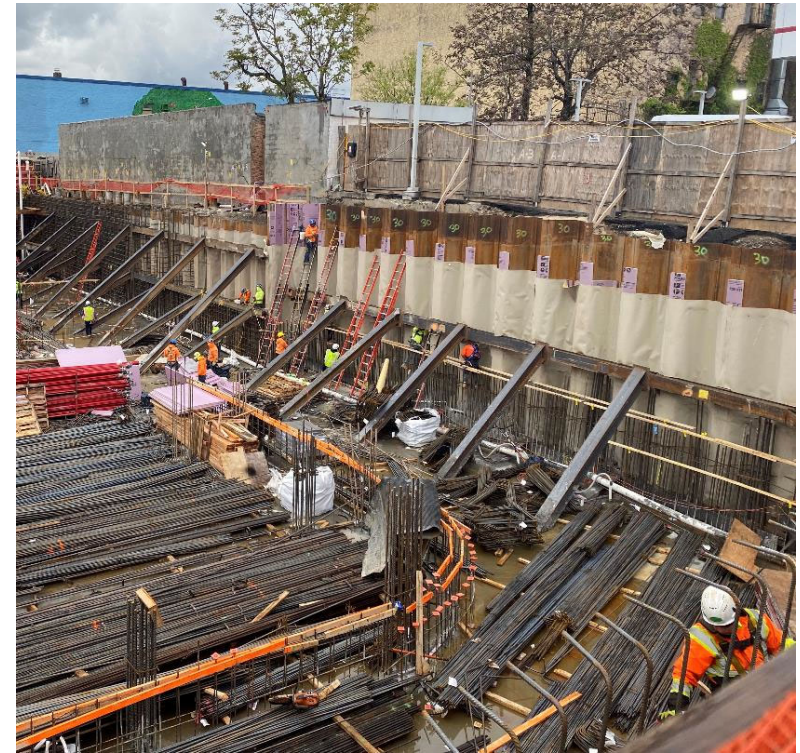
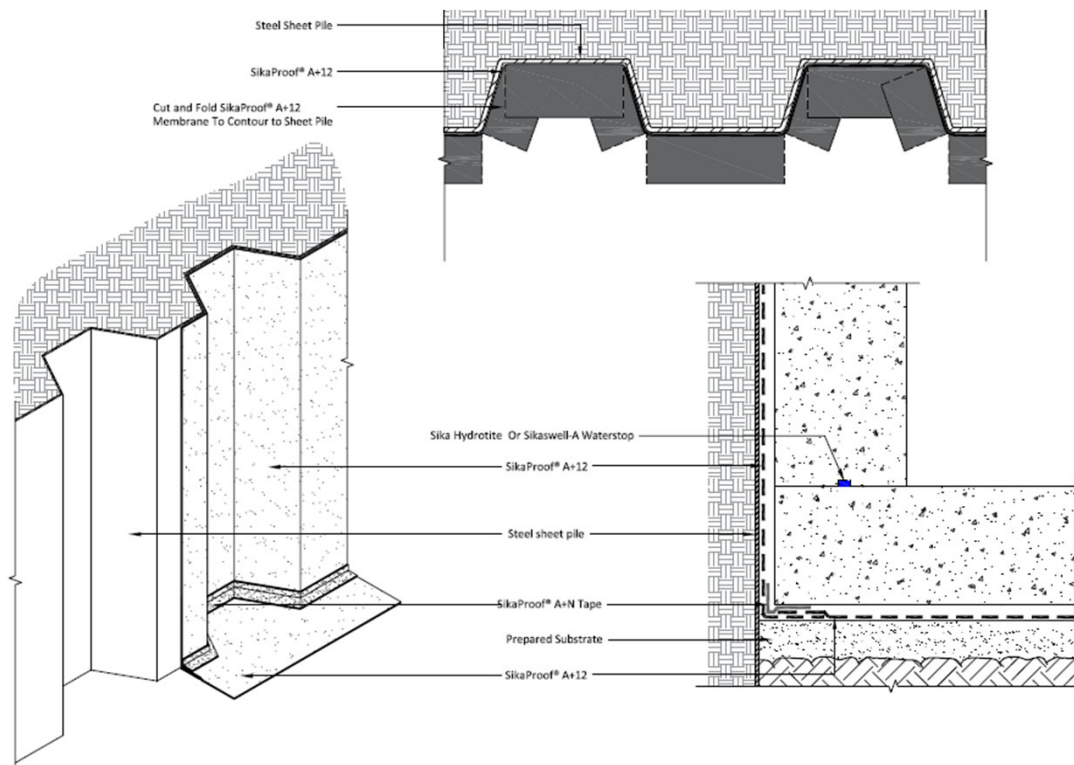


BUILDING TRUST



WATERTIGHT BASEMENTS

SikaProof® A+ PRE-APPLIED SYSTEM – SEAMS AND DETAILS



WATERTIGHT BASEMENTS

SikaProof® A+ SYSTEM – WALL APPLICATION



SikaProof® A+ PRE-applied

- Simply install the membrane on the vertical area
- Continuous application with the same material
- No compatibility concerns
- For exposure to constant water pressure
- Suitable for Shotcrete application



SikaProof® A+ POST-applied

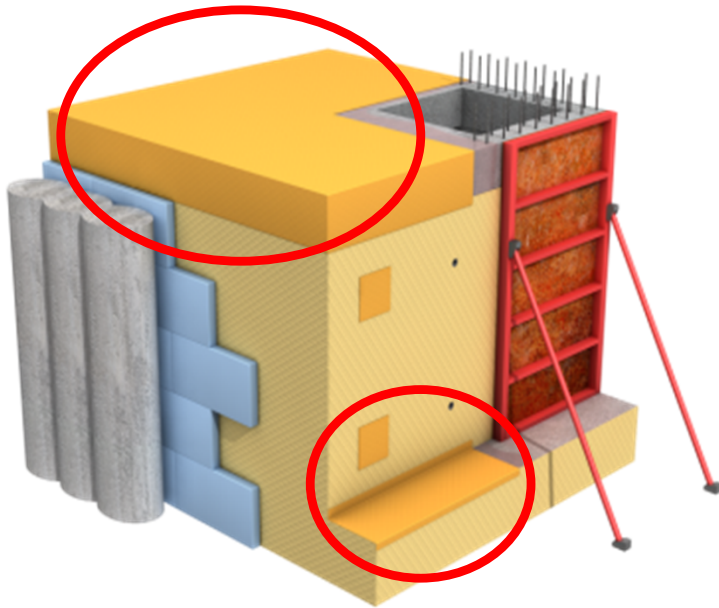
- **Green concrete** application providing scheduling flexibility
- One membrane for pre- and post-application
- No compatibility concerns
- For exposure to constant water head pressure

WHERE TO USE SikaProof® Adhesive-22

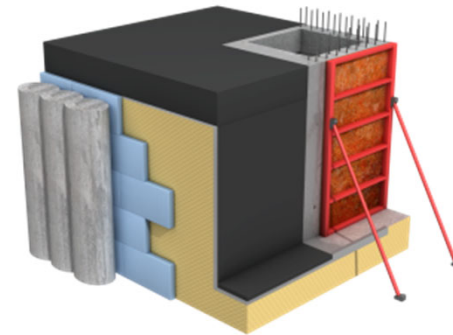
WHY DO WE NEED A POST APPLIED SOLUTION

Existing situation / issues:

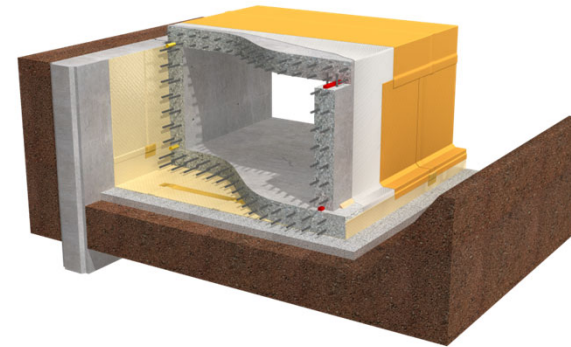
- Slab –wall protrusion / footing
- Tunnel Lid (Cut/Cover)
- Vertical – Horizontal Transitions



Drained Conditions (Above Water Table): SikaBit® S-60
or Sikalastic HLM 5000 GC



Below Water Table: SikaProof® A+ with SikaProof® Adhesive-22



WATERTIGHT BASEMENTS

SikaShield® S-60



SikaShield® S-60

Membrane roll:

- 3.0 ft x 66.7 ft (200 sqft)

Packaging:

- Single roll packaged
- Delivered on pallets



SikaShield® Primer AW

Primer:

- 1 gallon or 5 gallon

Packaging:

- Containers



Primer Application

- Apply the primer with a brush or roller on to cured and dry concrete
- Allow primer to dry (approx. 60 min)
- Reprime if area is contaminated by dust or other debris



SikaShield® S-60

- Cut the membrane at the required length
- Check if the primer is dry
- Take off the release liner
- Apply the membrane

WATERTIGHT BASEMENTS

Sikalastic® HLM 5000 GC



What is Sikalastic HLM 5000 GC?

- A single component, bitumen-modified polyurethane waterproofing membrane

Key Attributes:

- Applies to green and damp concrete
- Roller Grade
- Low VOC & low odor
- Meets ASTM C836



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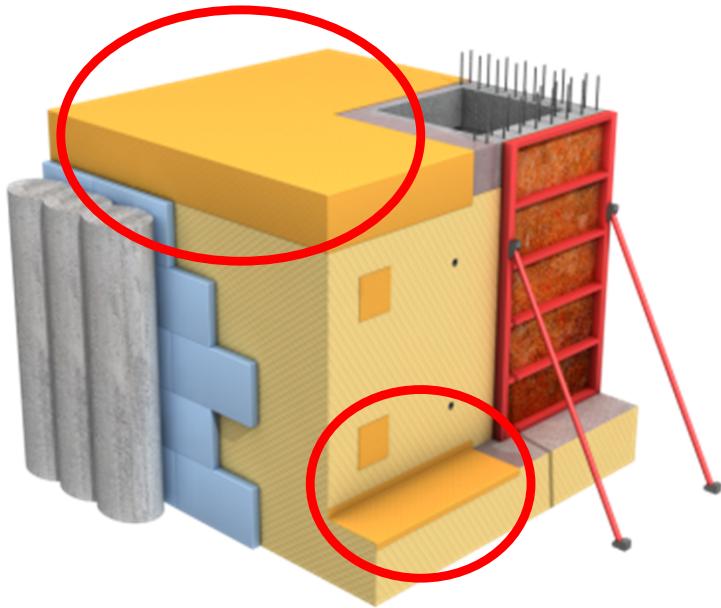


WHERE TO USE SikaProof® Adhesive-22

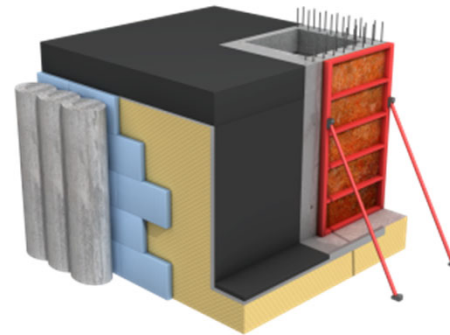
WHY DO WE NEED A POST APPLIED SOLUTION

Existing situation / issues:

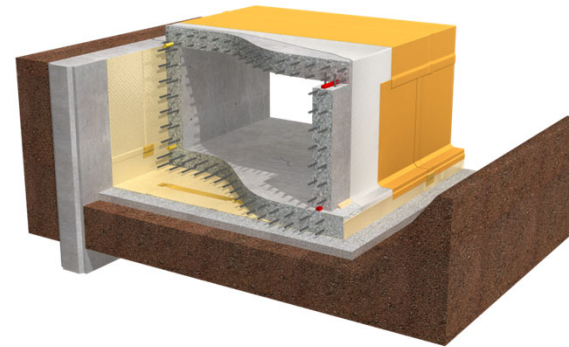
- Slab –wall protrusion / footing
- Tunnel Lid (Cut/Cover)
- Vertical – Horizontal Transitions



Drained Conditions (Above Water Table): SikaShield® S-60 or Sikalastic HLM 5000 GC

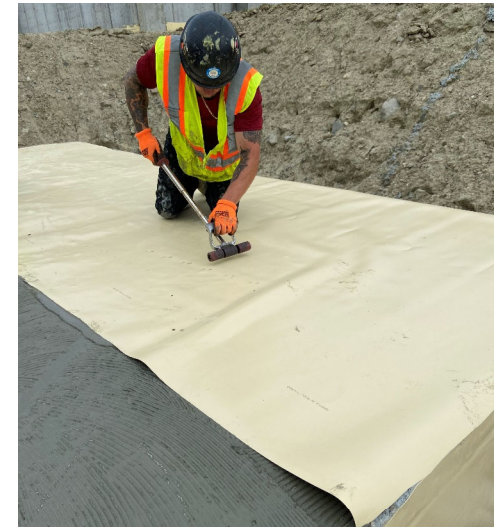


Below Water Table: SikaProof® A+ with SikaProof® Adhesive-22



WATERTIGHT BASEMENTS

SikaProof® A+ POST-APPLIED – INSTALLATION



Adhesive Application

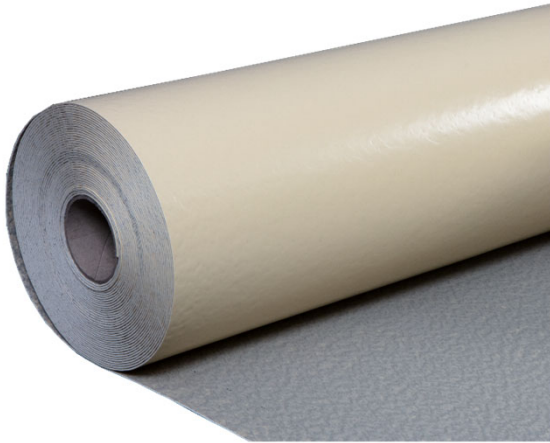
- Mix the **1-component adhesive** with water
- Apply adhesive on to green or cured concrete
- Evenly distribute the adhesive with a ¼ in v-notched trowel

Membrane Application

- Cut the membrane to the required length
- Roll the membrane sheet into the adhesive
- Butt join the subsequent sheet
- Seal the seam with the SikaProof® ExTape-100

WATERTIGHT BASEMENTS

SikaProof® A+ SYSTEM COMPONENTS



SikaProof® A+ 12

Membrane rolls in two widths:

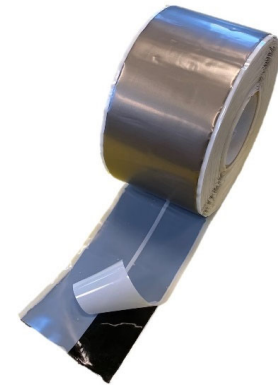
- 6.5 ft x 65.6 ft (430 sqft) / 2 m x 20 m (40 m²)
- 3.2 ft x 65.6 ft (215 sqft) / 1 m x 20 m (20 m²)



SikaProof® Adhesive-22

1-component adhesive

- 50 lbs bag



SikaProof® ExTape-100

WATERTIGHT BASEMENTS

SikaProof® A+ POST-APPLIED – SPRAY INSTALLATION



SikaProof® Adhesive-22

+

2.2 gal of water



SPRAY APPLICATION



TexSpray FastFinish Pro System



WATERTIGHT BASEMENTS

SikaProof® A+ SYSTEM – REFERENCE PROJECTS



Aluminum Manufacturing Plant, Texas, USA



WATERTIGHT BASEMENTS

SikaProof® A+ SYSTEM – REFERENCE PROJECTS



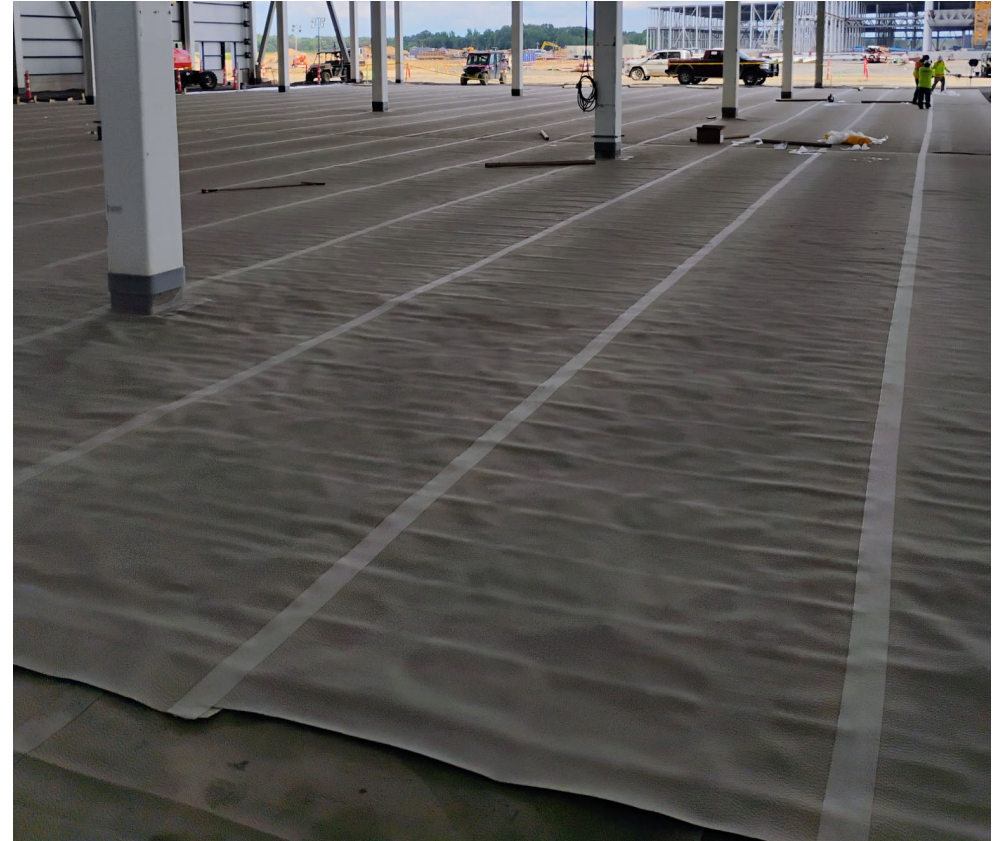
Intel - Seattle, WA

WATERTIGHT BASEMENTS

SikaProof® A+ SYSTEM – REFERENCE PROJECTS (CONT.)



NDA Project – Byhalia, MS



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WATERTIGHT BASEMENTS

SikaProof® A+ SYSTEM – REFERENCE PROJECTS (CONT.)



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WATERTIGHT BASEMENTS

SikaProof® A+ SYSTEM – REFERENCE PROJECTS



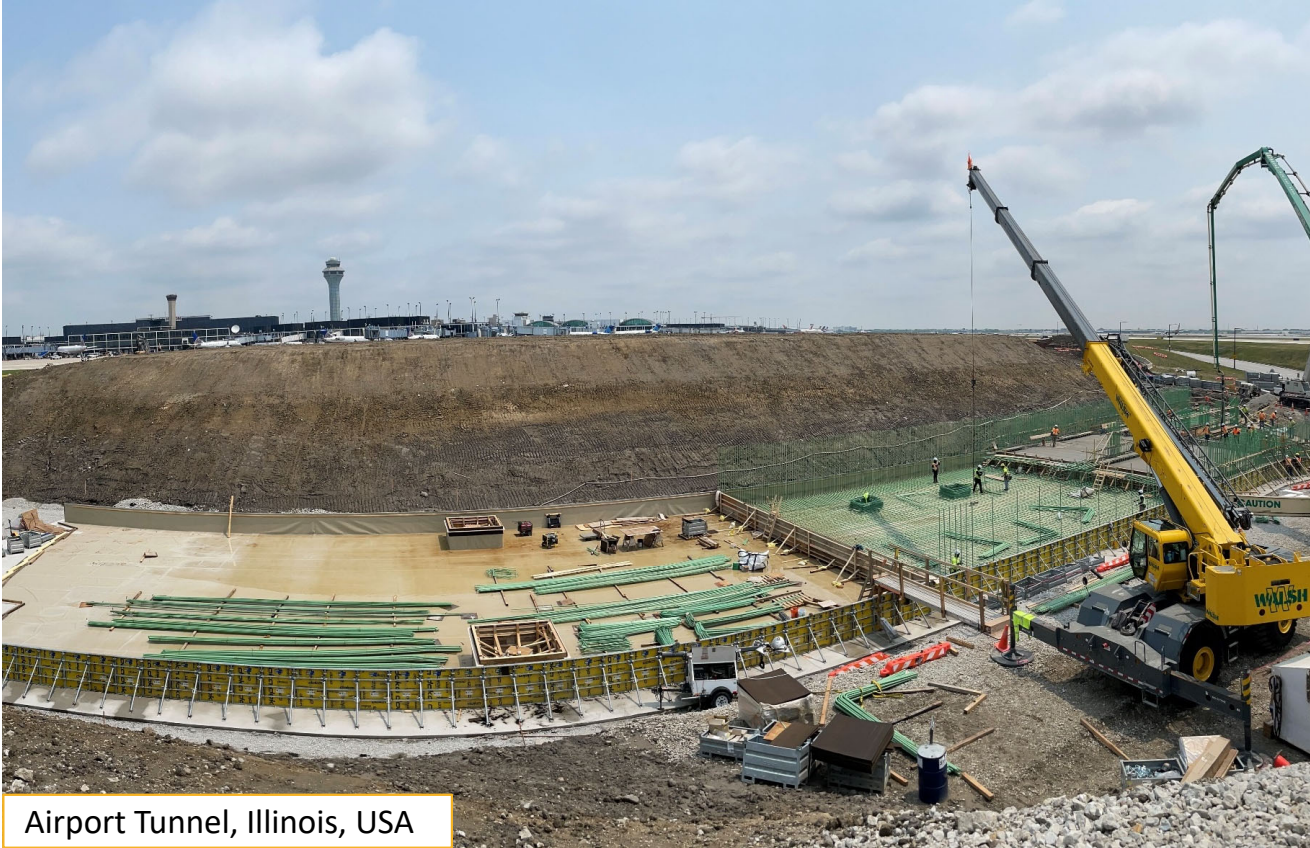
Tyndall AFB – Panama City, FL



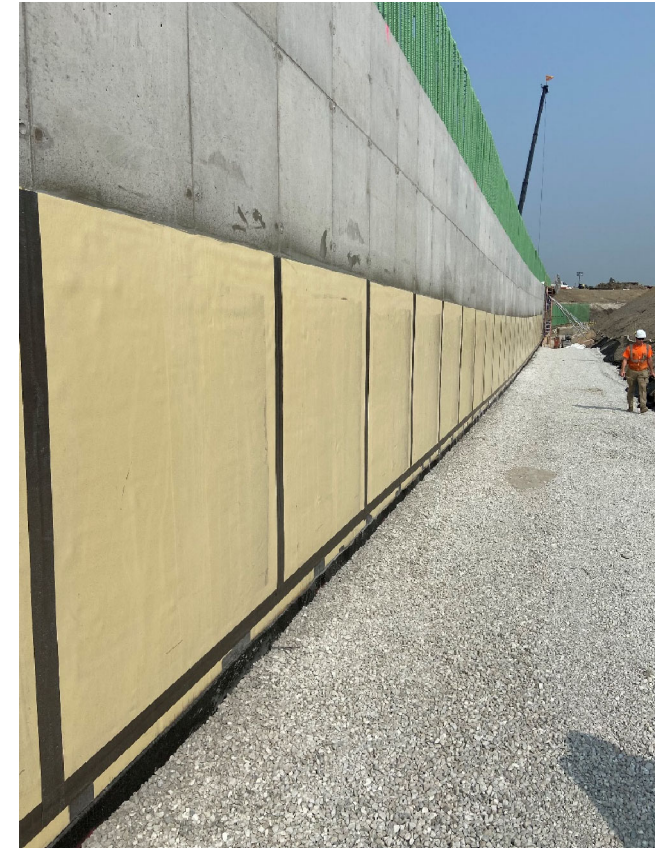
University Hospital – Miami, FL

WATERTIGHT BASEMENTS

SikaProof® A+ SYSTEM – REFERENCE PROJECTS (CONT.)



Airport Tunnel, Illinois, USA



WATERTIGHT BASEMENTS

SikaProof® A+ SYSTEM – REFERENCE PROJECTS (CONT.)



Biotech Facility, Massachussets, USA



WATERTIGHT BASEMENTS

SikaProof® A+ SYSTEM – REFERENCE PROJECTS (CONT.)



WATERTIGHT BASEMENTS

LOW RISK PROJECTS



Drained Condition

- e.g. Water Drainage System

Low Head Pressure

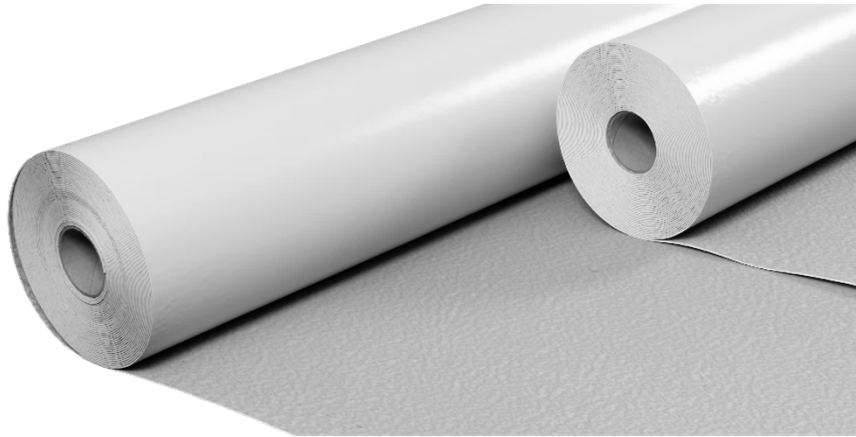
Temporary Head Pressure Exposure

Limited Warranty

- 10 year Material max.

WATERTIGHT BASEMENTS

SikaProof®-808



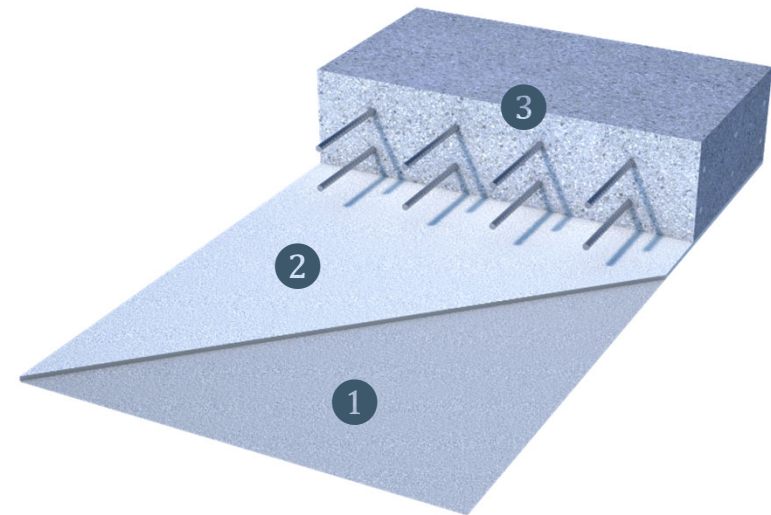
PRE-Applied, **SikaProof® -808**

Membrane rolls in two widths:

- 6.5 ft x 82 ft (530 sqft) / 2 m x 25 m (50 m²)

Packaging:

- Single roll packaged and delivered on pallets



1. Highly flexible FPO membrane
 - Thickness: 40 mil
2. Adhesively bonding layer
 - Only taped seams
3. Structural concrete

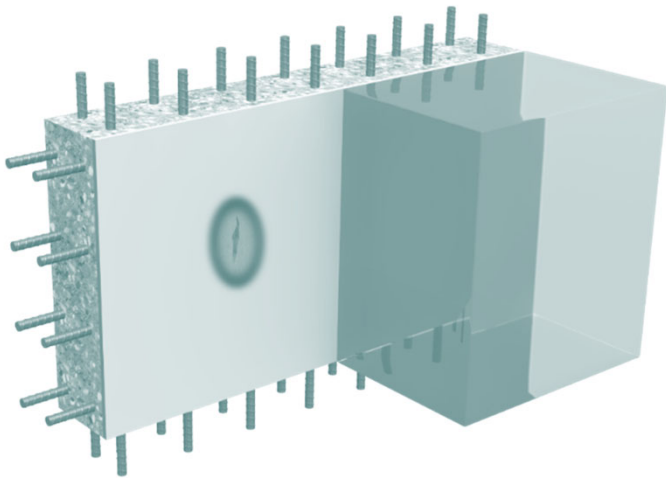
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WATERTIGHT BASEMENTS

SikaProof® 808 SYSTEM – WHAT IS IT?

- Flexible TPO based, pre-applied sheet membrane
- Fully Bonds to Fresh Concrete
- Overlapped and Taped Seams
- Fully Bonded System:
 - No Lateral Water Migration



WATERTIGHT BASEMENTS

SikaProof® 808 SYSTEM VS BENTONITE PANEL WATERPROOFING

BENTONITE PANEL WATERPROOFING

- Time Delayed Performance
- Must Be Replaced after Rain
- Reduced Swell from Salt Water
- Easily Damaged by Other Trades
- Requires Constant Water Contact
- Not a Vapor barrier
 - Not for Wet/Dry Cycling
- Does not Prevent Water from Migrating
- Up to 10 year Material Warranty



SIKAPROOF® 808

- Flexible TPO based, pre-applied sheet membrane
- Weather Resistant
 - Not Affected by Rain
 - 90 day UV Exposure
- Overlapped and Taped Seams
- Fully Bonded System:
 - No Lateral Water Migration
- Class A Vapor Barrier
- Up to 10 year Material Warranty



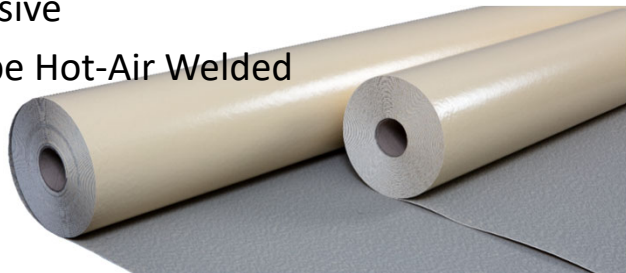
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WATERTIGHT BASEMENTS

SikaProof® A+ VS 808 SYSTEM

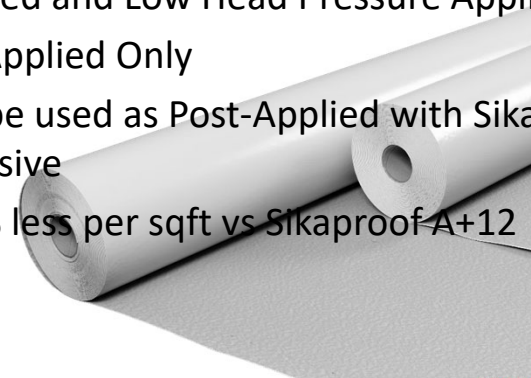
SIKAPROOF® A+

- Flexible TPO based, pre-applied sheet membrane
- Fully Bonds to Fresh Concrete
- Overlapped and Taped Seams
- Fully Bonded System:
 - No Lateral Water Migration
- 1.75mm Thick
- Up to 20 year Material & Labor Warranty
- Resists up to 100psi Head Pressure
- Can be used as Post-Applied with Sikaproof 22 Adhesive
- Can be Hot-Air Welded



SIKAPROOF® 808

- Flexible TPO based, pre-applied sheet membrane
- Fully Bonds to Fresh Concrete
- Overlapped and Taped Seams
- Fully Bonded System:
 - No Lateral Water Migration
- 1mm Thick
- 10 year Material Only Warranty
- Drained and Low Head Pressure Applications
- Pre-Applied Only
- Can be used as Post-Applied with Sikaproof 22 Adhesive
- ~40% less per sqft vs Sikaproof A+12



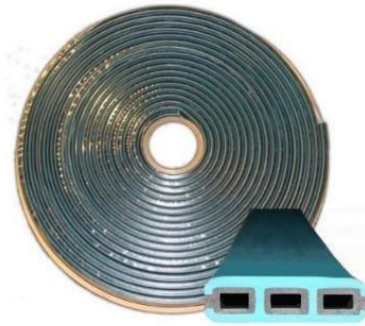
WATERTIGHT BASEMENTS

ADDITIONAL PRODUCTS



Sika Greenstreak® PVC Waterstops

- Industry standard for flexible waterstops
- Broad design selection
- Accepted under ACI 350
- Excellent inherent elasticity
- Resistant to many waterborne chemicals



Sika Hydrotite

- Hydrophilic, strip-applied waterstop
- Comprised of modified chloroprene rubber (non-bentonite)
- Offered with an adhesive back
- Available in multitude of sizes and shapes

Sika Fuko VT-1/VT-2

Re-Injectable Grout Tube Hose composed of a perforated PVC Core surrounded by mesh to allow for Waterproofing Resins to be injected directly into the construction joint without needing to drill any ports



Leakmaster LV-Z

- 1-component water-swelling sealant
- Approx. 2 times in volume
- General-use caulking guns for application

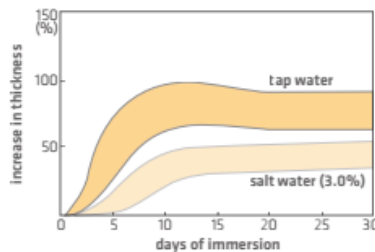


STRIP APPLIED HYDROPHILIC RUBBER/ACRYLATE WATERSTOP (HYDROTITE)

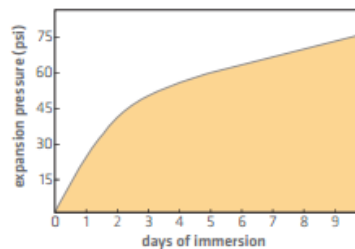


- Swells upon contact w/ water to provide a compression seal
- Contains NO bentonite
- 2+” concrete coverage required - VERIFY
- Durability – Excellent
- Consider swell time & degree of swell for chemical applications
- Should not be specified as “equal” to bentonite waterstop

**SWELLING
CHARACTERISTICS**

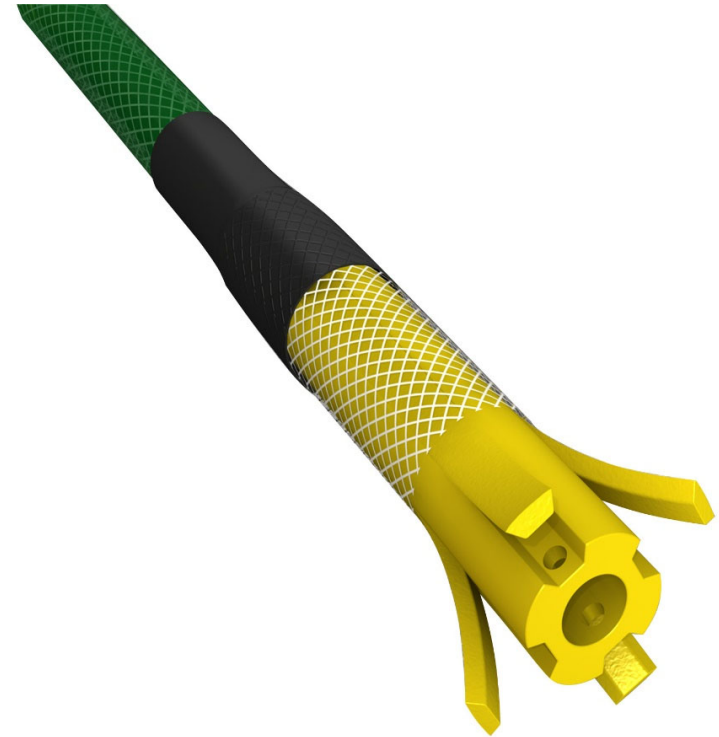


**EXPANSION
CHARACTERISTICS**



JOINT WATERPROOFING - INJECTABLE FUKO HOSE

- Solid Core PVC Hose
- Re-Injectable
 - Available in Single and Multi Injection Hoses
- No Additional Formwork Required
- Ideal for critical Applications
- Delivery System for Joint Waterproofing
 - Hose Itself is NOT a Waterstop



JOINT WATERPROOFING

INJECTABLE FUKO HOSE

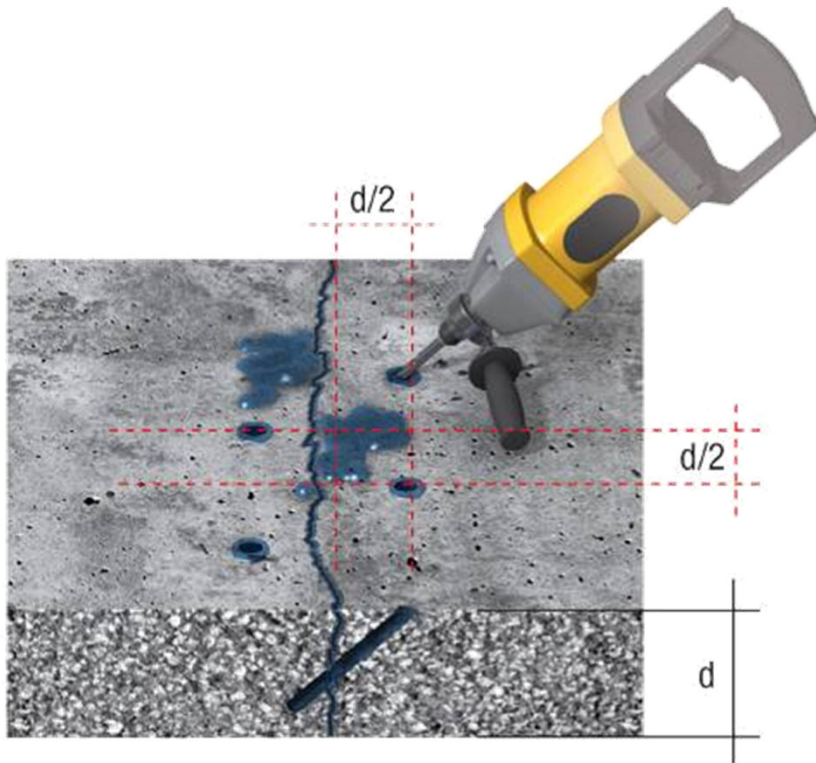


- Injection Materials:
 - Polyurethanes
 - **Acrylate Resins**
 - Microfine Cements
 - Epoxy Resins
- Not All Materials Are Suitable
 - Avoid Highly Viscous and Fast Curing Injection Materials
- Injection Materials Should Have Following Properties:
 - Curing Time Longer than 15-20 Minutes
 - Viscosity Lower than 200cps

WATERTIGHT BASEMENTS

INJECTION CHALLENGES

CRACK INJECTION



CURTAIN WALL INJECTION



PU FOAMS - SIKAFIX HH+ AND SIKA INJECTION 101US

- Reacts with water and foams rapidly to seal leak path
- Expands approximately 35-40 times
- Expansion starts less than 20 seconds after contact with water
- Considered a temporary solution
- Should be used for active leaks with high water pressure



ACRYLATE RESINS - SIKAINJECT 215, 307 & 310US

- Set reaction time
- Does not need contact with water to react once mixed
- Very low viscosity similar to water
- Considered a permanent solution

Should be **NOT** used for active leaks with high water pressure



AVAILABLE SIKA WATERPROOFING INJECTION PRODUCTS

Polyurethane foams

- Sika® Fix HH, HH+, and HH LV Quick foaming material with homogeneous cell structure
- Sika® Injection-101 US Quick foaming material with homogeneous cell structure

Acrylic resins

- Sika® Injection-307: Flexible material, steel passivation
- Sika® Injection-310 US: 1-C-Powder based, Easy to use
- Sika® Injection-215: 2-15 min – standard acrylate resin

ACRYLATE PRODUCTS LOCALLY PRODUCED IN AMERICAS



	SI-215	SI-307	SI-310 US
# Comp.	3	3	1 (Powder)
Reaction time	2-15 min	5-50 min	20 min @ RT
Note	Fast	Steel-passivating	All-in-one

THANK YOU FOR YOUR INTEREST IN SIKA PRODUCTS!



SikaProof® A+
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