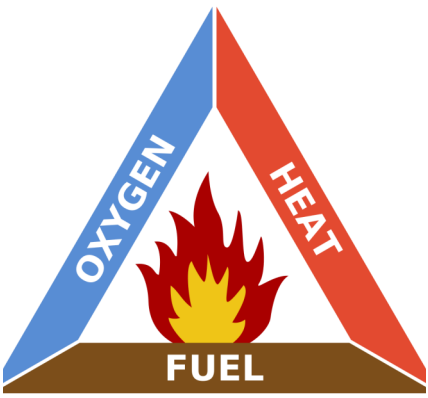
NEWSLETTER

Brought to you by the Waterproofing Membrane Association Inc.

VOL. 2, ISSUE 2 AUGUST 2021

Torch-on membranes and the risks involved



All membrane systems have risk associated with them. For some it may be the solvent required for best adhesion, for others it is drying times. Torch-on membrane has some risks that are obvious. Number one is the open flame used to heat the membrane and substrate.

In many cases this is an easily managed risk. Installing onto concrete or plywood substrates poses little risk to the building. For the outsider looking in, the risk is frightening. However, installers who have been trained and have experience the risk is minimized. To say there is no risk is naive and being complacent is just as complicit.

There are some steps that should be taken for all Torch-on installs. Questions include:

- Can the first layer be completed with a flame-free option?
- Can the first layer be completed with a cold adhesive?
- Is a fire extinguisher must be close at hand? (not in the van.)
- Do you have a second fire extinguisher option such as a garden hose on hand?
- Have you allowed for a fire watch at the end of the day?
- Have you filled out a Hot Works Permit?
- What other precautions have you taken to eliminate the risk, such as removal of all combustible items around the work area?
- Do you have all the appropriate PPE, especially leather welding gloves?
- Have you notified the site manager and informed him of the nature of the works so he can induct others on site of the danger?

All installers must ensure they adhere to these rules to mitigate the risks of torch-on application.

Water recovery from flat roofs

Technical advice WMAI

The recovery of rainwater from flat roofs is possible for the following purposes and under the listed conditions.

Use of rainwater collected from flat roofs.

Below are examples of common uses for recovered rainwater:

- Toilet flushing
- Garden/land irrigation
- Car maintenance
- House maintenance
- Green roof water irrigation
- Water features

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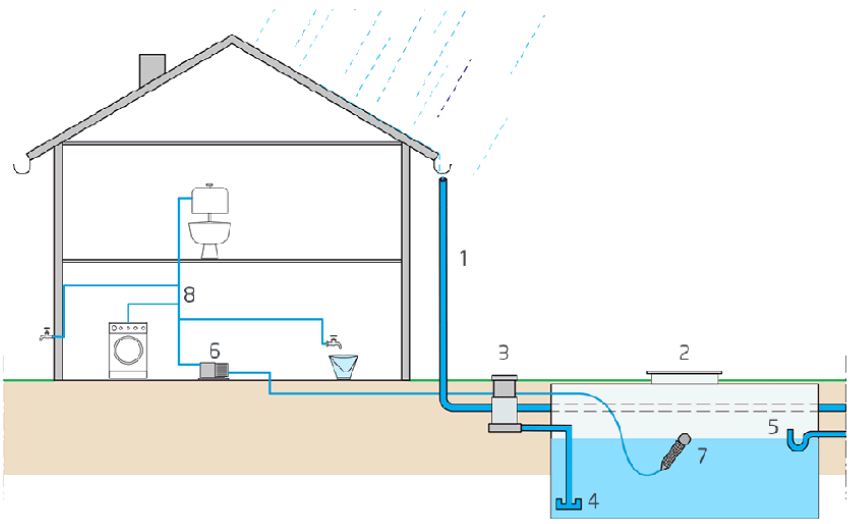
Conditions:

The collected rainwater should receive a specific filter treatment by a mechanical pre-filter.

The filter will remove and retain solid contaminants in the rainwater that is harvested from the roof or deck area. The filtered water is stored in a suitable water reservoir.

Rainwater collection and distribution scheme (grey water)



1. Rainwater downpipe
2. Water reservoir
3. Mechanical pre-filter
4. Rainwater inlet
5. Overflow
6. Pump
7. Floating water suction inlet
8. Water distribution system (non-potable water!)

Collection of potable water from flat roofs.

Rainwater harvested from flat roofs is subjected to different sources of contamination and isn't suitable to be used as potable water without further treatment.

The following items may have an influence on the quality of harvested rainwater:

Type of waterproofing material

Bacterial contamination (acid-forming bacteria, sulphate reducing bacteria)

Organic contamination (bird droppings, local environmental conditions)

Acid rain

Foreign matter on the roof

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Contamination may become a nuisance once it creates smells (mainly caused by bacteria) and discoloration. (for example naked, sand-finished APP-modified waterproofing membranes)

These contamination factors are influenced by warm temperature, stagnant water, location of the building, insufficient maintenance of the collection zone etc.)

In general, harvested rainwater is not suitable as potable water without the use of a specifically designed post-filtration system. Hereby we refer to a mechanical filter that is placed in the line after the water reservoir.

The building owner or its representative should engage a water filtration specialist in order to determine the type and capacity of the required potable water filtration system.

The waterproofing manufacturer must provide data regarding the collection of potable water from a specific waterproofing material. This is normally in the form of a test report confirming that the roofing membrane composition contains no harmful leachates.

The project-specific filter design shall be based on these data, in combination with the analysis of the other contributing contamination factors which are not related to the roof membrane itself.

Once the filter has been installed, regular sampling is recommended and maintenance of the filter components will be required.

WMAI recommends to engage a water filtration specialist to design and supply a high quality potable water filtration system.

Meet the Team—Brian Greenall, Technical Adviser

I have been involved in the coatings and waterproofing industry since May 1965, when having basically finished my Chemical Engineering degree at the University of Canterbury and a six months internship at British Pavements Ltd in Christchurch, I packed up my newish family and moved to Blenheim to begin my 18-year career at W Graham Hitchins Ltd. I had been appointed as their first Chemical Engineer-cum-Chemist, working with and developing their range of coatings based around the Gunac process and assorted urethanes and epoxies, together with their ever-expanding distributorship of the original Nuralite SRABS roofing in Australasia, S.E. Asia and eventually USA. Along the way we also developed a sideline in historic building restoration—totally fascinating, and which meant I ended up in some exotic locales from time to time.

I eventually ended up as the Group Technical Director, which in reality meant I had too many responsibilities that I was not allowed to be responsible for, so that at 40 I promptly had a mid-life crisis and left the Group in the winter of 1982 with a vague idea of doing my own thing, which initially meant hawking baby shoes out of the back of the car to shops around the South Island till the market was saturated. At least it was my first experience of cold-calling which helped later on!

Things got back on track eventually and late that year, I bought a disused seed-cleaning facility (less the plant) and in partnership with Rien Wagenvoort (who had been my Chemist at Hitchins—but that is another story), we opened Equus Industries Ltd across the other side of Blenheim from Hitchins, and the rest is pretty much history. 39 years of the proverbial blood, sweat, toil and yes, occasional tears later, we are still in the same game of coatings and waterproofing with the very obvious move into the sheet membrane roofing field that I had started with those many years before back in the days of

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Nuralite No.10 Adhesive and No.4 Blocks!

Along the way I have inevitably been drawn into construction-oriented organizations, probably my mother's "need-to-run-things" genes coming to the fore, so at various times I have been President of SCANZ (Surface Coatings Association of NZ) and also the Chairman of the Proprietary Plaster Claddings National Advisory Group of BCITO (ain't that a mouthful!), and of course I am a founding member of the Membrane Group, along with Jim and Bob Wilson, right from the very first meeting with the-then DHB those many years ago.

Strangely, I do have a life outside of work. I learnt to fly in my late forties (another mid-life crisis thing—and yet another story) and, of course, axiomatically became involved in the Marlborough Aero Club, where naturally, as a trained Engineer, I was the perfect candidate to become the Club Treasurer, serving dutifully for too long. As seems to happen repeatedly to me, this somehow has segued into my present extramural passion as Chair of the Trust which runs the Omaka Aviation Heritage Centre here in Blenheim. This of course means obligatory involvement in the Classic Fighters Airshow we run every second Easter. Which means, naturally, that I had to get involved in a Syndicate with two other old farts in creating a lovely little replica Nieuport 16 WW1 fighter which flies at the show (with a proper pilot I hasten to add).

Finally in the interests of full disclosure, I confess it took me more than a couple of attempts to get my private life right. Some of you have met Lizi, my partner of many years now, and some of you have met or will meet my chip-off-the-old-block daughter Nikki, as she is the Financial Director of Equus. They and my grandchildren make my life complete.

And that is me in a nutshell. Believe me, I enjoy life and red wine, and forget my age as much as possible, although I have discovered one benefit of maturity---I ski for free at my favourite skifields!!

Snippet from the RMBM

2.6.5 Cap Sheet Smooth (C1, C2)

A cap sheet of SBS or APP modified reinforced bituminous membrane with a thickness of 3 to 5mm reinforced with non-woven spun-bound polyester fabric with or without fibreglass strands at a minimum weight of 180+ g/m2 with a top surface finish of fine sand, talc or surfacing cloth that will, if left exposed, require over-coating.

2.6.6 Cap Sheet Mineral (C3, C4)

A cap sheet of SBS or APP modified reinforced bituminous membrane with a film thickness of 4 to 5mm (although more commonly referred to in weight from 3.5 to 4.5kg/m²), reinforced with non-woven spun-bound polyester fabric with or without fibreglass strands at a minimum weight of 180+ g/m2 with a top surface of mineral granules embedded in the bitumen. The selvedge (the lap) is smooth (not coated in mineral) to allow full bitumen-to-bitumen bonding.

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2.6.7 Re-roof Cap Sheet (SP1)

This is a variation of the mineral-faced cap sheet. It is reinforced with non-woven spun-bound polyester fabric with or without fibreglass strands at a minimum weight of 180+ g/m2, with a vented under-layer surface to permit any trapped moisture in the substrate, under or within the existing membrane, to dissipate.

The underside of the vent sheet can be either fleece-backed (non- or partially-bonded), or undulating with ridges, blobs or strips of soft bitumen to provide partial bonding (approximately 60%) to aid moisture dissipation.

2.6.8 Asphalt or Concrete Screed Overlay (SP2)

Asphalt, sometimes referred to as "hot mix", or a concrete screed can be laid over specially formulated bitumen membranes specifically designed and manufactured for vehicular live loading applications, and reinforced by spun-bound polyester cloth, fibreglass or composite of both at a minimum weight of 200+ g/m2 with good heat resistant properties.

Both the asphalt overlay and concrete screed provide a durable and highly trafficable vehicular surface.

2.6.9 Mechanical fixing (SP3)

Mechanically-fixed base sheets are required where torching-on or a self-adhesive membrane will not be sufficient to ensure the required adhesion to the substrate, particularly in areas of very high wind loading.

Mechanically fixed base sheets are also required for fleeced back membranes, which are only partially adhesion bonded to the substrate with fixings under the sheet lap for improved fastening of membrane to substrate.

2.6.10 Adhesive-bonded (SP4)

Similar to mechanical fixing, in some situations torching on a cap sheet layer is not possible, for instance if over some expanded plastic foams or in close proximity to glass or potentially flammable wall or roof linings, that will be affected by high temperatures or a naked flame.

A bitumen compound is used for full or partial adhesion of the membrane to the substrate, or membrane to foam panels, bedding in of foam panels to the substrate, or where the use of a naked flame is not recommended.

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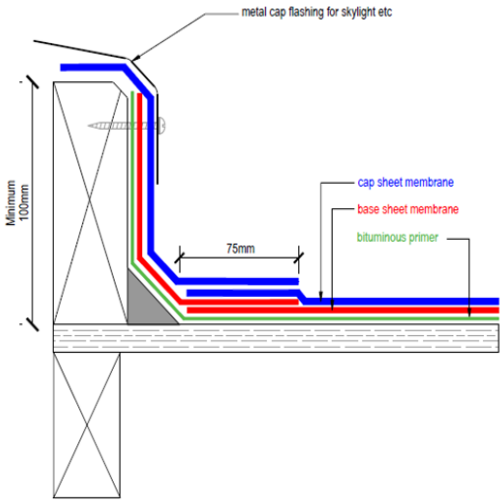
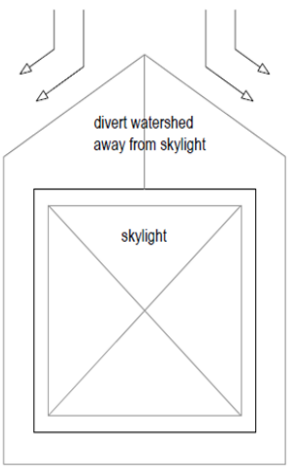
VOL. 2, ISSUE 1 MAY 2021

Design

Often leaks are found around skylights.

Below is a standard drawing from the RMBM that shows correct detailing of skylights; note the diverter at the high side to allow water to flow around the skylight.





"If your dreams don't scare you they are too small." – Richard Branson

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