REMEDIAL CONNECTIONS

The Australasian Concrete Repair & Remedial Building Association (ACRA)

Inside this issue:

Cover photo courtesy of SBM
North Bondi concrete cancer repair project

Setting the standards in the remedial industry since 1991

President's message

We've all had a rough start to 2020 but by now most of us have found our groove if we are working from home or working on site. Remember to stick to social distancing rules, use the correct PPE (which for some even includes shaving the old beard off so the masks we use on site are sealed), not touching our faces (or anyone's face), being aware of your surroundings, using hand sanitizer, washing our hands as often as possible and if we feel sick or unwell to just stay at home. If you are showing even the slightest signs of Covid-19 you get tested. We understand it can be hard to keep up with the ever changing National Standards when it comes to Covid-19 but we will continue to post information to our social media sites and via our newsletter. We do remind everyone that the best source of information is from the Covid-19 Australian Government website https://www.australia.gov.au/ this is updated daily.

The Government has passed legislations in regards to support of businesses affected by the Coronavirus as was as individuals who's job may have been effected. To read more on the JobKeeper Payment and how the Government is supporting businesses click here to read more.

As you would know by now ACRA has postponed all courses and seminars that were scheduled to happen between March and June. We will either work out a different way to get the information to you or once the Government lifts the current bans, and our country is deemed safe again we will inform of new dates. We do thank those that have opted to keep their current registration for events that were scheduled between March and June. At the time of postponing most were almost at capacity. We continue to offer refunds if you wish or once we know the new dates and you find you are unavailable we will also honour the refund policy.

We can clearly see by the amount of people who had registered that our topics are important to you and we look forward to giving you happier news soon. If we've learnt anything from Covid-19, it's that we all touch our face more than we ever notice, perhaps didn't think too much about the surfaces we touch, how non-essential travel can keep us sane and how much we miss a hug.

Now onto other news. ACRA is still looking forward to going ahead with our ACRA Remedial Industry Excellence Awards and continue to receive Award Applications. Click here for more details to register your project. As ACRA continues to evolve and have new Corporate Membership categories such as Waterproofing, Strengthening, Coatings, General Remedial open to current ACRA Corporate Members. If you wish to enter into this year ACRA Awards with any of these categories, please note you can use your Award application as part of your new membership categories application. This will only happen for this year's ACRA Awards, the 2022 Awards you will need to be a financial member of these categories to enter so best to make the most of it this year. For more information on applying for these new categories of ACRA contact ACRA info@acrassoc.com.au and we'll send you a fillable form for you to use. So far our first Corporate Member to sign up for these new categories is **Andersal Pty Ltd.**

Lastly ACRA has a new and easy to use website. For any future events you can register and pay for these directly via the website or of course we are happy to continue to accommodate those that like to register and pay over the phone or be invoiced, (the choice is yours). You can also order and pay for the ACRA Guide to Concrete Repair and Protection HB84:2018 via the website www.acrassoc.com.au

Current members please check the new website and let us know if you wish us to update any information.

- Grahame Vile—ACRA President 2019-2021

ACRA's inaugural International Women's Day Breakfast

-by Grahame Vile

ACRA held its inaugural International Women's' Day Breakfast at the Kirribilli Club in March 2020. The panel was well curated by convenor and ACRA Board Member Caroline McConachie of Max Build and ACRA's Nicole Raymond. Thank you both.

The panel comprised: Shamila Salek - Senior Engineer at GHD, Carolyn Alessi - Case Manager/Field Officer at MATES in Construction, Natalie Galea from UNSW, Una Mckenna from Triaxial, Allison Benson from Kerin Benson Lawyers, Raewyn Hughes from Ardex Australia.

After a few illuminating ice-breakers, the panel brought their perspectives on the construction industry from engineering, human resources, legal, research and supplier marketing perspectives. The morning went very quickly with all of the speakers providing insights to our male-dominated industry, its societal shortcomings, and some tips on how we might improve the balance for everybody's benefit.

I summarise briefly as follows:

The business case(s):

For the bean-counters - research indicates that improvements in EBIT of 3-5% may be achieved with good gender balance.

Consider the cost of mental health – an alarming figure regarding suicide rates we all should be aware of: male suicides occur at a rate of 3 to 1 compared with female. In our more than 95% male-dominated construction industry, this presents a higher risk to businesses due to the consequences of any one suicide. Not just monetary issue of the tangible immediate response, but also the emotional and social consequences to be worked through.

The value of improving gender balance is not just in reducing the at-higher-risk proportion of the workforce, but also arises through the pressure-relief afforded with interpersonal communication indicated by other research:

With better gender balance there are more perspectives brought to the workface, and more opportunities for males to talk about issues they may be facing with trusted females (as opposed to NOT talking at all with their male work mates). For client-facing businesses where more of the procurement teams have greater gender balance, It seems clear that a "less male" bid or project team would make Communications of perspectives and project needs clearer without bias - realised or not - of the male stereotype.

ACRA's inaugural International Women's Day Breakfast

-by Grahame Vile

How to implement

In encouraging balance and diversity in organizations, a top-down bottom-up approach is needed. Leadership should be encouraged that even small habits can make a difference. Word choice is important as this is to stop the "death by 1000 cuts" that females in the industry routinely face. Also promote by talent, as it is the brain that analyses problems to deliver new ideas and better results.

At the coal face, similar messages apply - but more so to the mixing of team members at all levels from unskilled through to specialists. Of course, larger businesses with HR departments will be developing this now. GHD for one have a strong balance in the Materials team, in Sydney at least.

And some nice tips from the panel members included the following, on how to overcome routine difficulties faced in the industry:

- When facing a difficult meeting or presentation, set yourself a small reward of some type for a successful completion of the task.
- Have a talisman/touchstone to give reassurance. It may be a memento like a piece of jewelry, a special pen or article of clothing. Pick something which has a positive emotional connection to a mentor, or previous experience to give confidence. If things get difficult, reconnect to the positive experience.
- A self-care tip—you could encourage a pet friendly workplace, because "who doesn't like puppies?"
- Flexible work times to allow parenting duties to coordinate with work duties.
- Establish work practices that enable people to have better life balance.
- Refill your "buckets" - physical, menial, spiritual, and emotional. All are leaky and need refilling—focusing on one bucket for too long will leave deficits in the remaining buckets.

For guidance on developing self identity techniques one speaker referred us to the YouTube clip PURL.

With a warm heart, we encourage you to get involved, Take action — Grahame Vile, ACRA President

Waterproofing: the builder's contractual responsibilities

Over 80% of complaints about building waterproofing issues, and so many of these issues are in the control of the builder. How can you, as the builder, supervisor or site foreman, be in control and on top of the waterproofing? The answer is in the knowledge of the other tradies that go before or after the waterproofer, writes Henk van den Heuvel.

Just how does the tiler interact with the waterproofer? What should the brick layer have in place for the waterproofing to be effective and how do you coordinate the window Installer, electrician, renderer, the plumber, the concretor, the landscaper, the air-conditioning installer. Are you aware that all these trades play a vital role in making sure the waterproofing works?
What about the architect or the engineer's role?
How can they make life simple for you or the worst position you will ever be in?

Builders oversee, coordinate and work on the construction or repair of homes and other buildings; and they own the project's quality, professionally and legally. In addition to undertaking some of the works personally, some builders also manage the entire project. This may include arranging for subcontractors to complete specific jobs, and making sure that the project meets industry and government regulations as well as the clients' requirements. As a builder, you'll be responsible for a range of manual, managerial and administrative responsibilities, which may include:

- Interpreting plans and organising for plans to be drawn that meet building code regulations and client specifications.
- Providing quotes or submitting tenders for building works.
- Arranging Inspections of building works.
- Organising contractors including carpenters, electricians, plumbers and painters to carry out building tasks.
- Calculating quantities and costs and sourcing of building materials and labour.
- Supervising contractors or employees to ensure safety and compliance standards are maintained and works re-main on schedule.

But do you have the knowledge to coordinate all these trades to ensure your job is 100% waterproof?
One of the solutions is to get a holistic approach to waterproofing, to truly understand how each of the trades affects the waterproofing and to truly understand the selection of the right membrane system for the right application.

Don't be sold on an idea from the waterproofer who has no idea on what the other trades are doing or how their work will interact. It is up to the builder to understand that role and to relay that way around.
The builder must control the site and they must be aware of all the technical details to get that membrane applied and seeing out its expected life.

Much of this knowledge base can be learnt and there are now a series of four books the MBA endorses for this transfer of information.

Armed with this collection, you can expect to understand and tackle the most complex details. You will be able to recommend changes to the architect to ensure compliance and workability. You will be able to know the substrate preparation that has to be done by the previous trade or the level of preparation expected of the membrane applicator.

You will get to know how the tiler must prepare has tile bed over the membrane and how far up the damp course must be to accommodate the membrane, the tile bed and the Australian Standards for the level of free-board above which damp courses or flashings must sit. All this and more.

-Henk van den Heuvel B.Ec, B.Eng, FIEAust
Andersal Pty Ltd www.andersal.com.au

Bluey Technologies—Playing our part to keep Australians on time

Airports are the transport links that keep Australia soaring above the competition. When road, rail or sea transport is too timely or expensive, Australians take to the sky to get themselves and their cargo to the right destination, fast.

According to the Department of Infrastructure, Regional Development and Cities, there were 63.5 million passengers carried on domestic flights in the year ending June 2019. Total cargo movements at Australian airports on 472.6 thousand tonnes. As these numbers continues to steadily grow, stress is added airport infrastructure, and more weight is placed on airport runways, resulting in slab repairs and replacement.
This is where Bluey Technologies plays its part in keeping Australians on time. Our experience with BluCem FSC – Fast Set Concrete, has given us the insight required to successfully deliver time-critical runway projects, time and time again. As the current airplane curfew for most Australian international airports is from 11pm to 6am, runway slabs must be returned to service and be capable of supporting planes of all sizes within a 7-hour window.

Outlined below is the typical timeline for a slab replacement on runways which must be adhered to by our application partners when carrying out critical airport works.

11.00PM – Slab removal and subgrade inspection
11.15-11.30PM – Starter bars drilled and installed and subgrade work carried out.
11.45-12.15 – BluCem FSC Placement
The BluCem FSC manufacturing process allows for continuous weigh volumetric mixers to place BluCem FSC from 2 trucks at the same time. (shown right) Multiple trucks are often required due to the strict time constraints of the job to ensure that BluCem FSC reaches the optimum flexural strength within 2-3 hours of mixing.
12:15-12.30AM Screeding and finishing
In a bid to increase speed and efficiency, specialised screeding and finishing equipment is required such as a triple tube roller.
12:30-1.00AM : Testing and curing
BluCem FSC BluCem FSC uses the latest technology on maturity testing to monitor and measure the strengths accurately and insitu.
2:30-3.30AM BluCem FSC has reached the specified flexural strength to be allowed to be returned to service with hours to spare.
Over the past two decades, Bluey has been trusted by Australia's largest international airports to provide products and technical knowledge for critical runway pavements. In showing our support of the industry, we partnered with the Australian Airports Association as the Knowledge Lab Partner for the recently held 2019 National Conference.

For more information about BluCem FSC or to learn other project examples where it's been used
Visit www.bluey.com.au/projects or call 1300 0 BLUEY

Project review—SBM—North Bondi

Being so close to the ocean, SBM was engaged to carry out rectification works to a block of residential units heavily affected by concrete cancer in North Bondi.

The project required treatment to the balconies and columns throughout the building affected by concrete cancer ensuring all required repairs were undertaken. Approximately 2,500 litres of concrete repairs in total were completed.

Time taken to complete 12 weeks.
Value of the project was $300,000.

SBM

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Know the steps: key elements of a confined space procedure

By Ash Mayor, Safety Solutions Magazine

There is a lot to consider when working within or managing confined spaces.

Do you know where your confined spaces are? What are the hazards in those spaces? How can you control those hazards to allow work to be done safely? Who will be able to do the work and how much training do they need? Do you need specialised equipment? Will you need respiratory protection or breathing apparatus? How will you determine if the atmosphere is safe?

There are many people involved in planning for work inside confined spaces. Those roles could include; the workers involved in performing hazard identification and risk assessments; those who will be entering the space; the stand-by person who will monitor the workers while they are in the space; the competent person who will have over-all responsibility for all aspects of the entry; the permit issuer; those responsible for performing isolations of plant and equipment including sources of potential stored energy; the workers responsible for testing atmospheres; those involved in sourcing equipment to be used in the confined space work and any workers who may be involved in performing rescue from confined spaces.

As confined space work can be quite involved and contain many different hazards, it is essential that all those who may be involved with any of the aspects relating to confined space work have training which is appropriate to their role. This training can range from a confined space awareness course, through to entering and working safely within confined spaces, gas testing atmospheres, operating breathing apparatus or performing confined space rescue.

- Investigate — Prior to any work being performed you will need to establish whether a space fits the definition of a confined space. The WHS / OHS Regulations, Australian Standards and Code of Practice all provide clear definitions of what constitutes a confined space.
- Prepare — Implement the control measures to reduce the risks. Develop a confined space management plan and work procedures to be followed by all workers that will be involved in the work.
- Enter and work in the confined space — Work in accordance with the issued permits and any specific work procedures relating to the task or site.

Know the steps: key elements of a confined space procedure

- Enter and work in the confined space — Work in accordance with the issued permits and any specific work procedures relating to the task or site.
- Rescue plan — Any work which involves entering a confined space is hazardous and we must have an effective plan for rescue of the workers.

Let us break these down a bit more.

1. **Investigate.**

Once you have assessed the space and the work to be performed you can then identify the hazards, assess the risks, develop control measures. This will all become part of the confined space management plan and form the basis of developing more specific work procedures. Proper planning is essential to working safely in confined spaces.

2. **Prepare.**

This should include ventilation of the space, testing the atmosphere for oxygen levels and potential hazards, perform isolations of hazards, complete permits and gather equipment which will be required for accessing and performing the work. Additionally, prior to work commencing, the competent person should also ensure that any workers who will be involved in the work have current suitable training for entering confined spaces and are competent and fit to perform the required tasks.

3. Enter and work in the confined space.

An effective communication system must be in place and should enable communication between the workers in the space and the stand-by person who is continuously monitoring the workers.
The stand-by person must continuously monitor the workers in the space and have the ability to raise the alarm in the case of an emergency, and if able, initiate the rescue procedures. Continuous monitoring of the atmosphere should also be done while work is occurring in the space. Work in confined spaces may also require specialist tools and equipment such as being intrinsically safe so as not to provide an ignition source, or the use of specific respirators for the hazards detected.

4. Rescue plan.

Any work involving confined space entry needs to have a rescue plan which has been developed, tested to prove that it will be effective, rehearsed to ensure those likely to perform the task are competent and confident to perform the role, and implemented into the confined space management plan. Workers should have training to ensure they are proficient in all required elements that may be encountered with their particular type of confined space work, and the competent person should ensure that those workers are fit for the duties they may be required to undertake.

Other considerations

How can we determine our confined space requirements on our site? What training will be required?

Who will need to be trained? What equipment will need to be sourced? How could we provide a rescue of our workers? **Ash Mayor is Training Specialist at 3M.*

Efflorescence in Tiling

Ardex Australia

Introduction

In recent years there has been a spotlight aimed at an age old phenomena which has plagued masonry construction for a long time. That is, the development of white deposits on the surface, which are Commonly described as ‘efflorescence’. The development of efflorescence the appearance of unsightly white deposits and marking on stonework, concrete construction, screeded areas and tiled surfaces on grout lines and drainage points. In effect, the classic form of efflorescence is analogous to the development of stalagmites and stalactites in limestone caves.

The relatively new demand for large format, non-porous and commonly dark coloured porcelain tiles, with narrow grout lines has spawned a vexing problem, and that is the development of a severe outbreak of efflorescence in certain external conditions.
In this article we will examine efflorescence, and the contribution that large format tiles and poor application techniques have on the prevalence of efflorescence.

What is efflorescence?

It useful to understand the terminology in use for this complex problem; there is primary and secondary efflorescence. In essence, efflorescence is solubilised and deposited materials that appear on various constructional elements, but is normally associated with masonry.

Efflorescence in Tiling
Ardex Australia

Primary efflorescence is an internally generated material, and typically occurs during the initial cure of a cementitious product and is derived from partially soluble salts formed in the cement reaction. The reaction of the calcium silicate hydrate with water generates lime (calcium hydroxide), which can be mobilised in solution and reacts with carbon dioxide in the air to form calcium carbonate which can then deposit. When the salt laden fluid escapes the construction, moisture evaporates the dissolved materials deposit out as the typical white crystalline or fluffy solids.

Secondary efflorescence is usually due to the external influence of concrete poisons, such as chlorides, but can be sulphates or other mobile salts. Sources can be rising damp, ground water, salt laden water such as bore water or even marine fall out.

ARDEX defines efflorescence as anything that leaches out of the system, and this is not just limited to lime (calcium hydroxide) deposits, but can include other solubilised materials including organics.

What is the problem?

ARDEX's experience with efflorescence is predominantly related to its appearance on tiled surfaces, emanating from the grout lines in the main, but it can also appear from breaks in surface coatings. Whilst not causing any physical damage or effects, the white deposits are unsightly, especially against dark coloured surfaces, and a number of states list efflorescence as a defect in their Fair Trading guides for building tolerances. These deposits then have to be cleaned away, but it usually re-appears over time, associated with moisture such as washing or rainfall. The customer perception is usually that the grout has 'failed' but this is a wrong assessment as we shall explain in more detail.

What are the causative factors?

The underlying cause as we have already noted is the presence of soluble salts which move through the construction system. The main consideration is primary efflorescence from Portland cement containing components in the construction. This means materials such as concrete (poured and blocks), renders and mortars, sand-cement screeds, cement based tile adhesive and cement based grouts.

We will now focus on a specific problem which is efflorescence associated with, ceramic and stone tile installations. In this system there are normally a masonry base (concrete or a screed), cement based adhesive and cement based grout. Therefore a number of components can contribute to development of efflorescence by supplying leachable salts.

Large format and dense tiles

In the last 15 years there has been a manufacturing trend towards high fired, dense and glassy porcelain tiles. This is allied directly with the increase of tile size from traditional large tiles ~350mm square maximum, to sizes which range between 350mm and 600mm each side and bigger, to some tiles types which are individually square metres in size.

These tiles bring a whole raft of new issues to the industry, some of which have not been fully recognised as problems till recently, and some which have not been properly catered for in the current standards.

Impervious nature and drying

The background issue to keep in mind is that these porcelain tiles are to all intents and purposes almost like glass, and behave as an impervious barrier. Whilst this might be good from a weathering perspective, and has secondary 'positive side' waterproofing benefits, it also means that any moisture behind them is trapped, especially if the substrate is non-porous (for example, has been waterproofed).

There are two specific issues here;

a. any water that gets behind the tile into any void space is trapped there, the large format and often tight fit means there are few and rather thin grout lines for it to escape, and

b. standard cement based adhesives (that are non-F rated to ISO13007) display delayed drying.

In fact, both processes can be occurring concurrently, and in more open systems where evaporation can occur, the loss of water through flash drying actually compromises the cure. However, with the dense porcelain tiles, whilst curing is proceeding, drying is not, because the extra water in excess of that for the reaction, and which is added for workability cannot escape. The presence of free water also has an effect on dissolved organic additives which tend to remain partitioned in the liquid phase and are to a degree inhibited from proper reaction with the hydraulic cement binder. The trapped and unused water, then effectively saturates the mortar bed turning the system temporarily into a semi-immersed one. Added to this is any water which enters the system from external sources such as rain, leaking plumbing or even wash downs. These trapped fluids also mean that dissolved materials are free to move around if the fluid starts to travel.

Contact Coverage and Voids

There are two well-known reasons for achieving high contact coverage. They are to provide good mechanical strength in the adhesive bond and to make sure there are no sub-tile voids that allow damage to the tiles from impact and point loading. However, there is a third less well understood one, and that is to eliminate pathways for the movement of trapped and infiltrating water.

So what happens? The adhesive is often spread at random angles or in fan patterns, rather than in straight lines and parallel to the perimeter of the job and normal to fall.

When large tiles are laid onto the combed adhesive, the usual method seems to be to ‘drop and tap’ using a rubber mallet. The large tile then re-distributes the impact energy from the mallet blow over a large area, which then neither properly keys the tile to the adhesive, nor spreads the adhesive to get good coverage and remove voids. Installations done this way commonly show poor tile adhesion, may sound drummy (and don’t comply with AS3958), but when the tile is lifted the adhesive notch lines are commonly not compressed at all, or at best half compressed.

The result is that between 25% and 50% of the area under the tile is void space, which can become a residence for trapped water that comes through grout lines, or flows downwards (down falls or down walls) along parallel or intersecting void pathways which line up from tile to tile.

When there are no voids, there can be no trapped water and therefore no solvent for the dissolved salts to travel in to appear as efflorescence at the surface as moisture evaporates from the grout lines.

The Pressure Cooker Effect

One of the features of external exposures is the presence of sunshine and rainfall. When the sun falls onto an object, the solar infrared radiation heats it up, and as a consequence of the laws of thermal radiation, darker coloured objects heat up more, whilst light coloured ones reflect the heat. Many tiles these days are supplied in dark colours, commonly shades of grey, grey green, dark brown, to black or almost black shades. These dark coloured porcelain/ceramic tiles (and stone tiles for that matter) have high emissivity values and therefore make good absorbers. The result is that external tiles exposed to direct sunlight heat up, and often do it rapidly.

Efflorescence in Tiling

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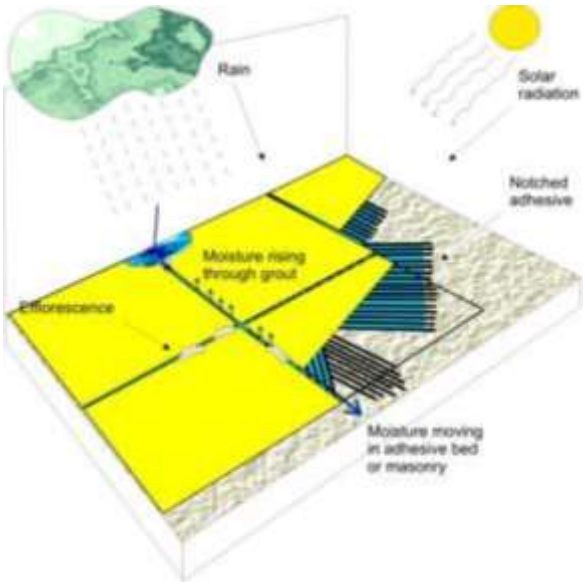
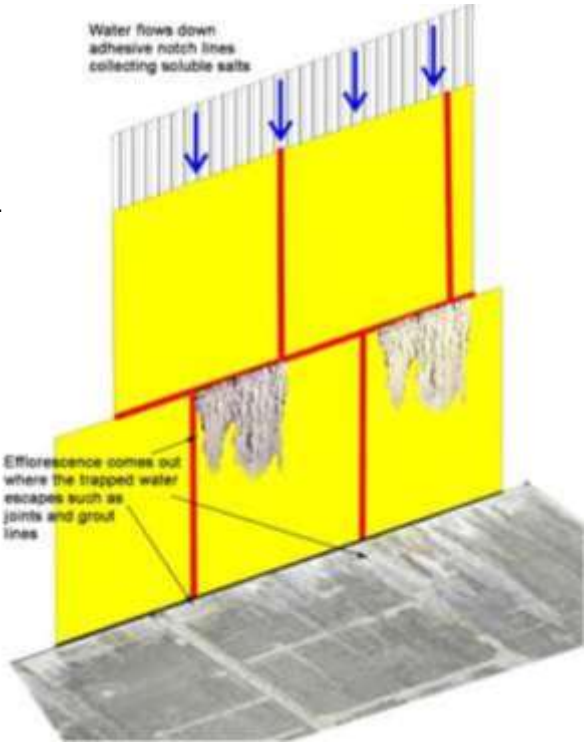
In Australian conditions in summer, tile temperatures between 50 and 80'C have been observed, and even in winter the tiles can reach the high 40's. Therefore whatever is under these tiles becomes subject to temperatures significantly raised above ambient air conditions.

In an external situation, there is the potential for the creation of a sort of chemical pressure cooker. The tile beds are installed, typically with voids and moisture movement channels. The porcelain tiles are large format with few and narrow grout lines so it has become a pseudo impervious lid; there may also be a membrane at the base. Water can lie under the tiles in these channels from previous rain events, with any residual water from the original tile Installation. The commonly dark coloured tiles absorb solar radiation and then heat up the system. This creates the pressure cooker where heated fluids then proceed to extract soluble materials from whatever they come in contact with under the tile, and create a saturated solution. This material can them come out of solution again when the water eventually escapes from the system. Another effect of heated tiles is that they also cause the trapped water to expand and exert higher pore pressures on their surroundings. This is a sort of thermal pumping and contributes to movement of the water; it also explains why deposits can rapidly re-appear after being cleaned away, when the sunlight falls onto the tile surface (shaded areas often unaffected).



The ‘heated’ water also evaporates more rapidly when it is free of the tiled surface, and then quickly drops its load of dissolved materials. Since grout lines are commonly the first escape point, the deposits rapidly appear on them.



System Design Issues

The final piece of the puzzle is how the system itself is designed. Particularly, issues such as having correct falls to drainage so surface water quickly escapes are critical to prevent ponding of water. The required falls for external surfaces are specified in AS4654, and for decks and veranda’s this is 1:100 as the minimum fall.

The surrounding areas also need to be designed to exclude moisture and this includes things such as well sealed caps on the top edge of facades and parapets so water can’t enter and then run down behind the tiles.

The adequacy of the drainage itself must be considered; there is little point in having correct falls if the drainage outlet can’t handle the volume of water falling onto the surface. There is a valid argument here for perimeter strip drains instead of multiple individual circular grates.

Efflorescence in Tiling

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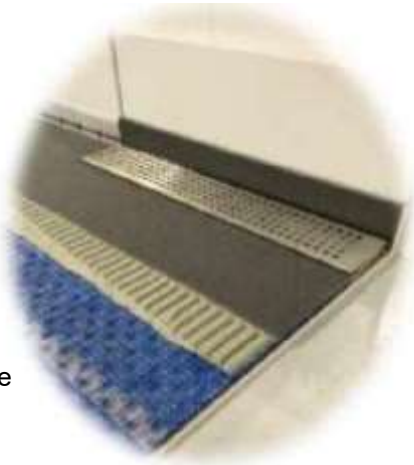
A systemic approach



One way to remove efflorescence run off, and allowing for the inconsistencies in the tile adhesive bed, is to use a drainage screed. The key elements are the use of a sheet membrane, a drainage screed and sealant to replace normal grout (although ordinary grout can be used if required). The sheet membrane provides the waterproofing and then the coarse grained screed on top can provides falls (or they can be formed under the membrane), but also allows water to penetrate in and drain out to the bottom drain and not be trapped.

Solutions

Can this problem be resolved? In theory yes; the problem can be limited from the installation standpoint. Specific suggestions;

- Select external grade C class adhesives that display rapid cure (F rated to ISO13007) or use R class reactive resin adhesives. Standard C class adhesives work well with good contact coverage, but require more diligence in usage, and it must be recognised that drying will be delayed.
- Falls and drainage must be correctly designed and shown to work so that ponding water does not occur. Detailing of the installation must eliminate points of water access to the sub-tile bed.
- Adhesive contact coverage ***must be 90% or greater*** and laid in such a way that pathways down the slope are not created. Lay adhesive by trowelling in beds at 90' (normal) to the falls and do not create fans of the adhesive. Water must not be allowed to pond and flow in void spaces. Flow bed mortars will help eliminate void spaces. Backbuttering tiles will help greatly.

- Examination of expected weather conditions is a must for external installations. If rain is forecast or will clear occur, then freshly placed tiled areas, especially where the grout has not been installed, need to be protected by covers. Don't lay tiles in high temperatures (i.e. where the air temperature exceeds 35°C or the Substrate is warm to touch—greater than 40°C).
- Designing in the use of a drainage screed or drainage mat.

Conclusion

Efflorescence is a feature which occurs with cementitious materials. Cementitious tile adhesives can be, and the up-market products are, optimised to minimise these deposits. Efflorescence can also be minimised or totally eliminated by correct installation and design, for example, the use of a drainage screed or drainage mat.

Web: ardexaustralia.com
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Industry news
Kennards Hire

Kennards Hire recently took part in a hay run, organised by the local farmers and the Lions Club from Winchelsa VIC. Their truck was driven by Steve Lewis working with the VIC Farmers, to help the Riley Family who lost nearly all of their fences, their workshop, and all of their stock feed during the fires.

Its always great to hear about ACRA Members helping people in need especially now as most of Australia has been either dealing with the worst drought, catastrophic fires and recently some parts of the east coast has dealt with flooding from more rain in a week than it's had in years.

Well done Kennards Hire.

Kennards Hire
www.kennards.com.au

Industry News

Australia's Top 100 Young Entrepreneurs

Congratulations to a few ACRA members who made it into Australia's Top 100 Young Entrepreneurs list.

Directors of Triaxial Consulting Danial Cully and Drew Roberts in the Business News Top 100 Young Entrepreneurs. Triaxial has said that *"Jeff Knox very harshly missed the age deadline by a week! Well done Jeff, Drew and Danny."*

When Cully, Roberts and Jeff Knox started trading in 2012, the idea was to create an engineering consulting company with a wide range of expertise and good service. Fast forward seven years and they now have seven offices in Sydney, Parramatta, Mudgee, Bathurst, Darwin, Adelaide and Barossa, with potential openings in Melbourne, Brisbane and Albany in the pipeline.

"We have sustained a healthy organic growth which can be directly attributed to the prompt, personalized and professional service afforded to all our clients," says Cully, noting the company's growth has been self funded.

They offer a wide range of structural and civil engineering consulting services, with particular expertise in property, construction and mining, but also offering solutions in the rehabilitation, remedial, insurance and legal industries.

A cloud-based IT system and flexible work environment have also helped the team to be more adaptable and farm work around the country, keeping offices busy when otherwise they might be "light on".
"For example, a project won in Sydney could be designed in Darwin and drafted in Bathurst," says Cully.
"We have a clear strategy to chase larger more lucrative contracts now that we are at the size and have the resources available," he says, noting there will be a move away from smaller projects and more focus placed on government jobs.

Industry News

Australia's Top 100 Young Entrepreneurs

Congratulations to James Meagher of MAX Build who also made the Top 100 list of the Young Entrepreneurs.

After completing his carpentry apprenticeship Meagher had the opportunity to work for a fit-out company, but he was fascinated by the prospect of renovating old properties with a remedial building company.

This decision put him on an ascendant career trajectory to learn all about managing operations, and in 2009 he bought a dilapidated terrace home in Darlington, Sydney, renovating at night and on weekends.

"Once it was finished, I had the property revalued and extended the mortgage to cash flow my new business," he says. Thus MAX Build was born in 2011 with three main business streams: rectifying sub-standard developments; rectifying older, weathered buildings; and renewal projects.

In its eight years of business the company has completed one of the biggest Home Building Compensation Fund (HBCF) insurance claims in strata history, which involved replacing 176 bathrooms while most occupants were still in residence.

The company has also won a tender to rebuild an 18-unit building overlooking Bondi Beach.

Meagher says in an environment that has trended towards sub-contracting, he has gone in the opposite direction with in-house teams.

"Why? We are convinced that to get the best quality you need ownership and accountability," he says. "We are doing all the right things and have a very solid foundation for growth."

New ACRA Members

New Corporate Member SMEC

SMEC provides a talent pool of 16,000 people across 120 offices in more than 40 countries throughout Asia, Australasia, Africa, the UK, Middle East and the Americas.

SMEC's strength in major infrastructure projects, expertise in urban planning, industrial development and management advisory enable us to provide critical value chain services to clients in Australia and around the world.

Web: www.smec.com

Email: australia@smec.com

New Corporate Member Total Projects

Total Projects is a construction company that specialises in performing restorations to existing buildings, both commercial and domestic. Established in 1997, Total Projects has successfully delivered projects in concrete repair, waterproofing and carbon fibre strengthening.

The directors of Total Projects have over 35 years experience in the remedial construction industry and offer a wide range of services specialising in: Concrete spalling; Roof membranes; Carbon fibre strengthening; Corrosion control; Painting; Joint sealing;

Web: www.totalprojects.com.au

New ACRA Members

New Individual Members

Gary Hampson—QLD 0457 495 919
gary@watertite.melbourne

Michael Martin—QLD 0452 004 325
Michael@progroupbc.com.au

David Giddings—NSW 02 9533 5470
bote.cote@optusnet.com.au

Membership is now even easier with ACRA, as you can sign up directly via the new ACRA website www.acrassoc.com.au and clicking on the membership tab. There you will find our two levels of membership being Corporate and Individual along with their entitlements and which level bests suits your needs.

For our **existing Corporate Members** we have some **new** categories ready for you to apply for being:

- Waterproofing
- Strengthening
- Coatings
- General Remedial

We don't expect you to jump through hoops like you have in the past as we have most of your information and references etc but we do need you to show some projects you have worked on in regards to category or categories you have applied for. There is a once of fee for this application so if you apply for all and show projects for categories you'll only be invoiced for the 1 application.
Feel free to contact ACRA if you wish to discuss your application.
Phone: +61 2 9645 3692 or 0429890761
Email: info@acrassoc.com.au

Industry News

Well done Rawdon Stanford

A huge congratulations to Triaxial's Senior Designer and Manager of Triaxial's Bathurst Office, **Rawdon Stanford** as part of the Triaxial Consulting 'Pathways to Chartership Program' in partnership with Engineers Australia, Rawdon has graduated as an Associate Chartered Engineer.

A fantastic result and places Rawdon on track for full Chartered Status (CPEng) later this year. Well done Rawdon from all at Triaxial Consulting!

Welcome ACRA Sub Branch Committee Members

Gary Hampson is not only an Individual Member of ACRA but his also now on the ACRA VIC Sub Branch Committee. Gary has been working in the concrete repair industry since 1995 starting as a labourer working his way up to southern regional manager. Now days he owns Watertite Waterproofing specialising in polyurea spray applications. His worked for Veritech for over 10 years where he learnt and became a qualified abseilor. His managed some fantastic projects such as 150 Lonsdale St full façade remediation. His also worked for Freyssinet for more than 10 years and again working on some amazing projects with amazing people.
A great new edition to the VIC Sub Branch.

Kieran Biber from SIKA Australia QLD has been in the remedial industry for approx. 19 years; contractor for approximately 11 years in the remedial industry consisting of concrete repair/crack repair injection systems/waterproofing/carbon fibre/CP and ICCP. For the last 9 years on the supply-side of the game, working as a technical trainer and sales support for approx. 4 years and the last 5 years in sales management.

We welcome Kieran to the QLD Sub Branch committee.

Industry News

ACRA's VIC Sub Branch Committee is happy to announce its newest Committee Member, **Hannah Pollock** from Duratec Australia.

Hannah has been working with Duratec for 2 years and is primarily involved in assessing an assets condition and providing remediation recommendation including repair specifications. She typically works with reinforced concrete structures and have been involved in numerous concrete remediation jobs with Duratec. While she is relatively new to the industry, she is always eager to learn more about concrete repair products and processes in order to make the best recommendations to clients.

Another great edition to ACRA Victoria.

Congratulations to **Diana Soliman** for starting her new role as the NSW Team Leader at Infracorr Consulting Pty Ltd.

You may remember Diana from her time as a Board Member of ACRA a few years back. Diana started with Infracorr Consulting Pty Ltd earlier this year.

Wonderful news on **Philip Karajayli** who recently started a new position as Associate Director-Asset Managment at AECOM.
Philip has over 20 years of local and international experience in infrastructure asset management, condition assessment, corrosion management, rehabilitation and protection, cathodic protection design and durability.
His experience extends across a wide range of infrastructure including bridges, tunnels, wharves, buildings, rail infrastructure, pipelines, water and wastewater assets across Australia, New Zealand, China and PNG.

Congratulations to **Konrad Stempniak** who was recently promoted to General Manager-Sales at Kennards Hire.
Konrad is an experienced General Manager with a demonstrated history of developing start up businesses. Skilled in building and developing high performing teams, financial management, operations management, sales, and organisational culture.
A genuine leader undertaking an Executive MBA from the Australian Graduate School of Management.

ACRA CORPORATE MEMBERS

Contact Us

Give ACRA a call for more information about Membership & Benefits

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