Prepared by

Tiling Operation and Maintenance Manual

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Introduction and Contacts

1 Introduction and Contacts

1.1 Purpose

INEX Tiling and Flooring Pty Ltd has carried out the construction of the supply and installation of porcelain tiles and marble tiles.

This Operation and Maintenance Manual has been prepared to provide guidance and recommendations to assist

- Users of the building
- Managers of the building and services
- Employees who carry out maintenance, repair or new works within the building

in the understanding, running and maintenance of the tiling system installed.

If you intend to make alterations to our work please ensure that you read Section 9 thoroughly to understand what you are required to do to ensure that any work carried out is successful.

We strongly encourage you to become familiar with the information contained in this and the other manuals provided for Anchorage Place Building 5

1.2 Subcontractors

The following schedule provides a listing of the subcontractors and their contact details:

Subcontractor	Business Hours Contact	Contact	Mobile Phone

1.3 Manufacturers

The following schedule provides a listing of the product manufactures and their contact details:

Product Manufacturer	Business Hours Contact	Architect Code	Description of Products
Mapei Australia Pty Ltd	07 3276 5000		Tile Adhesives, Grouts
DTA Australia (QLD)	1800 505 045		Tile Trims / Angles
Ardex Australia Pty Ltd	07 3817 6006		Tile Adhesives, Grouts

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Description of Services

2 Description of Services

2.1 Scope of Works

Our scope of works includes:

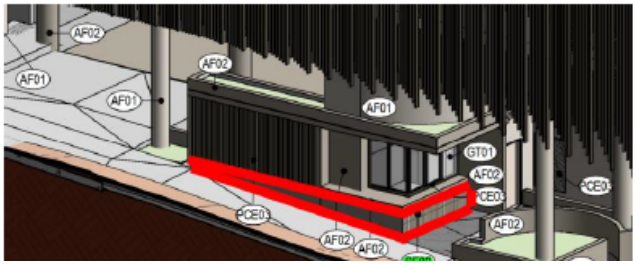
- Tiling Works:

Inclusion List

1. **Tiling Scope (62 Units):**
    a. **Tiles to Unit Living / Dining / Kitchen areas below**
    402,406,501,502,503,504,505,506,606,701,702,703,704,706,806,
    901,902,903,905,906,1101,1103,1106,1202,1206,1306 - Total 26 units
    b. **Tiles to all Unit Bathrooms & Ensuites (Floor & Walls / Skirtings)**
    -Full height wall tiling to all wet areas allowed except the the bathrooms of the following units - 20 units (Note: Walls are only allowed to Shower Recess)

406	501	502	503	606	701	702	703	706	806
901	902	903	906	1101	1103	1106	1202	1206	1306

    c. Tiles to all Unit Laundries (Floor & Splashback & Skirtings)
    d. **Tiles to all Unit Balconies with the pedestal system (Floors)**
    -Material supply by Mosaic
    -Perimeter caulking allowed (Up to 10mm)
    -Bedding and skirting tiles installation not allowed
    e. Tiles to Basement1/2 Lift Lobbies(Floors only)
    f. Tiles to Lv2/Lv3 lift lobbies
    g. Crazy Paving (TLL1) to Ground Floor Lift Lobby / Foyer & Main Entrance
        - *Optional*
    h. Crazy Paving (TLL1) to Ground Floor North side entrance - Optional
    i. Tiles to Roof top area with crazy pave tiles (Floor)
    j. Tiles to Lift Car Floors
    k. Porcelain Wall tile cladding with SF02 to nominated area only (Red line)



Works by others include;

- Tile Supply

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Maintenance

3 Maintenance

3.1 General

Your building is a unique and complex structure that contains many components.

Albeit materials and forms of construction are selected to be suitable and fit for their intended purpose the service life of many components will be less than the expected life of the building. Condition monitoring and maintenance will ensure all the components of the building will perform as intended and will ensure that material, product and installer warranties will remain intact.

Most building owners are aware of the duty they have to maintain the Fire Safety Measures installed in the building. However, just like a car, buildings require regular preventative maintenance of the entire building, not just some parts.

It is good practice to visually inspect your building, inside & out, at least biannually and note the condition of the building. This will allow you to monitor the condition of the building and will also allow early detection of any deterioration that may require immediate rectification.

Please note that inspection of the tiling system will be required more frequently depending upon manufacturer's recommendations, the materials used and the location of the building.

Regular inspection will allow you to develop an understanding of how your building is performing and to accurately plan and budget future maintenance and capital works.

This will result in a reduction of the cost for maintenance in the longer term and maintain the value of your asset.

Unfortunately lack of maintenance will lead to early failure of the building components potentially resulting in -

- unsafe and/or unhealthy conditions,
- costly repairs,
- unattractive appearance,
- loss of recourse to material, product, and installer warranties,
- litigation.

It is also good practice to keep accurate records of all maintenance work carried out to your building.

If you are in any way unsure how to monitor and/or maintain your building, we recommend you seek professional advice.

Maintenance works must only be carried out by suitably licensed and experienced contractors.

3.2 Maintenance Schedule

The following schedule provides a listing of items that will require both preventative and regular maintenance and the recommended frequency and method.

Activity / Equipment	Frequency					Explanation or Appendix Reference
	Monthly	3Mnth	6Mnth	12Mnth	Other	
						Appendix 1
Expansion Joints to tiled areas	✓					
Perimeter Joints to tiled areas	✓					
Slip Test to tile surface in public areas				✓		Recommend that an on-site slip test is carried out every 12 months
*Slip Test to tile surface in public areas		✓				On site slip test to be carried out if maintenance is **not** carried out
Visual inspection of grout	✓					Inspect grout for signs of damage
Visual inspection for efflorescence	✓					Inspect areas where tiles are exposed to vertical edge for leaching
Visual inspection of tile surface		✓				Inspect the surface of the tile for damage
Inspection of Main Walkways & Lvl 6 Terraces		✓				Inspect the Stones for any bonding
Cleaning of Natural stones					Constant	As natural stones get stained almost instantly… Stain Proof sealer are only applied to give you a chance to clean (Few Hours), in saying that, any spills or anything that can stain will need to be cleaned off within the few hours.

Expansion Joints & perimeter joints to tiled areas

Throughout the tiling system, generally where walls meet floors or internal corners or at 4.5m centres externally within the floor. There will be a soft silicon joint. This joint is installed to allow the building to move without cracking the tiles. This silicon joint must be inspected monthly for any tear or opening within the silicon.

Where the silicon has been identified as torn, lifting, or damaged in any way. This silicon (just the damaged section) must be removed and replaced immediately.

If the damaged silicon is left open and the tiling system exposed this could allow moisture below the surface of the tile. By allowing moisture below the tiled surface damage to the tiling system will occur, this could include:

- **Efflorescence (refer to Visual Inspection for efflorescence page 12 for more information)**
- **The grout to appear dark and light**
- **Mould to appear on the surface of the grout if in poorly ventilated and minimal sunlight areas**
- **Where large volumes of water are trapped below the tiling system this can void the waterproofing warranty.**

Recommendations

We recommend that a tradesman is engaged to undertake this task.

Within the Maintenance Logbook we would expect to see each area identified with photographs and monthly checks acknowledged and areas which have been removed and replaced noted. This will identify patterns.

By identifying patterns, you can accurately predict where the building is moving and you will be able to identify areas that every year need to be removed and replaced by doing this the cost for this will be reduced to smaller jobs more manageable jobs, rather than major works.

Slip Test tile surfaces

All floor tiles supplied new have been provided with a slip test report. Tiles over a period of time the tile surface will ware and as such the surface glaze which has the anti-slip properties will be removed. This will take a number of years to occur (estimated 10 – 15 years) and there are surface treatments that can be applied post installation that can aid to the anti-slip, but this should be explored closer to that time.

Recommendations

The body corporate or building managers, should commission an independent slip testing (NATA certified) to conduct a slip test and certificate every 12 months (refer section 1.2 for the company that we used) to the following areas;

By completing this simply task the body corporate will be protected from any slip trips or falls claims that may be presented and because you are actively doing this the buildings insurance should be cheaper or at least recognised as a reduced risk.

WARNING

***If the cleaning maintenance is not carried out, then the coefficient of slip will be reduced due to the soap build up on the surface of the tile. We would recommend that slip testing is then carried out every 3 months to ensure that the slip rating does not fall below P3 or TRL 40**

Under the Australian Standard the minimum requirement is 40 which is P3 rating.

Visual inspection of Grout

The grout is an important part of the tiling system as it supports the tile from vibration and movement.

The grout walls and flooring should be inspected regularly for signs of cracks and or missing grout. If the tile has had heavy loads point loading or blunt impact affecting the tile, this will cause vibration and the vibration will loosen or crack the grout.

If this is observed, then a record needs to be made, take some photographs of the area, investigate if any furniture removalist has used hard wheeled trolley jacks or the like to when heavy objects in or out of the building.

The grout needs to be removed and replaced.

It should be noted that the tile will only be able to suffer between 1-2 blunt impact or heavy loads impact before it will become drummy and commence de-bonding.

The building manager or body corporate should be made aware that when making a claim of drummy tiles under any warranty, it will be easy to determine if blunt impact or heavy load impact is the determining factor and as such these are not covered under any warrant.

Recommendations

Within the Maintenance Logbook we would expect to see each area identified and monthly checks acknowledged that areas which have been removed and replaced are noted. This will identify and patterns, from patterns it could be determined if there are any underlying problems that need further investigation.

Visual inspection of tile surface

Drummy or Loose tiles

It is common to see building managers and maintenance staff tapping floor tiles lightly with a hammer, screw driver or the like, checking for a hollow sound.

Should this (tapping) occur your warranties will be VOID

Never tap the tiles with a metal object as this will in fact send the tiles drummy.

The proper way to check for drummy or loose tiles is to have 3 of 4 keys on a key ring fitted to a lanyard. Then lightly drag these keys across the surface of the tiles, whilst listening for the hollow sound or change of sound.

Special note

Tiles fixed to lounge rooms, kitchen and some wet area floors have sound acoustic matt installed between the concrete and the tile. This is what is known as a de bonded tile. So, these tiles will sound drummy or hollow.

Special note Point Loading

Do not point load the tiled flooring system

Do not drag fridges or other heavy objects which have hard pins or hard wheels to distribute their load. Use trolleys with pneumatic tyres, if this cant occur, use 15mm 1200x2400 ply wood to lay down on the tiled floor and this will distribute the load evenly over the tiles

Trouble Shooting Chart

Problem	Possible Source	Corrective Action
Grout is Cracked	Blunt impact Point loading	Check tile for drummy or loose If yes – replace tile If no – remove & replace grout
Tile surface is cracked or broken	Blunt Impact Point Loading Building Vibration	Remove & Replace Tile
Loose or Drummy Tile	Blunt Impact Point Loading Building movement Building vibration	Check expansion joints for splitting or missing silicon Check for moisture build up below the tile surface
Silicon cracking or splitting	Building movement	Replace silicon which is affected
Silicon hardened	Joint is exposed to harsh weather (sunlight)	Replace silicon
Tile surface looks dirty	Latent cleaning solution left on surface, and surface is not neutralised Warning slip resistance will be reduced	Follow cleaning process by, using 2 mops / buckets and applying lots of fresh water to neutralise as well as alternating acid / alkaline cleaners Tile surface may need to be strip cleaned
Tile grout joints are black	Latent cleaning solution left on surface, and surface is not neutralised Warning slip resistance will be reduced	Follow cleaning process by, using 2 mops / buckets and applying lots of fresh water to neutralise as well as alternating acid / alkaline cleaners Tile surface may need to be strip cleaned
Tile grout joint looks patchy	Moisture is likely trapped below the tile surface Warning water below the tile surface can cause efflorescence and degradation of the adhesive which can void warranties.	Look for cracked grout or missing silicon and close water entry point.
Efflorescence is leaching	Water has penetrated to the tiling system, which can cause degradation to the adhesive and can void warranties.	Stop water from penetrating the system. Look for the water entry point which is typically missing silicon, cracked grout , pot plants must have air gap between tile and water tray.

3.3 Maintenance Logbook

Below is a maintenance logbook template that can be used to record maintenance activities.

Date Completed	Maintenance Activity / Location	Contractor Name

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Warranty

4 Warranty Details

4.1 Subcontractor

The following schedule provides a listing of the subcontractor warranties deed polls supplied for the project and where they can be found.

Scope/Item	Subcontractor	Period	Appendix Reference
Installation of Tiling	INEX Tiling and Flooring Pty Ltd	12 Months	

4.2 Manufacturer

The following schedule provides a listing of the manufacturer warranties supplied for the project and where they can be found.

			Appendix Reference

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Spares

~~5 Spares –~~ Tile Supply was done by Builder

5.1 Spares Supplied

The following schedule provides a listing of the spares that we have left on-site as required by the contract.

Description	Code	Quantity	Supplier	Suppliers Reference

5.2 Recommended Additional Spares

The following schedule provides a listing of additional spares that we recommend you maintain.

All of the tiles for the project have been purchased during the 2020 period and all tiles are subject to shade and batch colouring. The suppliers reference noted above will allow the supplier to track the shade and batch numbers through their system.

The codes marked with an * indicate that these tiles where specifically manufactured for this project and are not available in the market.

Description	Part No.	Quantity	Supplier

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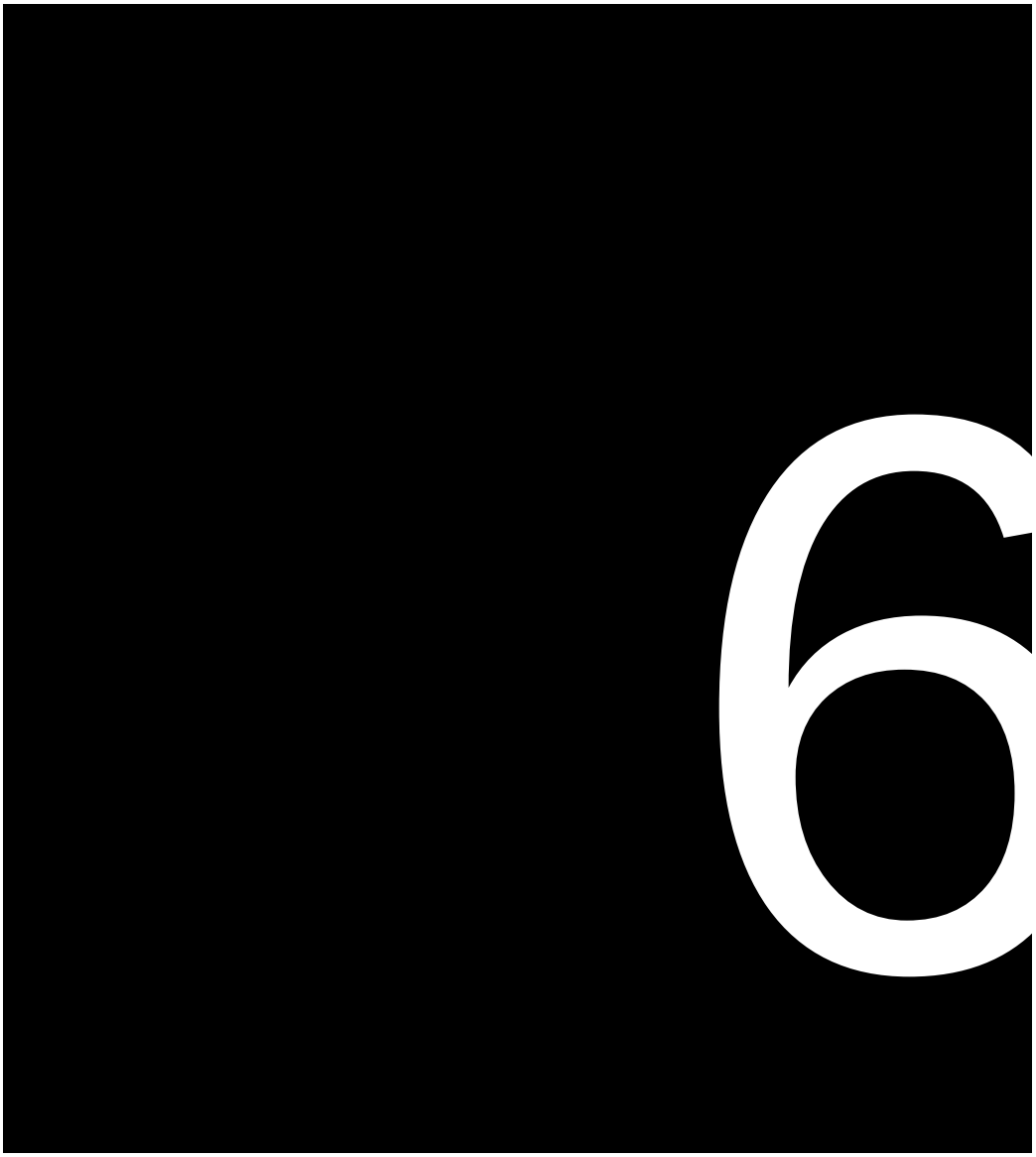

Future Alterations

6 Future Alterations

6.1 General

Due to the complex nature of your building special consideration must be given to what impact any alteration will have on the building. What appears to be small straight forward change can have undesired impacts.

Your building has been constructed with many engineering disciplines. Some of these are hydraulics, mechanical ventilation, structure, electrical, fire safety, acoustic, sustainability and energy efficiency, facade/windows. Proposed changes to the building must be assessed by a suitably qualified professional.

Our work was designed by Alder Constructions (Developer) to ensure that it meets regulatory requirements, contract requirements and to ensure it works in harmony with the other parts of the building. We recommend that you contact the original designer to discuss any changes you may be contemplating.

If you decide to continue with your alterations, it is essential that only suitably qualified and experienced contractors are used.

6.2 Process

Every project is different in the makeup of the entities involved. However, in general terms the process for carrying out alterations is similar.

The following is a brief overview of the process -

1. Determine scope of work.
2. Engage appropriate designer to confirm feasibility and obtain documentation for proposed work.
3. Contact appropriate authority and seek approval.
4. Tender the work.
5. Execute the work.
6. Obtain certification from contractor and designer on completion.

Maintenance Procedures and Instructions

The installation process of the ceramic, porcelain tiling into the project has been complete by tradesman.

This section sets out to provide advice to the Unit Owner / Building Manager / Body Corporate in terms of the proper processes and the inspections / frequency of maintenance that needs to occur to ensure that longevity of the tiling system. Some of the items here are repeated in previous sections.

Drummy tiles, Loose Tiles

It is a common to see building managers and maintenance staff tapping floor tiles lightly with a hammer, screwdriver or the like. Should this occur, your warranty will be VOID.

Never tap tiles with a metal object, as this will in fact send the tiles drummy.

The proper way to check for drummy or loose tiles is to have 3 or 4 keys on a lanyard and lightly drag these across the surface of the tile, listening for the hollow sound or a change of sound.

Expansion and Movement Joints

The building structure has been designed to move and a such the tiles have been installed to accommodate this background movement.

Within all external and internal flooring areas, you will notice a wider joint generally at 4.5m centres. As well as around the perimeter. This joint is known as expansion or movement joint.

This is generally a 6mm to 10mm wide joint, this joint has a sponge backing rod to allow the background and the tiles to expand and contract. On the surface there is a silicon joint which is 10mm wide and 6mm deep, this silicon is a consumable item.

Movement joints occur internally as well, these are located wherever the surface changes plain ie the internal wall and floor and wall to wall junctions.

These expansion and movement joints need to be inspected on a regular (weekly) or monthly basis.

Where continual stress or movement occurs, the joint will ultimately tear. The silicon has a movement capability of 120% meaning it can move 20% of its size without cracking or tearing.

The silicon can withstand harsh environment, meaning sun and rain, however with continual movement + harsh sun and rain the silicon will eventually lose its elasticity and harden.

Once a tear is evident within the silicon, that section of the joint needs to be cut out and new silicon installed.

This (tear) is not a defect and the cost of labour/materials to return, remove and replace silicon is not part of the defect liability period nor is it covered by any warranty.

The reason why this is not a defect is;

No one can predict how much the building will move, and many different things effect how the building will move.

The building moves via solar radiation meaning from early in the morning to lunch time and again into the afternoon the building will react differently. Likewise, the building will move and twist with wind pressure and with temperature or humidity changes ie summer vs winter.

Therefore, it is an essential part of maintenance that a weekly inspection of the silicon must occur in the first 18 months of the building life and this is when the building will be moving at its greatest.

TIP

We recommend that the cleaners whom are tasked with cleaning the building in the various locations, have some sort of reporting mechanism where they report silicon which is torn, cracked or split, this should then be feed to the building manager, who should then schedule the appropriate repair works to occur.

If the expansion or movement joints are allowed to remain exposed to the elements (that is a tear is left open) damage will occur to the tiling system, which may void the warranties on the waterproofing system.

Grout

High Quality Grouts (Ardex FG8/ Mapei Keracolour SF/ Ultracolour Plus etc) and silicon's have been used throughout the installation.

Marble and Stone

The marble and stone used within the project are all within residential units. These have all had pre sealer and a penetrating sealer applied (Dry Treat – Stain Proof)

Sealers

Sealers have been used on the natural stones. The sealer is a penetrating sealer, this type of sealer is a breathable sealer, meaning it allows the transition of vapour from below the paver to escape rather than trapping it. The down side to this is, whilst the sealer protects from stains and dirt, it only provides a time protection.

Meaning that if red wine is spilt on the pavers as an example, if the wine is left for say 10-15min maybe even 30min, the stain is likely to come out. However, if the wine is left for 1-4hours the pavers will be permanently stained. Refer to our cleaning section for more information

The sealer itself is a consumable product and needs routine maintenance and replacement after a period of time – typically 4-5 years for commercial use.

We recommend that the external paver floors are;

- Where spills occur with foods or drinks that these are cleaned immediately, as soon as possible. As the sealer is impregnating and breathable so staining will occur if left for a period of time.
- Swept regularly to remove sand, grit and the like (daily)
- Mopped regularly to remove light contamination (daily)
- Standard clean (using an auto scrubber) as per manufactures recommendation (weekly)
- The sealer is inspected Bi-annually.
- The sealer is reapplied every 4-5 years or whenever the Bi annual inspection recommends whichever is the sooner.

Cleaning of tiles:

We have left the following section about builders cleaning within the manual, in case the operators which to strip back the tiled surface with a heavy duty clean or if any rework occurs.

Porcelain Tiles (2 types)

Type 1 Unglazed = This product is made from clays and is pressed under extreme pressure; this produce has a porosity of <0.5% however due to its unglazed nature is susceptible to marking and damage from contamination care should be exercised when cleaning. Take care not to clean with alkaline detergent of greater than pH 9 with high concentrate of sodium or potassium hydroxide.

Type 2 Glazed = This product is made from clay, but has a glazed surface, this product is extremely durable and can take harsh chemical cleaning.

Background on the installation:

The tile that is being laid is a brand new product and it is clean, it is then fixed into position by applying cementitious products to it, the face of the tile is wiped over or cleaned off during the grouting process, whilst the tiler will remove the cement a haze will always remain as the tilers sponges are contaminated with the cementitious products, which is why a builder cleaner is required to remove this haze.

Typically, the builder's cleaners use such things as domestic detergents and other such domestic chemicals. Using these products just makes the cleaning process harder and it never quiet gets the job done right and everyone gets frustrated.

The following is a guide we have prepared to help the builders cleaner better understand how to clean a tile and more importantly the cementitious smear/ haze or the like, hopefully to reduce frustrations and more seamless work.

The builders clean is not removing house hold dirt, grime or grease, it is removing cementitious marks.

It is the tiler's responsibility to remove glue or waterproofing from all visible faces on the surface of the tile. The tiler will also provide 2nd wash over the tiles after they have been grouted to remove heavy laden cementitious smear. There will still be a haze visible.

The definitions are;

Smear a cementitious mark that cannot be removed by using a dry cloth in a circular motion to polish away.

Haze is a cementitious cloud or dusty mark which can be removed by using a dry cloth in a circular motion.

Clarification_ tiles that have crevices or raised or imprinted lines, some grout will remain within these crevices and it is the cleaner's responsibility to remove this.

TIP

With any cleaning remember the three golden rules:

i. Rule A: Try a small inconspicuous area first.

ii. Rule B: Rinse off well with clean water afterwards.

iii. Rule C: Avoid high concentration of cleaners for prolonged periods.

The sooner cleaning is carried out, the easier the tile is to clean. The reason for this is with any cementitious product the product increases in strength every day. As other building activities occur after the tiler has completed their works, other trades then walk other debris into the area, this is typically a fine powder (we will refer to this as dirt) this product is then allowed to mix or sit on top of the cementitious dust and this will bind (if activated with water) to the surface of the tile, becoming ever increasingly difficult to remove.

Powder cleansers are not recommended, as undissolved particles may remain and develop a haze on the surface of the tile.

Steel wool pads should not be used as they may leave steel particles which can rust and leave brown stains.

One source of problems with tiles is cleaning with alkaline detergent of greater than pH 9 with high concentrate of sodium or potassium hydroxide.

These should not be used unless the residue can be neutralised and thoroughly rinsed away with clean water, otherwise reaction can cause a glossy and potentially slippery surface.

The pH of the material is the measure of acidity or alkalinity. It is a logarithmic scale and pH 7 is the neutral point. Below pH 7, the material is progressively more acidic and above pH 7, more alkaline (i.e. pH 8 is 10 x more alkaline than pH 7).

The use of detergents and other cleaning agents which are excessively acidic or alkaline with excess sodium or potassium hydroxide can cause irreversible damage to the tile surface. [Refer to general remarks item 1]

Acidity being less damaging than alkalinity. All products used must be recommended by the chemical manufacturer specifically for removing cementitious hazes.

Many degreasing agents which contain wax, sodium, silicate or other additives which leave a sticky deposit on the floor and thus retain dirt on the surface, must also be avoided.

Please always refer to the chemical manufacturer's instructions. If you need more information about the use of cleaning products and the manufacturing agents, please contact the Technical Services Department of the chemical manufacturers a list of these is included below for your reference.

A selection of chemical manufacturers of appropriate cleaning products, other chemical manufacturers may also have suitable products:

Before using these products, get professional written advice from the chemical manufacturer as to the suitability, application & frequency of use of their product on fully vitrified porcelain tile.

Brisbane Tiles David 0409 520 568

Hanelys Brisbane 07 3326 6711

Cleaning of tiles will include;

The following talks about floors, the process is the same for walls if glazed porcelain, if ceramic the strength of the chemical and the scrubbing action needs to be toned down as the tile is much softer.

1. Operate in 10m2 sections to ensure greater control over the finished result.

2. Sweep floor to remove all loose debris.

3. Saturate the grout joints with water.

4. Dilute cleaning solution (acid based cleaner week 1 and an alkaline based cleaner week 2) with warm to hot water according to chemical manufacturer's instructions and apply solution to the floor to be cleaned. Allow solution to work on the tiles for 5-6 mins to break down excess dirt and grease on the tile surface.

TIP

We recommend an acid cleaner week 1 and alkaline cleaner week 2.

Our reason for this is, if you continually use the same type of cleaner the residual cleaning product (particularly soap) if not neutralized with water sufficiently will build up over time, you can tell if a build-up occurs, the grout will turn black. Scrape the grout with your finger nail the black will be built up soap

By alternating the products, the soap is removed every 2nd week.

To determine the chemical strength of the mixture, test cleaning must occur, it will typically take 6 to 8 test cleaning trials to work out the required mixture ratios. The use of acids can and will eat the grout and destroy it, care should be taken.

DO NOT ALLOW THE SOLUTION TO DRY - ADD MORE WATER IF NECESSARY

5. Scrub tiles with a brush or mechanical scrubbing machine (suction facility switched off) to lift the dirt.

6. Remove dirt with wet vacuum cleaner or scrubbing machine (suction facility switched on).

7. Re pass again with clean solution if necessary.

8. Finally, before allowing the area to dry, rinse thoroughly several times, with cold clean water, agitating with the scrubbing brush or with the scrubbing machine (suction facility switched off) to ensure complete removal before using wet-vac to remove excess water from the surface.

NOTE: IF THE SURFACE IS INADEQUATELY RINSED OR DRIED UP BEFORE RINSING, AN OFF-WHITE DEPOSIT OR PRECIPITATE MAY BE LEFT ON THE TILE AND IT WILL BECOME MORE DIFFICULT TO REMOVE THAN THE ORIGINAL DEPOSIT.

9. Dilute cleaning detergent according to chemical manufacturer's instruction for high concentration in warm water and apply using a mechanical scrubbing machine (suction facility switched off) or manually with a heavy scrubbing brush. The water/detergent mixture must be allowed to remain on the floor for sufficient time (5-15 minutes) to allow it to penetrate and emulsify the dirt. It is important that the cleaning detergent is completely removed by a final rinsing with clean water. Remove excess water from the surface with a wet-vac or mechanical scrubbing machine (drying facility switched on).

TIP

IT IS THE RINSING PROCESS THAT REMOVES THE DIRT AND ALLWAYS NEUTRALISE THE AREA WITH FRESH CLEAN WATER, we recommend using 2 mops and 2 buckets, 1 for applying agitating and removing and the 2nd for neutralising only.

Grout – Grout is an important part of the tile system, it needs to be handled with care, the grout is a low mpa strength cementitious product. Acid will over time eat away the grout so care must be taken to use the cleaning products to clean and scrub but not leave resting on the grout as this will eat the grout.

Special note

Do not use bleach on any coloured grout as this will cause the grout to fade.

Drummy or loose tiles are in 90% of cases cause from vibration and or point loading. Take care and ensure that all heavy items spread any point loading.

Where tiles become loose or drummy this will need to be replaced sooner rather than later, the reason is the vibration will continue and further tiles will become drummy or loose.

If loose or drummy tiles are identified, the building maintenance manager should be keeping a record or logging of the issues regarding the tiles. The reason for this is, the causation could be isolated or the causation could be a pattern of a larger issue that is causing the failure.

Maintenance Summary

All Floor and Wall tiles should be inspected weekly to check for;

- Condition of the tile surface for build-up of cleaning contaminates
- Condition of silicon for splits, cracks and missing parts
- Condition of grout is intact.
- Condition of tile surface generally, cracked, lose or drummy tiles. The causation should be investigated to ensure that this is not a reoccurring problem
- Slip testing should occur on site annually (if maintenance is not carried out then slip testing every 3 months to public areas)

EXAMPLE OF DAMAGED OR DEFECTIVE TILE REGISTER

Issue #	Date Identified	Unit or location	Area	Tile Type	Wall or floor	What is the issue