ROOFING ASSOCIATION
OF NEW ZEALAND

NEW ZEALAND ROOF COATING CODE OF PRACTICE



ROOFING ASSOCIATION OF NEW ZEALAND

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Contents

1: Scope

This Code of Practice is a document developed by the Roof Coatings Sector of the Roofing Industry. This has been facilitated by the Roofing Association of New Zealand with assistance from Master Painters New Zealand and input from Roof Coating applicators and paint suppliers. The purpose of this Roof Coating Code of Practice is to present acceptable and recommended trade practice.

Roof Coating is simply the process that returns a desired level of aesthetic performance back to the roof. Roof coatings can also protect the substrate from degradation.This is to be carried out following recommendations set out in this Code of Practice. This document sets out what the normal practices are that the consumer can expect to see and what should occur when a competent coating company with competent applicators applies roof coatings.

Roof Coating is not weatherproofing. A coating system is not going to seal your roof to the point of weatherproofing. It is acknowledged that there may be roof repairs carried out but it is unreasonable to expect the performance of a new roof after the completion of the coating process. The objective of the roof coating process is to provide an aesthetically better-looking roof than the un-coated roof. However, for concrete or terracotta roofs, the application of a coating will inhibit the absorbency of moisture into these products.

A very important part of the Roof Coating process is the initial assessment of the roof. The age of the roof, its subsequent condition, extent of repair, cost to repair and whether the profile is still available, are very important considerations. Working through these considerations should enable the Roof Coating Company to advise what the most practical option is for the consumer. This should also prevent the Roof Coating Company creating a situation where they are frequently returning to site to rectify issues. At some point, the roof may need to be replaced. The Roof Coating process will only extend the life of the roof for a limited time.

The onus is on the roof coating company to either accept or reject the existing roof as suitable for the recoating process. The roof coating company may also put limitations on the performance of their re coating system in certain circumstances. Any such limitations must be clearly stated and listed in writing to avoid any confusion.

The roof coating applicator must follow the coating manufacturer's specification to ensure the manufacturer can provide the Guarantee.

2: Disclaimer

The information contained in the Roof Coating Code of Practice is the most current knowledge at time of publication. The publishers of this Roofing Code of Practice make no warranties or representations of any kind (express or implied) with regard to accuracy, currency or completeness of the information contained herein. Compliance with this Code does not guarantee immunity from breach of any statutory requirements. It has been compiled and written from proven performance and cites a standard of acceptable trade practice agreed between manufacturers and applicators.

ROOFING ASSOCIATION OF NEW ZEALAND

Master Painters® New Zealand

3: Definitions

Access: A means of climbing on to a roof safely. Also, the creation of a safe pathway for the building user when roofing work is being carried out.

Acrylic: A water based coating

Adhesion Test: The application of adhesive tape to test the fastness of the existing coating.

Aesthetic performance: The visual appearance of your roof.

Airless Spraying: A spraying process that does not use compressed air.

Application Rate: The volume of coating required to meet the coating supplier's recommendations

Apron: The edge of a roof that abuts a wall or change in direction in the roof.

Asbestos: A fibrous silicate mineral that was used in many building and roofing products in the past. Due to the potential to cause significant harm if loose fibres are inhaled, licensed operators must be consulted to insure correct handling procedures are followed when asbestos is present.

Asphaltic Shingles: A type of wall or roof shingle that uses asphalt for waterproofing. Sometimes called a composite shingle comprising of a cellulose or fiberglass mat.

Barge: The edge of the roof, which may have a finished edge, which could be covered with a flashing or component, made of the same material as the roof.

Base Coat: This is usually the first of the two recommended top coats.

Bed/Pointing: The bedding is an initial application of mortar used to "bed" a concrete or terracotta (clay) tile roofing accessory such as a ridge or hip cap to the topside of the tiles. Pointing is the application of mortar or a similar finishing product from the outside edge of the roofing accessory on to the top of the tile profile.

Biodegradable: Anything that can decompose by living matter.

Bituminised Metal Tiles: A pressed metal tile which, used bitumen to retain the texture on to the topside of the tile. No longer available today. These tiles are commonly referred to as Decramastic tiles.

Brittle Roofing: Any roofing material that does not have the structural integrity to support a load such as a person walking on the roof. A roof could also be brittle if the structure supporting the roof is weak due to rot or corrosion of the roofing product for example.

Clear Roofing: Any type of roofing that is made from fiberglass, perspex or polycarbonate to enable light transmission. Unless it is a trafficable product then this would be considered a kind of brittle roofing.

Colorcote®: A NZ made prepainted metal coil product.

Colorsteel®: A NZ made prepainted metal coil product. Also, the generic term given to any prepainted metal coil product not made by NZ Steel.

Competent Person: A person who has through training, qualification or experience the knowledge and skills to carry out a task.

Concrete Tile: A roofing tile that is made of concrete and interlocks and laps with surrounding tiles and accessories to create a weather tight roof.

Containment: A method used to contain the bi-products of the roof coating process,

Cutting In: The brush application of the coating system where required to provide an acceptable finish.

Decramastic®: A generic term given to most textured metal tiles. The mastic solution aided in adhering the texture to the metal tile. Not used in the manufacture new textured metal tiles today.

Dew Point: The temperature point, which causes moisture to form on a cool surface.

Downpipe Spreader: A fitting attached to the bottom of a downpipe that discharges on to a lower roof to not concentrate water-flow in one point.

Downpipes: A round or rectangular or square pipe connected to a gutter system to move water to a stormwater disposal or water harvesting system.

Edge Protection: A safety system installed at the roof edge to prevent a fall over the edge of the roof. One of the preferred methods for keeping workers at height safe.

Encapsulation: A process where the coating system encloses another product.

Etch Primer: A coating that is applied to bare metal to promote adhesion of subsequent coatings. Frequently applied to treat rusted roofing.

Fasteners: Any nail, screw or rivet that secures a roof to either the structure (e.g. purlin, tile batten), or as a secondary fastener to other roofing elements.

Fibrolite: A brand name and generic term for commonly used building material, which is a combination of fibres and cement. This created a durable building product used for many buildings as roofing, wall cladding and soffit linings for example. Earlier versions of this product used asbestos. The use of asbestos was banned in 1984.

Glaze Coating: A clear coating applied to some roofing products to seal and/or provide a level of gloss finish

Gutter Protection: A protection system usually of some type of gauze attached to the roof and the outside edge of a gutter system to prevent organic debris accumulating in the gutter system.

Gutter: A channel at the edge of a roof to convey water to the downpipes.

Hand painting: The method of using a brush to apply a coating to ensure an acceptable finish. Usually used when "cutting in"

Harness System: A full body harness which connects the user to a compliant anchor point when there is a risk of a fall. A high level of training is required to use this safety method safely. Preferred method of use is fall restraint-prevents the user getting to the edge where a fall could occur, it can be used in fall arrest. This method stops the user from impacting the ground once a fall has occurred. However, this requires rescue plans and increases the risk of injury if a fall occurs.

Hopper Gun: A tool used in the coating process to reintroduce texture back to a previously textured roof.

HSWA 2015: The Health and Safety at Work Act 2015 is the Act, which, sets out expected behaviours and requirements in the workplace regarding Health and Safety.

Installation and Application Guarantees: A commitment by the Roof Coating company that installation and application of the product complies with suppliers instructions.

Key Coat: A coating layer that promotes adhesion of the coating system to the substrate.

Lichen: A simple slow growing plant, which typically forms a crust like, leaf like growth on roofing and building products in this context.

Longrun Tiles: A roofing profile, which is pressed into a length of roofing sheet that looks like a roof tile.

Longrun: A generic term given to metal roofing. A roofing profile that is created by passing flat metal coil product through a series of rollers to form a profiled roofing product such as corrugate. Available in numerous profiles. Manufactured to site-specific lengths to suit the roof length-hence the term "longrun".

Maintenance: An action to preserve the good order of your roof. This could be the periodic washing down of a roof to remove accumulated debris such as lichen or dirt.

Masking: A barrier applied to prevent the transfer of the coatings to another surface.

Membrane: This is a roof and/or gutter weatherproofing product. This can be made from fibreglass, bituminised sheet, rubber, vinyl, TPO or a previously applied coating (liquid membrane). Coating of any of these products requires instruction from the membrane supplier.

Metal Tile: A roofing profile, which is pressed out of metal sheet providing a module that laps and interlocks with adjacent, pressed metal tiles and roofing accessories to form a weather tight roof. Metal tiles are available in a painted or textured (chip/stone) finish.

MEWP(S): Mobile Elevating Work Platform(s). A mechanical device such as cherry picker or scissor lift to enable working at heights.

Moss: A small herbaceous growth that occurs on roofing products

Moss and Mould Killer: A liquid solution that is applied to kill moss and mould. This product is a cleaning product only. Note also activation times vary for such products. Check with the supplier for expected results and timelines.

Penetration: A fixture such as a pipe, skylight, aerial, satellite dish, vent or chimney that goes through a roof or is attached to the roof.

PPE: An item of Personal Protection Equipment. This can include but not limited to safety glasses, hearing protection, overalls, safety shoes, respirators, gloves, hard hats and high visibility clothing.

Pressure Wash: Also called water blasting. The application of water at a set pressure to remove cleaning products and any residue prior to the application of the coating.

Primer Coat: A coating layer that promotes adhesion of the coating system to the substrate.

Product Warranty: A commitment by the product supplier to remedy non-performance of the coating that is attributable to the coating products if an issue were to arise within a set period. This generally does not cover the application process.

Repairs: Rectifying the roof to provide a suitable substrate for painting. This may include replacement or treatment to remove damage, which would detract from the visual performance of the roof. Includes stopping leaks that have been identified at the initial assessment.

Roof Wash: A liquid solution that is applied to the roof to aid the removal of accumulated debris such as moss and lichen.

Runoff: Any water that has run over the roof and discharged via the downpipes.

Rust Treatment: The preparation of surface rusted metal, involving cleaning, treating and (possibly) etch priming to enable subsequent coatings to be applied.

Scaffold: Another preferred system for keeping people safe when working at heights. This could be a proprietary system or the use of componentry to assemble an access way and working platform that provides edge protection. Scaffolding must be installed by a competent person, when the scaffold is up to 5metres high and a certified person above this height.

Seal Coat: A coating that seals the surface of a substrate or previously applied coating.

Sealant: A building product that is extruded by sealant gun application to provide a barrier to moisture ingress.

Shingles: A rectangular roofing product that relies on surrounding shingles for weatherproofing. Usually only a third of a shingle is visible due to extensive underlaps. Traditionally made from timber such as cedar. Now a generic term for any roof profile, that resembles the "look" of shingles.

Soft Wash: The process of washing a roof using a water pressure of less than 50 pounds per square inch (psi).

Solvent Base: A coating that contains a higher level of organic compounds than water based coatings. Sometimes called oil based

Stormwater System: A rainwater disposal system where the downpipes discharge the rainwater to a drain which either discharges to a soakage drain or to a council provided system.

Structure: The components that support roofing products. This can include rafters, trusses, purlins, battens or plywood for example.

Substrate: A continuous sheeting that covers the structure with the roofing product covering the topside. The roofing product that the coating system is applied too is also called a substrate.

Terracotta Tiles: A red-brownish clay based roof profile formed and baked which laps and interlocks with surrounding tiles to for a weather tight roof.

Texture (Chip or Stone): A small stone or artificially made stone (sometimes-called chip) that creates a texture in a roof coating. Almost exclusively used on metal tiles. This is also the process where the chip is reintroduced to the substrate to create a uniform texture as part of the coating process.

Top Coat: The last layer of a coating system.

Valleys: The intersecting point of two internal sloping roof planes. This is usually made of metal and requires assessment prior to the coating process starting.

Viewing Distance: It is recommended that roofing is viewed from a distance greater than or equal to 3 meters when assessing aesthetic performance.

Water Harvesting: Collecting rainwater for future uses such as human consumption or for irrigation.

Workmanship Warranty: A commitment by the coating applicator company to remedy non-performance of the coating that is attributable to the application process if an issue is to arise over a set period of time.

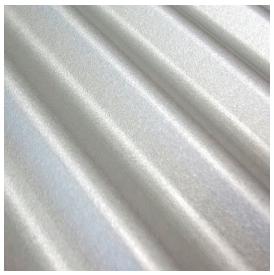
Zincalume®: A coating consisting of zinc and aluminium applied over a steel substrate. This product has replaced galvanised steel (iron) as the most common material used for steel roofing in NZ. It is the predominant base material used by various roofing manufacturers prior to the application of a decorative paint finish.

4: Concrete tile

1. Roof wash will be applied to the concrete tile to remove lichen and moss (if present). Note the roof wash will require a period of time to activate against the lichen and moss.
2. Pressure washing will be done to remove the residue from the Roof Wash and/or to clean the roof thoroughly.
3. All tiles will be checked, for cracks and chips and replaced where required. Ridges and barges will be checked and where required will be replaced. The ridges and barges can be bedded and pointed, with the appropriate products to provide a suitable substrate for coating. Valleys will be repaired or replaced, as required. All other roof flashings will be repaired or replaced as required.
4. A sealer and/or keycoat is applied to seal the surface and act as a keying agent for the subsequent coatings.
5. A basecoat is applied. This is the first of the two top coats.
6. The topcoat is applied. Some systems also have a glaze option which can be applied when the top coat is ready to accept the glaze.

5: Terracotta tile

1. Roof Wash will be applied to the terracotta tile to remove lichen and moss (if present). Note the roof wash will require a period of time to activate against the lichen and moss.
2. Pressure washing will be done to remove the residue from the Roof Wash and/or to clean the roof thoroughly.
3. All tiles will be checked for cracks and chips and replaced where required. Ridges and barges will be checked and where required will be replaced. The ridges and barges will be bedded and pointed with the appropriate products to provide a suitable substrate for coating. Valleys will be repaired or replaced as required. All other roof flashings will be repaired or replaced as required.
4. A sealer and/or keycoat is applied to seal the surface and act as a keying agent for the subsequent coatings.
5. A glaze or topcoat is applied as the finish coat to a chosen gloss level.



6: Galvanised or Zincalume® steel roofs

1. Roof Wash will be applied to the roof to remove lichen and moss (if present). Note the roof wash will require a period of time to activate against the lichen and moss.
2. Pressure washing will be done to remove the residue from the Roof Wash and/or to clean the roof thoroughly.
3. Any areas of red or white surface rust will be treated with rust treatment to prevent further corrosion.
4. Any non-performing fasteners will be replaced. All valleys flashings, barge flashings, ridge flashings, apron flashings, penetration flashings and roofing accessories will be repaired or replaced as required. Note laps and stop ends will be assessed where possible without disassembly of the roofing detail.
5. Keycoat/Primer is applied.
6. The Basecoat and the Top Coat will be applied after suitable drying periods between each coat.

Note: Some coating systems do not require a primer, but there should be at least 3 coats applied (e.g. this could be two basecoats and one top coat).

7: Weathered prepainted steel roofs

This includes painted longrun and painted metal tiles

1. Roof Wash will be applied to the roof to remove lichen and moss (if present). Note the roof wash will require a period of time to activate against the lichen and moss.
2. An adhesion test will be carried out, to check the fastness of the existing coating to the substrate. This will establish how intense the following pressure wash will need to be.
3. Pressure washing will be done to remove the residue from the Roof Wash and/or to clean the roof thoroughly.
4. Areas with minor dents will be repaired where appropriate. Areas with significant dents will need to be replaced.
5. Any areas of red or white surface rust will be treated with rust treatment to prevent further corrosion.
6. Any non-performing fasteners will be replaced. All valleys flashings, barge flashings, ridge flashings, apron flashings, penetration flashings and roofing accessories will be repaired or replaced as required. Note laps and stop ends will be assessed where possible without disassembly of the roofing detail.
7. The Basecoat and the Top Coat will be applied after suitable drying periods between each coat.

8: Textured metal tiles

1. Roof Wash will be applied to the roof to remove lichen and moss (if present). Note the roof wash will require a period of time to activate against the lichen and moss.
2. Pressure washing will be done to remove the residue from the Roof Wash and/or to clean the roof thoroughly.
3. Minor dents in the tiles will be repaired. Significantly, dented tiles will be replaced. All valleys flashings, barge flashings, ridge/hip flashings, apron flashings, penetration flashings and roofing accessories will be repaired or replaced as required .
4. Any areas of red or white surface rust will be treated with rust treatment to prevent further corrosion.
5. A primer coat maybe applied at this point.
6. The Basecoat will be applied. This coating may also be where texture is reapplied to the roof where required to provide a uniform finish.
7. The Top Coat is applied.

9: Textured metal tiles which contain asbestos

1. If the roof was installed originally prior to the late 1980s and the original coating was bitumen based then a test for Asbestos must be carried out. The test must be carried out by an accredited laboratory. If there is no asbestos present according to the test then proceed as per the Textured Metal Tile Section. Otherwise proceed as follows;
2. Roof Wash will be applied to the roof to remove lichen and moss (if present). Note the roof wash will require a period of time to activate against the lichen and moss.
3. Soft washing will be done to clean the roof . The pressure to be used when washing down a Textured Metal Tile Roof containing asbestos must not exceed 50 PSI. This is called Soft Washing. Soft washing may not remove all of the organic material or portions of the existing coating that may be prone to flaking. The coating warranty may be impacted by the Soft Washing process.
4. Minor dents in the tiles will be repaired. Significantly dented tiles will be replaced. All valleys flashings, barge flashings, ridge/hip flashings, apron flashings, penetration flashings and roofing accessories will be repaired or replaced as required.
5. Any areas of red or white surface rust will be treated with rust treatment to prevent further corrosion.
6. A primer coat maybe applied at this point.
7. The Basecoat will be applied. This coating may also be where texture is reapplied to the roof where required to provide a uniform finish.
8. The Top Coat is applied.

IMPORTANT NOTE: As these tiles are only being "soft washed" it may not clean the roof sufficiently to provide a suitable substrate for recoating. The roof coating applicator or roof coating application company should confirm if a they will guarantee their work in such instances. Extra consideration should be given to reroofing these types of roofs given that these roofs may be greater than 40 years old. Under no circumstances should these roofs be pressure washed if there has been a positive test result for Asbestos. Some coating applicators will default to the soft washing process with this type of tile without testing.

10: Asbestos Corrugated Roofing (commonly called "Super Six")

1. Prior to any work being carried out including initial inspection, a thorough and comprehensive safety plan must be implemented. There is significant risk of a fall through occurring as this type of roofing gives little indication of how brittle this type of roofing can be. Please visit the WorkSafe website and thoroughly understand working with asbestos, working at heights, brittle roofing and any other relevant information before commencing work.
2. Roof Wash will be applied to the roof to remove lichen and moss (if present). Note the Roof Wash will require a period of time to activate against the moss and lichen.
3. Soft washing will be done to clean the roof. The pressure to be used when soft washing must not exceed 50PSI. Soft washing may not remove all of the organic material or any existing coating that maybe prone to flaking. The coating warranty may be impacted by the soft washing process.
4. Repairs will be carried out. Note replacement sheets and accessories are not available.
5. The basecoat is applied.
6. The Top Coat(s) is applied.

NOTE: Extreme care should be taken when attempting any work with these types of roofing products. Make sure all compliance requirements are met at all times. As surface preparation is unlikely to provide a perfectly acceptable surface for coating-it is imperative that you check with the coating supplier if a guarantee is available.

11: Roof washing and roof treatments

Roof Washing is the application of a solution which is applied to the roof to assist the cleaning process. After the required activation time (this varies as required by the solution supplier) the roof is then pressure washed to remove debris such as moss and lichen. Roof washing does not mean that the moss and lichen may not reappear at some point in the future.

Roof Treatment is the application of a solution that improves the aesthetic performance of you roof over a period of time. The solution causes a gradual breakdown of contaminants on the roof which are removed from the roof by rain washing. Visible change in the roof may take weeks and/or months to occur. This can be due to the level of contamination on the roof and the concentration of the activating products in the treatment solution.

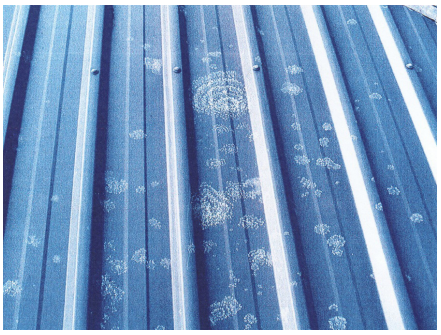
In some instances it may require a reapplication of the treatment. This may not be apparent at initial application of the Roof Treatment. Roof Treatment will partially inhibit the reappearance of moss and lichen. Usually Roof Treatment is an ongoing process over the life of the roof requiring further treatment over a set period of time.

Note: The Roof Washing and/or Roof Treatment processes may reveal coating damage as pictured below. This is not a fault that can be readily identified prior to either process being carried out. Therefore, if such damage becomes apparent then this is a natural occurrence which does not put responsibility on the applicator to rectify unless this was agreed to prior.

In severe cases of moss and lichen contamination it is possible that the roofing product may breakdown. In such instances it would be advisable to complete the process to establish the full extent of any damage. It may be possible to replace individual tiles. In some instances it may be prudent to consider a reroof as a better option. This would need to be done on a case by case basis.

If the roof is used for water harvesting (storage) then the Stormwater system must be disconnected and left disconnected for at least 3-4 good rain showers lasting more than 30 minutes after the roof wash/treatment process is completed. This is to enable a "flushing" of the roof to occur and that no residue from the roof wash/treatment process contaminates the water being collected. This requirement also applies if there has been a roof treatment applied to the roof.

This is what occurs when the spores from moss or lichen penetrate through the original coating. This damage is not apparent until the Roof Washing is complete or the Roof Treatment eventually reveals the damage.



This is the damage that moss or lichen can cause to a prepainted longrun metal roof. The moss and lichen may initially appear to be sitting on top of the roof coating. However the Roof Wash and/or Treatment may reveal otherwise.

This is a terracotta/clay tile that is delaminating. Again, the extent may not be apparent until the treatment process is complete.

12: Health and Safety and working at heights

In all instances of working at heights and selecting controls, the highest possible control should be the preferred control when doing the initial risk assessment. Scaffolding, then Edge protection, then Fall Restraint, then Fall Arrest and then working off a ladder would be the preferred hierarchy of controls. Logically this sequence seeks to use a passive group control first then moves its way down where significant individual input and skill is required to prevent harm. Also, be mindful that the risk level increases as lower controls are used. E.g., there is more risk of a fall off a ladder as against a scaffold. While cost and availability are considerations when carrying out a risk assessment, using either of these considerations as rationale for taking a lower control needs to be fully thought out. It would also be prudent to document the "why" as to the chosen control method.

Please note Section 10 is an overview and not a comprehensive documentation of methods for risk assessment and control implementation. For more information, please contact the Roofing Association of New Zealand.

As a PCBU (Person Conducting a Business or Undertaking) or a worker, there are obligations that must be met. The PCBU must provide the information and training to their workers and/or themselves so that work is carried out to eliminate the risk of harm occurring. If elimination is not possible, then minimisation must be used when selecting a control(s). Workers must be competent and also have the ability to refuse to carry out work they consider unsafe until this has been proven otherwise.

TRAINING AND CERTIFICATION

HSWA states workers and others must be provided with the information, training, instruction or supervision needed to protect them from safety and health risks arising from their work.

A competent person is someone who has the knowledge and skills to carry out a particular task. Skills and knowledge may be acquired, through training, qualification, or experience, or a combination of these. NZQA registered unit standards may assist in confirming training.

COMPETENT PERSON

A competent person must be able to demonstrate all the following:

- knowledge of the basic rules of physics and mathematics as they apply to the work, or the ability to readily access the information
- thorough knowledge of the equipment or product being used
- competency to visually inspect the equipment for faults
- knowledge of the assembly methods and design requirements associated with the equipment
- ability to read and understand suppliers' information, general site plans, design drawings and specifications for the work
- ability to erect and dismantle systems in the correct sequence
- ability to identify the common hazards of the work and take effective precautions to control the risks resulting from the hazards
- the physical skills needed for the work
- knowledge of the use, care and maintenance of the required PPE
- competency in manual lifting techniques
- ability to work safely and confidently at heights
- ability to use appropriate tools and equipment correctly
- knowledge on the prevention of falling objects.

A person can demonstrate competence through an appropriate combination of training, experience and qualification.

WORKERS WHO ARE NOT FULLY COMPETENT

A worker who is not competent to work without supervision can be involved in work if they are under the direct supervision of a person who is competent to carry out the work (an operator).

DIRECT SUPERVISION

Direct supervision means within reach or in visual contact. The operator is responsible for monitoring the work and ensuring compliance with regulations and recommended practice. They must be able to take immediate charge in an emergency.

The appropriate ratio of operators to others who are not competent depends on the level of experience and competence of each worker, the complexity of the work being undertaken, and the risks associated with any mistakes that may be made by workers.

See WorkSafe's fact sheet ***Providing information, training, instruction or supervision for workers*** for aspects to consider when deciding what information, training, instruction and/or supervision to provide.

EMERGENCY PLANNING

Workers must be trained and familiar with emergency plan and procedures covering any likely type of emergency. It needs to be maintained, regularly tested and improved to remain effective.

Emergency plans should be developed with workers. Workers should be trained in the emergency plan. The plan should be available and accessible to the people who need it. To ensure a co- ordinated response to an emergency, the emergency plan should be incorporated into any broader construction project emergency plan and be communicated to all workers.

Planning must determine all the potential emergency conditions. A suitable response must be developed for each credible emergency.

It should include:

- competent personnel available to carry out a rescue
- first aid and medical provisions and who is trained to administer first aid
- where the nearest emergency centre is
- location of alarms, fire extinguishers and escape routes.

WORKING ALONE

Where a worker is alone, a system must be used to monitor their safety (e.g. a man down signalling device).

Lone workers should not be working in fall arrest.

DESIGN REQUIREMENTS FOR SCAFFOLD AND FALL PREVENTION SYSTEMS

GENERAL

Scaffolding and edge protection should meet current New Zealand Standards and Guidelines.

Collective fall arrest systems (Safety nets and soft landing systems) should meet international standards and New Zealand Guidelines.

Suppliers of scaffold, edge protection and collective fall arrest systems have a duty of care to ensure equipment complies with appropriate standards and is accompanied by manufacturers product information including:

- a list of all components with clear descriptions, which should include weight.
- instructions for erection, dismantling, use, transportation and storage
- guidance for the servicing and inspection of the equipment and rejection of damaged components
- limitations of the system.

SCAFFOLD

This is an example of a compliant scaffold set up. The homeowner and/or occupier(s) are not access or use this scaffold without the direct supervision or permission of the Roofing Company. Please ensure that children do not access or climb the scaffold.

6.1.1 PREFABRICATED SCAFFOLD SYSTEMS

Prefabricated scaffold systems should meet the requirements of 6.1 and:

- meet the requirements of AS/NZS1576 parts 1,2,3 and AS/NZS1577
- product information should also include details to determine:
  - duty loadings
  - maximum heights
  - maximum number of working platforms

6.1.2 TUBE AND COUPLER SCAFFOLDS

Tube and coupler scaffolds should meet the requirements of:

- AS/NZS1576.1 parts 1,2,3 and AS/NZS1577
- Good Practice Guidelines for Scaffolding.

EDGE PROTECTION SYSTEMS

This is an example of an edge protection system. This system has a ladder access point to the right of the sign on the rails.

PREFABRICATED EDGE PROTECTION SYSTEMS

Prefabricated edge protection systems should:

- comply with 6.1
- meet the requirements of AS/NZS4994.1

Product information should also include:

- system limitations including roof slope, maximum rafter length, whether it is designed and tested for dynamic loading, etc.
- acceptable configurations including maximum span of rails, maximum extension of rails past posts, acceptable corner configurations, etc.
- requirements of the supporting structure including minimum size and grade of studs, rafters, etc. and the maximum span of those components

EDGE PROTECTION SYSTEMS USING SCAFFOLDING

Edge protection systems using scaffolding must:

- comply with 6.1 and 6.2
- meet the performance requirements of AS/NZS4994.

SAFETY NETS

Safety nets used horizontally with a continuous boundary rope for collective fall arrest (System) should:

- meet the requirements of 6.1
- comply with class A of BS/EN1263-1
- be constructed of knotless, square mesh
- have a label attached showing:
  - manufacturer's name and article code date of manufacture
  - class and size of net
  - mesh size and configuration
  - unique identity or serial number
  - minimum energy absorption capacity
  - type of ongoing net inspection
- have at least three test samples attached when new
  - when a net is 12 or more months old it must have a label attached showing the net has been tested within the last 12 months and meets the manufacturer's minimum test energy absorption capacity.

SOFT LANDING SYSTEMS

Soft landing systems should:

- comply with BS publication PAS59: Specification for collective fall arrest soft landing systems (See note) or manufacturers information
- have a label showing:
  - the name of the manufacturer date of manufacture
  - unique identity or serial number
  - nominal dimensions (length, width, height) weight of the mat
  - maximum fall height the mat is designed for evidence of non-ignitability
  - if the mat is directional it must be clearly marked which way is up compliance with PAS 59, if applicable
- be supplied with product information including:
  - the need for the mats or bags to be installed by a competent person authorised by the manufacturer or supplier
  - how to prevent the modules from separating limitations of use such as maximum free fall height how to carry out a rescue.
- how to inspect and deal with the mats or bags after a fall or other significant impact.

Note: PAS 59: 2014 only applies to soft-filled systems and air/gas-filled systems where the volume of individual cells is less than 0.5% of the volume of the module in which the cells are inserted.

It does not apply to air/gas-filled systems that are designed to be inflated and deflated on site, or where the individual cell volume is greater than 0.5% of the volume of the module in which they are inserted.

Sealed air bag systems should be tested to the performance requirements of PAS 59:2004.

FALL PROTECTION FOR OPERATORS (INSTALLERS OF SAFETY SYSTEMS) AND USERS OF FALL PROTECTION SYSTEMS

Operators installing scaffolding and fall protection systems must use safe work methods which eliminate or minimise the risk of falling and other risks as far as is reasonably practical. Safe operating procedures should be developed and followed by all operators and workers.

Fall protection systems must be appropriate for the intended task and workers must be trained in how to use them safely. All equipment must be inspected regularly.

Where possible the risk of a fall should be isolated by using safe work methods such as advanced guardrails or sequential erection system for scaffolding, using mobile towers or sequential erection procedures to erect edge protection.

A fall arrest harness with appropriate attachment equipment and anchorage for the task should be worn if there is any risk of a fall or required for rescue readiness.

Workers should be hooked on in all situations where there is a risk of a fall.

PERSONAL FALL PROTECTION SYSTEMS

Personal fall protection systems allow an operator to be protected by using a harness system while working at height. The system must be appropriate for the intended task.

These systems require a high level of user competency and supervision. Operators installing scaffolding, edge protection and safety nets must be trained in the use of fall arrest systems and safety harnesses. Ongoing competency should be assessed and demonstrated.

FALL RESTRAINT

A restraint system prevents a person from coming close to an unprotected edge, so they are not able to fall. If the system can be adjusted so a person can reach a position where they can fall, the system is known as restraint technique and must be rated as a fall arrest system.

WORK POSITIONING SYSTEMS

A work positioning system is a system that enables a person to work supported in a harness in tension in such a way that a fall is prevented. Work positioning systems should be designed and set up to allow a person to work safely and in reasonable comfort. The system should be rated as a fall arrest system.

FALL ARREST SYSTEMS

Fall arrest systems are designed to catch and hold a person if they fall. They consist of a harness connected to an anchorage point. They do not prevent the fall from occurring.

The arresting force on the person must be less than 6 kN (610 kg). This can be achieved with a lanyard assembly that is no more than 2 metres long and with an appropriate fall arrest device. The lanyard assembly must include an appropriate shock-absorbing device.

The lanyard must be attached to the harness at the top dorsal (back) attachment or to the front chest attachment on the harness. The anchor point should be within easy reach but as high as practicable. When working in fall arrest the worker must maintain 100% hook on at all times.

If working with fall arrest equipment, consider:

- the rescue method when someone is suspended in a harness.
- the equipment necessary for a rescue
- information on suspension trauma

Lone workers should not work in fall arrest situations.

USING FALL ARREST SYSTEMS

HARNESSES

It is essential that the correct safety harness is chosen. When correctly fitted, a harness should fit comfortably and firmly with enough room to slide a hand between the webbing and the body.

LANYARDS

Lanyards connect the harness to an anchor point, a horizontal life line, a rail, or some other form of anchorage. Double or twin-tailed lanyards have an additional safety factor that allows the user to be connected to an anchor point by one or other of the tails at all times. An appropriate lanyard and anchorage must be used to suit the task and situation.

The lanyard should be as short as possible to minimise the distance of a potential fall.

ANCHOR POINTS

Anchor points must have a minimum ultimate strength of 15 kN (1500 kg) for use by one person. It is unlikely a suitable anchor can be achieved for more than one person on a residential structure.

Safety harness systems should be attached to anchor points above shoulder height and behind the worker if possible.

WHEN TO HOOK ON TO AN ANCHOR POINT

Where there is a risk of a fall that could cause harm, workers must hook onto the first available anchor point.

COMMON RISKS

Fall arrest systems have limitations and dangers. It is essential for a worker who has fallen to be rescued as quickly as possible. Procedures must be detailed in an emergency plan before any work takes place.

RISKS ASSOCIATED WITH USING FALL ARREST EQUIPMENT

- Lanyards that are too long can result in the user swinging down and striking the ground or other objects (pendulum effect).
- The user can be too heavy or too light for the shock absorber.
- A fall arrest system can fail if inappropriate anchor points (not strong or high enough or too close to an edge) are used.
- A worker who has fallen and is suspended in a harness can develop a condition in which blood pooling in the legs can lead to loss of consciousness and death.
- People rescuing someone who has fallen face risks to their own safety.
- A worker disconnects from the anchor points because their movement is restricted, exposing them to the risk of a fall.
- A person is not correctly connected to the attachment and the connection fails under the load.

HOW TO PREVENT THE PENDULUM EFFECT

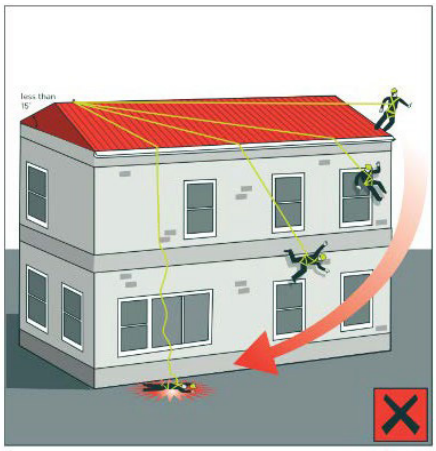


Figure 2: Pendulum effect caused by anchor line too long (left) and anchor point swing back (right)

Select an anchorage point at a right angle to the position of the line at the perimeter edge. If a right angle to the work position is not possible to achieve, the anchor point should be no more than 30 degrees to the work position. A mobile anchorage may be used.

- Use a secondary anchor point and/or an anchor line.
- Use a perimeter guardrail to prevent the possibility of a fall.
- Use a work positioning system, or some other means of access such as an elevating work platform.

INSPECTION AND MAINTENANCE OF FALL ARREST EQUIPMENT

- Most fall arrest/restraint equipment has a service life of 10 years from the date of manufacture. However, harsh work environments may mean that equipment lasts only a few years.
- Daily inspections must be done by the user of the equipment and they must be competent to do so.
- Most equipment requires thorough inspection by a competent person six-monthly. These checks must be recorded for each individual item of equipment.

RESCUING A PERSON FROM A FALL

- When using any personal fall protection system, a rescue plan must be in place.
- There should be sufficient number of workers on site that have been suitably trained in rescue procedures and the use of specialist rescue equipment.
- Workers must be familiar with and regularly practice specific techniques for rescuing personnel working with fall arrest equipment.
- Specialist rescue equipment must be available at all times, and maintained and inspected regularly to ensure that it is in good order and ready to be used whenever it may be required.

13: Environmental

When a roof is being prepared for the roof coating process, it is required by law that no contaminants enter the stormwater or sewerage system. This can be achieved by diverting downpipes to discharge onto unsealed ground. Wetvac hire, sand socks, drain-mats are some other methods that can be used to ensure environmental compliance. Even biodegradable products are still considered a pollutant and should not discharge into the stormwater or sewage system.

Good practice is to disconnect the downpipes or use diverters (as pictured) to divert the runoff to unsealed ground. **If the roof is used for water harvesting (storage) then the stormwater system must be disconnected and left disconnected for at least 3-4 good rain showers lasting more than 30 minutes after the recoating process is completed. This is to enable a "flushing" of the roof to occur and that no residue from the recoating process contaminates the water being collected. This requirement also applies if there has been a roof treatment applied to the roof.**

A proprietary diverter in the closed position.

A proprietary diverter in the open position.

Direct runoff to unsealed ground.

14: Re-coating contracts, warranties and guarantees

Best practice is to have a written contract between all parties prior to the commencement of any work. Contracts should clearly state the extent and if there are any limitations to the work being carried out. The contract should clearly state payment terms and whether a deposit is required. Do not pay a contractor or salesperson cash unless there is a receipt from the re-coating company supplied immediately on payment. If you are not sure of what you are being asked to sign-then don't sign the contract. Seek advice so you are clear and comfortable with the decision you are making.

A guarantee is a written undertaking to answer for the performance of something in the first instance. A warranty is an express or implied undertaking that something is fit for purpose and an acceptance of responsibility for necessary repairs over a specific period of time.

The warranty /guarantee should clearly state any conditions that are a requirement of the roof owner to perform so that the warranty/ guarantee is still valid. These conditions may require a regular roof wash or treatment for example. Make sure that any such conditions are in writing and clearly explained for all concerned.

Always clearly explain what is included or excluded and list these items in writing.

Always clearly explain any limitations and list these in writing. As an example-most roof coating companies will not guarantee their product when it is applied to a previously re-coated roof.

If the contract for the recoat is being acquired by a business then the Consumer Guarantees Act (CGA) does not apply as long as the documentation (contract) is clear that is the case.

The Consumer Guarantees Act has rules on what you must provide for customers, and when customers have rights to repairs, refunds or replacements for faulty products or substandard services.

This law applies equally to established bricks-and-mortar businesses, internet traders and temporary operations like pop-up shops.

The Consumer Guarantee Act (CGA) sets out quality guarantees any business or person in trade must provide to their customers.

It makes sure customers get what they pay for and, if needed, a repair, refund or replacement for a faulty product or substandard service.

You must not:

- Knowingly sell faulty products or substandard services.
- Simply accept that a product or service is faulty when a customer complains. You are within your rights to investigate before deciding what to do.
- Delay if a customer complains. You must not ignore the complaint or put off looking into it.

"In trade" means regularly selling products or services, or regularly buying to sell on. You might be GST registered and/or have staff. Or you might not. Frequency is a deciding factor.

IF YOU SELL PRODUCTS

WHO IT APPLIES TO

All businesses who sell products that are usually for personal or household use, including small and second-hand businesses, pop-up shops, auctions and regular Trade Me sellers. People who hold one-off garage sales or post-occasional online auctions do not have to follow the CGA.

WHAT YOU MUST DO

You must offer products that are:

- of acceptable quality
- fit for purpose
- match the description given
- match any samples or demonstrations given
- sold at a reasonable price, if a price wasn't agreed beforehand
- able to be legally sold.

You must also:

- Make sure deliveries arrive at the agreed time and in acceptable condition.
- Have spare parts available and a way to offer repairs. This might be through an arrangement with the manufacturer or a trusted repairer. If spare parts and repairs aren't available, tell the customer before finalising the sale.

REMEDIES FOR PROBLEMS

If you do not meet one these guarantees, a customer can get a remedy — a repair, replacement or refund — from you. Which you offer depends on whether the problem is minor or serious.

IF YOU SELL SERVICES

WHO IT APPLIES TO

Tradespeople, professionals, banks, utility providers, and all other businesses that provide services that are usually for personal or household use. This also includes schools, hospitals and government departments.

WHAT YOU MUST DO

You must offer services that are:

- done with a reasonable level of skill and care
- fit for the purpose you and the customer agreed on
- cost a reasonable amount, if a price wasn't agreed beforehand
- completed in a reasonable time, if a timeframe wasn't set beforehand.

REMEDIES FOR PROBLEMS

If you do not meet one of these guarantees, a customer can get a remedy — a repair, compensation or refund — from you. Which you offer depends on whether the problem is minor or serious.

NOTE: Because asbestos containing metal tiles can only be "soft washed" (using a water pressure ≤ 50psi)- it is beholden on the roof coating seller to clearly explain that this may impact on an warranty or guarantee offered. Clearly explain that "soft washing" may affect the preparation of an adequate surface to which the coatings will be applied. In the event that there is a fault caused by the "soft washing" then no warranty or guarantee is/may be applicable.

It is recommended that the customer sign an acknowledgement about the limitation caused by "soft washing".

15: Frequently asked Questions and Answers

Q. How much to recoat a standard 3 bedroom house and what factors impact on cost?

A. It is good advice to get several quotes for your recoat. This will enable the "market" to set the price. Access, site, volume of repairs, type of roof, amount of preparation required and location are some of the factors that can impact on price.

Q. How long before I can reconnect my downpipes?

A. After 3-4 good rainfalls of 30 mins duration is recommended.

Q. How long before the moss and mould disappears?

A. The strength of the solution used, the amount of moss and mould will impact on the timeframe. Sometimes it is apparent within days, sometimes months. Sometimes another application may be required.

Q. Is my warranty transferable?

A. Check with your roof coating supplier.

Q. What does pro-rata mean on the warranty?

A. After a set period the contribution from the roof coating supplier diminishes. As an example, the first 5 years after the recoating has occurred may be covered 100% by the roof coating supplier in the event of a warranty claim. From years 5-10 their contribution will diminish where they may only contribute 10% to the cost of a warranty claim. Always check the warranty terms prior to signing or committing to a roof coating process.

Q. What happens if a leak occurs 6 months/1 year/ 2 years after the roof has ben recoated.

A. Check the warranty details about what warranty applies to repair work prior to signing or committing to the roof coating supplier.

Q. How long before my roof will fade after recoating?

A. Roof Coatings will fade over time and it should be a gradual even fade that occurs. There is no set time before this occurs. Darker colours generally fade more – it is just more apparent.

Q. Why are two top coats required?

A. A combined paint thickness is required to minimize fading issues over the lifetime of the coating system. This can be in the form of a primer coat, a basecoat and a top coat or two basecoats and a top coat.

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