



Building Code External Moisture

Clause E2 Alternative Solution

Chevaline Dexe Membrane System



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Company Profile





Equus Industries Limited

COMPANY PROFILE

HISTORY

Equus Industries Limited is a private limited liability Company (#120201) incorporated in Blenheim New Zealand in 1982.

The Company commenced business, immediately after formation, as a manufacturer of specialist coating systems for commercial buildings. This remains the main thrust of the operation to this day, with additional complementary products introduced to extend the range to encompass a full range of coating and waterproofing materials for all types of construction.

The Company has been an exporter of specialist lines from late 1983 to date. The Company has exported regularly to Australia, the South Pacific and South East Asia, and presently has strong links with distributors in Australia and South East Asia.

Since formation, growth has been steady and continuous at an average 21% annual compound rate. The Company now has a multi-million dollar turnover and is respected as a supplier of quality protection materials to the construction industry.

PRODUCT RANGE

Equus Industries markets a wide range of high build waterproof finishes, textured coatings, and protective coatings under the brand names Chevaline, Traxx, Protexx, Thermexx and Equus. Our expertise is particularly in the areas of high build acrylic coatings and membranes, waterborne epoxies and high solids – one and two component urethane coatings. The Company is most probably the leading Australian manufacturer in the area of liquid-applied acrylic roofing membranes, and single-component moisture-cure urethane coatings. The Company has established very close relationships with its principal raw material suppliers in these fields, and operates in the forefront of technology in these areas.

Our prime objective has been to place the Company in the position of being able to supply all finishes and waterproofing materials required to protect buildings from sub-basement to roof levels. Where the technology or manufacturing requirements are outside of our standard capabilities, the Company has secured distribution arrangements for appropriate products from leading manufacturers in the respective fields as noted under 'Agencies' later in this profile.

Where appropriate, materials are covered under a Warranty system which is operated in conjunction with the Approved Applicator from the Equus Network who carries out the work on any particular project.

All products are manufactured under strict Quality Assurance standards monitored and controlled by our in-house laboratory. The Company has a TQM philosophy at is at present working within an ISO9002 framework preparing for accreditation.





FACILITIES

The Company's production facility, laboratory and Head Office are located on 1.2 hectares of land in the Riverlands Industrial Estate, Blenheim, New Zealand.

The production equipment is modern and standardised, and the Plant has a capacity of up to 1.2 million litres of product per annum when operated on a single-shift basis. There is considerable room for expansion of the facility to cope with all requirements in the foreseeable future.

Additionally, the Company operates stores in Auckland, Wellington and Christchurch, where basic stocks of commonly used products are held for immediate supply. The Company regards itself as a custom-formulator, rather than a manufacturer of conventional products, and stock holdings of standard products are rationalised for maximum stock turnover.

Technical representatives service both Clients and Approved Applicators, working from offices associated with the stores in Auckland, Wellington and Christchurch. Full technical backup to the sales staff is provided from Head Office/Laboratory facility in Blenheim.

DISTRIBUTION NETWORK

Equus Industries Limited is not directly involved in retail sales. Distribution of Equus products is normally to Approved Applicators who are familiar with and trained in the use of the Equus range of products either in part, as Specialist Applicators for product ranges within the Network, or in total for major Applicators and those working in smaller centres.

A close relationship between Equus Approved Applicators and Equus Industries ensures that there is full co-operation on site between the Manufacturer's Supervisory/Technical Staff, and the Approved Applicator's own staff. Quality Assurance Programmes instituted by the Manufacturer are therefore meaningful, noting that programmes are generally written for individual contracts to take in all aspects of work on that particular contract.

A close relationship is well established with distributors in Australia and Singapore/Malaysia, with further links into Hong Kong/China currently under negotiation.

DIRECTORATE

The Company was founded, and has been operated since inception, by the current Directors who are:

Brian J Greenall BE(Chem), MNZIC, FTSC, GradIChemE
Managing Director

Marinus Wagenvoort BSc, MNZIC, ATSC
Technical Director

It should be noted that the Directors and six technical representatives have amongst them over 150 combined years experience in the surface coatings and construction industries.





ASSOCIATED COMPANIES

As mentioned previously, Equus Industries has formed a firm association with a number of companies outside New Zealand to ensure that the best possible products to fulfil market requirements, and our objective of ensuring that all protective materials required on a project, can be sourced from one supplier, generally through one Approved Applicator.

These companies include:

Tremco Asia-Pacific Pty Limited (subsidiary of Tremco Inc of USA) – Australia

Torch-on roofing and tanking membranes, construction sealants and liquid membranes.

Texmastic International Inc – USA

Self –adhesive membranes, protection board and associated materials.

Keimfarben GMBH & CO KG – Germany

Silicate paints and plasters.

Asahi Denka – Japan

Hydrophilic waterstops.

Shobond Construction Company – Japan

Epoxy Injection Systems for concrete repair.

Goldfoam Company – Korea

XPS Insulation Board

Hanover Wire Cloth Division of CCX Inc – USA

Fibreglass Mesh and Tapes

De Boer – Belgium

Duo Torch-on roofing and tanking membranes.

In all cases, Equus Industries Limited has the distribution rights for the New Zealand Market.

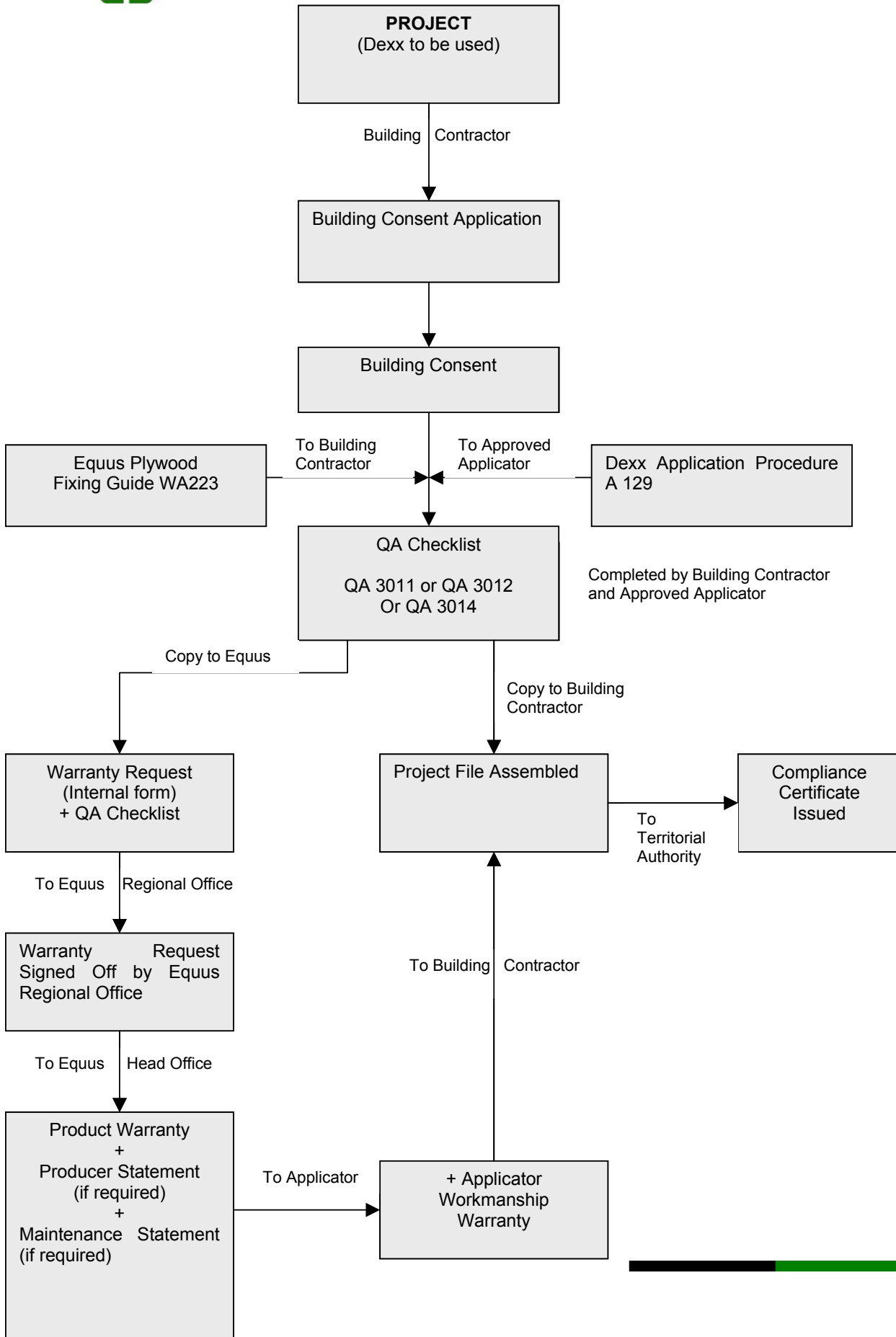
OUR MISSION STATEMENT

Through teamwork, to profitably manufacture and distribute the optimum in waterproofing and protective materials to the construction and allied industries.



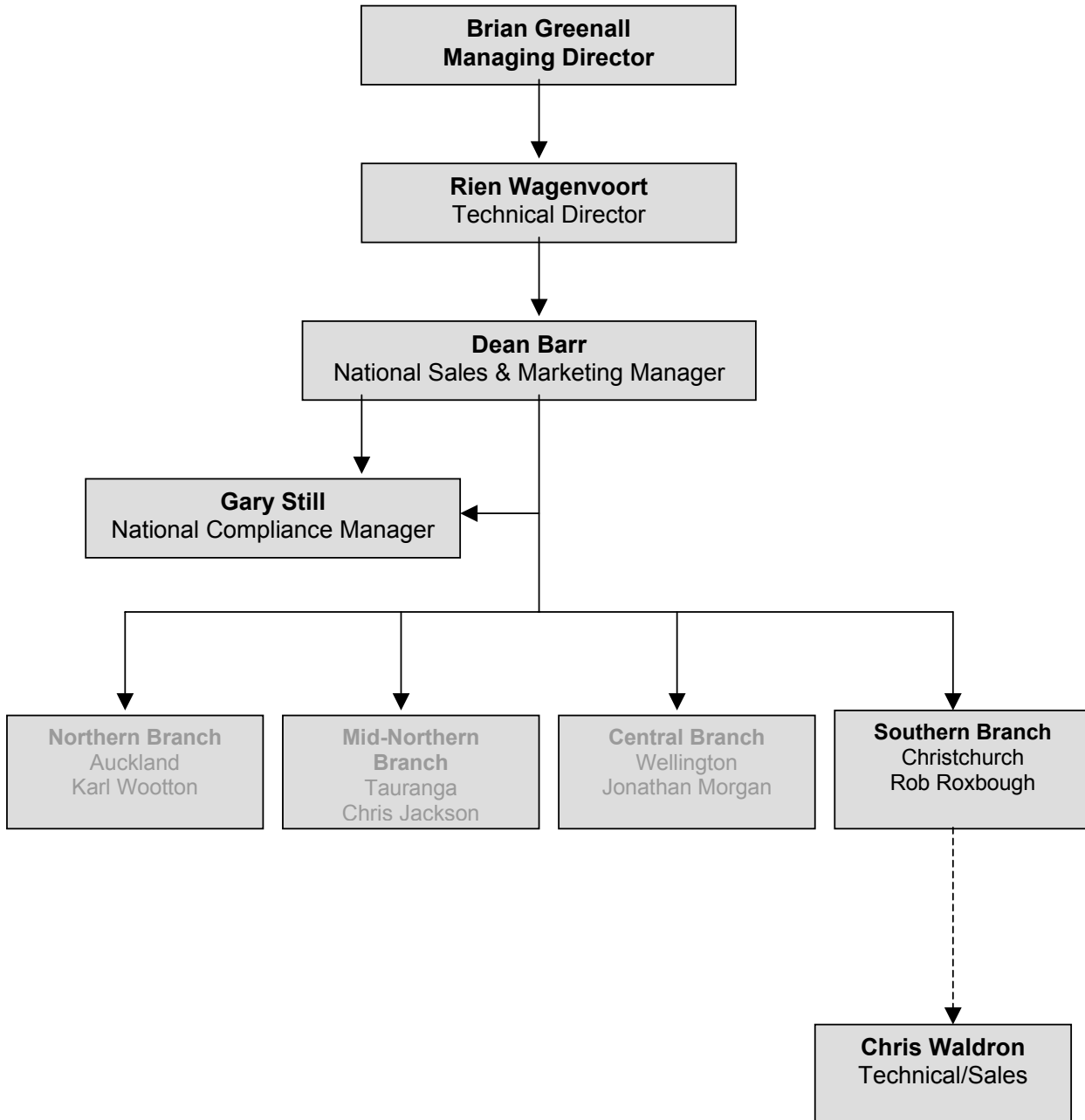
Building Consent Process







Equus Compliance Chain Of Command





Gary Still

National Compliance Manager

Gary Still has an extensive working history in the building and construction industry. Over the years he has worked as a sheet metal worker, steel fixing and swimming pool plastering, concreting, placement and finishing in both Australia and New Zealand. He worked as a supervisor/foreman for high rise work in Australia, supervising up to 25 labourers a day and as site foreman, machinery control and goods in control on a 30 unit tourist complex in Western Australia. Gary has owned and successfully run several businesses in Australia and New Zealand before returning to the construction industry (specialising in architectural hillside homes) in the early 1990's. Gary has an interest in Surf Life Saving and is a board member for the Paraplegic Federation Canterbury.

Prior to starting with Equus Industries in 1999, Gary spent five years as a project manager covering a wide range of construction projects, from residential through to commercial. For the last five and a half years Gary has been Operations Manager for Equus, Southern Region. In this time, Equus Southern has grown into a market leader in the waterproofing market in the South Island. He deals on a day to day basis with local builders, plasterers, painters, membrane specialists, local councils, South Island councils and applicators, and is also an assessor for Proprietary Plaster Cladding Systems.

Gary's role as National Compliance Manager will involve liaising with Territorial Authorities New Zealand wide. Gary will also act as an advisor to the Weathertight Homes Resolution Service (Internal Affairs) in regard to solving leaky homes at mediation.

Contact:

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equus
WATERTIGHT TECHNOLOGY

CERTIFIED APPLICATOR

This is to certify that

_____ has met with our terms for Approved Applicators
and been authorised to apply specified Equus Systems

Chevaline Dexx Membrane System

Brian Greenall
Managing Director
Equus Industries Limited

Rien Wagenvoort
Technical Director
Equus Industries Limited

Expiry Date





Approved Applicator List

Barry Harding PO Box 422 Wanaka	Fax: 03 443 6474	Barry Harding 027 249 3291	
Brown Brothers 10 Rimu Lane Wanaka	Phone: 03 443 5117 Fax: 03 443 5117	Grant Brown 0274 570 713	
Brown & Syme Cromwell		Phil Bancroft 0272 262 763	
Graham Keogh Dunstan Rd, RD1 Alexandra	Phone: 03 448 7031 Fax: 03 448 7031	Graham Keogh 025 220 6845	Mark Robinson 021 648 5591
Gunac Otago Ltd 128 Crawford Street PO Box 2114, Dunedin	Phone: 03 477 6779	Wayne Jefcoate 0275 322 687	
Henderson Construction Ltd 78 Otepunui Avenue PO Box 6051, Invercargill	Phone: 03 216 9002 Fax: 03 216 9005	Murray Henderson 0275 351 252	Mark Saunders 0275 351 253
Herman Morsink (James Wren & Co) 152 Spey St, Invercargill	Phone: 03 214 4079 Fax: 03 214 4079	Herman 0274 330 111	John 027 274 9044
Hillary Haggerty 11 Norwood Street Invercargill	Phone: 03 216 8305 Fax: 03 216 6833	Hillary Haggerty 0274 733 107	
James Wren & Co Ltd 50 Carroll Street Dunedin	Phone: 03 477 9384 Fax: 03 477 9348	Richard Daniell 021 322 804	Steward Driver 021 367 021
Kim McDowall Painting PO Box 179 Gore	Phone: 03 208 5960 Fax: 03 208 5960	Kim McDowall 0274 336 278	
Mulford Holdings Ltd. 42a Barr Street P.O.Box 61, Dunedin	Phone: 03 488 4151 Fax: 03 488 4152	Barrie Clydesdale 0274 328 122	Shaun 0272 013 511
R J Roxburgh & Son Ltd High Street Southbridge	Phone: 03 324 2306 Fax: 03 324 2906	Rob Roxburgh 0274 342 550	Grant Roxburgh 0274 357 888
Rob Pine	Phone: 03 449 2161	Robert Pine	Grant Roxburgh



PO Box 37 Clyde	Fax: 03 449 2162	027 226 4010	0274 357 888
Robert Smith PO Box 475 Wanaka	Phone: 03 443 7233 Fax: 03 443 7293	Robert Smith 021 220 6961	
Ron Smith 289 Riverbank Road, RD2 Wanaka	Phone: 03 443 7161 Fax: 03 443 7159	Ron Smith 025 299 4192	
Thomson Plastering Ltd PO Box 664 Frankton, Queenstown	Phone: 03 442 7793 Fax: 03 441 8291	John 021 355 420	Matthew 021 340 293
Tony Quirke Builders Ltd 30 Matai Road Wanaka	Phone: 03 443 7619 Fax: 03 443 7419	Tony Quirke 0272 019 380	
Vin & Kelvin Reid 33 Antrim Street Cromwell	Phone: 03 445 0102 Fax: 03 445 1850	Vin Reid 025 203 2035	Kelvin Reid 0274 477 055
Wensley Developments PO Box 1472 Queenstown	Phone: 03 442 5190 Fax: 03 442 9603	Greg Wensley 021 333 265	Gary Morton 027 2201195
Williams Contracting PO Box 1135 Queenstown	Phone: 03 445 0333 Fax: 03 445 0933	Lionel Williams 0274 386 429	
All Roof Coatings Quality Rental Car Office PO Box 39049, Christchurch	Phone: 03 360 2011 Fax: 03 360 2310	Ritchie Whyte 027 227 5348	
Ashley Plasterers 21 Wesley St Kaiapoi	Phone: 03 327 6373 Fax: 03 327 9183	Brian Ashley 0274 341 164	
Asset Protection Ltd 340 St Asaph Street Christchurch	Phone: 03 379 8210 Fax: 03 365 8307	Robert Shrigley 021 347 561	Barry Collins 021 326 260
Brown & Syme 21 Te Rama Place P.O.Box 15-010, Christchurch	Phone: 03 381 8423 Fax: 03 381 7212	Phil Bancroft 027 226 2763	Peter Mason
ChCh Lightweight Concrete Ltd 13 Parkhouse Road, Sockburn P.O.Box 9133, Christchurch	Phone: 03 343 3914 Fax: 03 343 3915	Darryl Campbell 027 245 5795	Paul Prendergast 027 276 0451



Decratex Ltd 41 Milstream Drive, Lincon P.O.Box 35 104, Shirley	Phone: 03 325 6250	Murray Cooke 021 368 874	
Gunac Christchurch Ltd 23 Walter Terrace P.O. Box 13-445, Christchurch	Phone: 03 366 0177 Fax: 03 365 2292	Hamish Grant 0274 377 185	Vaughan 0272 822 993
Jeff Dermott Ltd 10 Clarence Street West Addington, Christchurch	Phone: 03 338 6211 Fax: 03 338 6213	Alan McGregor 021 385 091	Jeff Dermott 025 657 6249
J L Decorating 410 Mariehau Road PO Box 38033, Christchurch	Phone: 03 383 0255 Fax: 03 383 0285	John Lyall 0274 080 796	
Lance Pengelly PO Box 26 Kirwee		Lance Pengally 025 220 2075	
Lee Schafer 55b Wiggins Street Sumner, Christchurch	Phone: 03 326 5111		
Murray Coatings Ltd 84 Hawdon Street, Sydenham P.O.Box 22-326, Christchurch	Phone: 03 322 9373 Fax:	David Murray 0274 345 275	
Plains Coating Company Ltd 37 Clarendon Terrance P.O.Box 19-906, Christchurch	Phone: 03 980 7571 Fax: 03 980 7572	Lindsay Hegarty 021 156 9291	Trevor Corrin 027 220 1385
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Shawn Watson Decorators 467 Bower Avenue North New Brighton, Christchurch	Phone: 03 383 5553 Fax: 03 383 5838	Shawn Watson 0274 372 332	
Zeadcote Plasterers 43 Shelley Street Rolleston, Christchurch	Phone: 03 347 9011 Fax: 03 347 9017	David Thompson 021 644 733	
Brown Brothers 16 Onslow Street Timaru	Phone: 03 688 1840 Fax: 03 688 1840	Chris Brown 0274 487 531	Neil Brown 025 244 7005
Brown Brothers 10 Rimu Lane	Phone: 03 443 5117 Fax: 03 443 5117	Grant Brown 0274 487 531	

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Barrie Clydesdale Shaun
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Specifications



Standard specification CHEVALINE DEXX on plywood roofs and light-traffic decks

Page 1 of 4
P3011

1.0 PREAMBLE:

This specification is for the application of the **Chevaline DEXX** Waterproof Membrane System to plywood surfaces, either in new construction, or where the plywood is used as an overlay on existing sarking, for both roofing and trafficable deck areas.

These areas generally occur in domestic and light commercial construction, and this specification is not applicable for carpark decks, where special design criteria apply.

2.0 SURFACE PREPARATION:

2.1 General Responsibility:

Unless expressly agreed otherwise at time of contract pricing, all work in this section shall be the responsibility of the Main Contractor, whether carried out by his own staff, other sub-trades or the Specialist Finishes Sub-Contractor. In the latter case, such preparatory work shall be priced separately from work defined in Sections 3.0-5.0 inclusive.

2.2 Plywood Grade & Thickness:

.1 *Structural Underlay - general usage:*

Plywood shall be minimum 18mm Cp-D treated structural plywood, unless otherwise expressly stipulated by the specifier.

.2 *Overlay to existing sarking only:*

Plywood shall be minimum 9mm Cp-D treated structural plywood, unless otherwise expressly stipulated by the specifier.

2.2 Sheet Layout:

All sheets shall be laid out so as to maximise the use of whole sheets. All sheet joints shall be laid over framing members.

2.3 Back Priming:

Sheets used over spaces which are not ventilated shall be back-primed with **Chevaprime PBT** or equivalent prior to installation.

2.4 Sheet Spacing:

Sheets shall be laid tight butt-jointed, with edges pre-primed with **Chevaline DEXX Plywood Primer**.



2.5 Sheet Fixing:

Plywood must be fixed in accordance with Manufacturers instructions taking into account wind-loading, frame spacing and ply thickness. Screw-fixing is preferred using countersunk corrosion-resistant screws. At the very least, on small deck areas, all corners must be screw-fixed, with screw nails for the balance. All sheets shall be laid in a bead of construction adhesive along all framing members.

All fastener heads shall be recessed below the level of the sheet face.

All surface defects and fasteners shall be flushed out with an approved filler such as **Epar Epoxy 801**.

3.0 SURFACE PRETREATMENT:

3.1 Surface Defects:

All splits and surface defects shall be flushed with **Epar Epoxy 801** which shall be allowed to dry before membrane application is begun. This shall include any gaps because of irregularities in sheet edges at tight-butt joints.

3.2 Treatment of Plywood Joints:

Apply a 150mm wide strip of 300gsm. chopped strand fibreglass mat centred over all joints, and firmly bedded in **Chevaline Dextx**. This shall be done after priming (see 4.1) and before membrane application.

3.3 Upstands, Junctions and Joints:

All vertical/horizontal transitions and joints shall have a minimum 150mm wide strip of 225 gsm or 300 gsm glass fibre mat embedded in **Chevaline Dextx** and centred on the transition/joint as additional stress reinforcement. This shall be done after priming and before application of the **Dextx** membrane layer.

4.0 MEMBRANE APPLICATION:

4.1 Priming:

All plywood surfaces to be coated shall be primed with **Chevaline Dextx Plywood Primer** onto dry surfaces or **Epistixx** on damp surfaces. Where **Epistixx** is used, care shall be taken with mixing and dilution, and an overnight dry shall be allowed.

4.2 Membrane Application:

The membrane comprises **Dextx** and 300 gsm glass fibre mat applied in the following sequence:

Bodycoat
Glassfibre mat (laid into wet Bodycoat)
Bodycoat
Bodycoat



Application shall at all times be in accordance with Manufacturers instructions particularly with regard to spreading rates and dry times, to ensure a sound tight membrane is achieved.

4.3 Extra Thickness - Traffic Areas:

In areas of high traffic use allowance shall be made for an additional thickness of glass fibre mat and an additional bodycoat within the membrane system, to ensure resistance to such traffic and increased likelihood of impact damage. Such areas shall be clearly delineated on plans.

4.4 Glazecoat:

.1 All High Traffic Use Surfaces:

These surfaces shall be sealed with a minimum of one (1) coat of **Traxx Colourseal** applied by soft broom, roller or spray at a spreading rate of approx 11-12 sqm/litre as supplied.

.2 All other Surfaces:

These surfaces shall be sealed with one (1) full coat of **Chevaline Dexx Topcoat** applied by roller, brush or spray at a spreading rate of 10-11 sqm/litre as supplied.

5.0 GENERAL NOTES:

5.1 Upstands/Coves/Sumps/Downturns:

The **Dexx** Membrane shall be taken 100mm up all associated upstands, and turned into any rainwater sumps which may be incorporated in the floor slab or deck. Where permanent ponding is likely in sumps and gutters, a finish coat of **Chevaline Colourcure** applied at 8-10 sqm/litre should be substituted for the chosen wear coat.

5.2 Water Entry Points:

Ensure that all likely construction details which may allow water entry to the area beneath the membrane are adequately sealed. This may necessitate extension of the **Dexx** Membrane or a compatible waterproof coating system to drip edges, particularly on associated stub walls and overhangs, where the **Dexx** membrane should be turned down the entire thickness of the roof/deck to a drip edge.

5.3 Colour and Gloss:

The colour of the membrane and glazecoat shall be the same in any area, and shall be nominated by the Architect.

The gloss shall be stipulated by the Architect as either Gloss, Satin, or Eggshell, depending on service conditions and appearance required.

5.4 Optional Wearcoat:

Where a non-slip surface is necessary, **Dexx Wearcoat** shall be used as an additional coat prior to application of **Colourseal**. This is recommended on stairs and landings.

5.5 Placing in Service:

The treated areas may be placed in service 48 hours after glazecoat application.



6.0 MAINTENANCE & WARRANTY:

6.1 Maintenance:

.1 The **Chevaline Dexe** Membrane may be cleaned at any time by low pressure spraying/brooming and hosing off using a weak (0.1%) neutral detergent solution. Floor sweeping machines and/or abrasive cleaning agents shall not be used.

.2 It is recommended that the surface be inspected at 4-5 yearly intervals, and, if necessary a further application of **Traxx Colourseal** or **Chevaline Dexe Topcoat** as appropriate be carried out to preserve the appearance and performance of the applied membrane.

.3 Should mechanical damage occur because of undue wear, vandalism or associated building maintenance, the **Dexe** can be easily replaced by patching and/or resurfacing as required, after simple preparation.

6.2 Warranty:

The membrane system described in this specification may be warranted as waterproof for a period of up to 15 years, provided that:

.1 All work is carried out by an Approved Equus Contractor.

.2 All work is carried out in accordance with this specification or any amendments or additions therefore made by the Manufacturer.

The warranty is provided to the client by the Equus Contractor carrying out the work and is backed by the Manufacturer as to the fitness for the purpose of the materials supplied for the contract.

It should be noted that as the surface may be a wearing surface, certain provisions regarding mechanical damage and maintenance recoating may be incorporated within the warranty, depending entirely upon the declared intended use to which the surface is to be put.

-oooOooo-

Standard specification for the application of Chevaline Dexx on concrete, plaster and mastic asphalt surfaces.

Page 1 of 4
P3012

1.0 PREAMBLE:

This specification is for the application of the **Chevaline Dexx** Waterproof Membrane System to concrete, solid plaster and mastic asphalt surfaces subject to foot traffic and minimal surface abuse. This generally applies to domestic and light commercial deck/patio areas, and most solid construction roof areas not used for car parking or intensive commercial activity (in this instance refer to Specification P3013).

2.0 SURFACE PREPARATION:

2.1 General- Responsibility:

Unless expressly agreed otherwise at time of contract pricing, all work in this section shall be the responsibility of the Main Contractor, whether carried out by his own staff, other sub-trades or the Specialist Finishes Sub-Contractor. In the latter case, such preparatory work shall be priced separately from work defined in Sections 3.0 - 5.0 inclusive.

2.2 Mosskilling Treatment:

All surfaces shall be treated with Equus Mosskill solution to kill all moss/mould spores and growths. Stipulated kill-times shall be observed.

Note: Badly affected surfaces may require treatment before and after waterblast cleaning to ensure a residual moss-kill treatment before coating application.

2.3 Cleaning:

All surfaces to be waterproof shall be waterblast cleaned to remove all construction detritus and laitence, providing a lightly profiled surface ready for coating application. Surfaces which have been power-floated should, if possible, be acid etched to "open" the surface and then thoroughly rinsed. Pebbled surfaces may require additional scarifying to remove all pebbles/binder back to a relatively smooth surface.

2.4 Patching:

Surface imperfections shall be patched, using either a **Thermexx** mortar for minor imperfections in concrete or a **Chevacryl Admix**-gauged patch mortar for larger irregularities in concrete or mastic asphalt. Other proprietary surface patch mixtures shall **not** be used.

Note: Irregular mastic-asphalt surfaces may require an asphalt-emulsion/cement/sand plaster application to level to falls prior to membrane application. If doubt exists as to correct treatment, Equus should be contacted for a detailed preparation procedure.



3.0 SURFACE PRETREATMENT:

3.1 Expansion/Movement Joints:

Such designed joints exceeding 6mm in width are not to be overlaid with **Chevaline Dexx**, but shall be sealed using **Tremflex 25** which shall remain exposed.

3.2 Shrinkage/Settlement Cracking and Construction Joints:

.1 **Concrete /Solid Plaster:**

Any regular cracks greater than 1mm width which appear likely to move regularly shall be saw-cut or chased to 5mm width and 8-15mm depth, primed and sealed with **Tremflex 25**. All such sealant joints shall be overlaid after surface priming, with a 150mm strip of 300 gsm. chopped strand fibreglass matt bedded in **Chevaline Dexx**. The **Dexx Membrane** shall be carried over such cracks.

.2 **All Surfaces:**

Irregular cracks for which saw-cutting or chasing is impractical, shall be pretreated after surface priming with **Chevaline Dexx** applied as a 100-150mm wide band, with 300 gsm glass-fibre mat or tape embedded as a reinforcement. This shall be allowed to dry overnight before membrane application is begun.

3.2 Upstands:

All monolithic horizontal/vertical transitions which are not already covered shall be rounded to 5mm minimum radius using **Tremflex 25** applied as a fillet at least 24 hours before membrane application. Where the transition is not monolithic, a plaster or timber fillet of 50x50 section shall be installed prior to **Dexx** application.

4.0 CHEVALINE DEXX APPLICATION:

4.1 Priming – All Surfaces:

All surfaces to be coated shall be primed with a **Chevaline Epistixx** correctly mixed and diluted for roller or brush. Application of this shall include upstands to a minimum height of 100mm adjacent to all horizontal surfaces being coated. Spreading rate will depend on surface profile and porosity, generally in the range of 8-10sqm/litre of mix.

Note: If there is likely to be a delay in membrane application apply a Thin keycoat of **Dexx 80/20** within 24 hours of primer application, to ensure good bonding of the membrane system. Allow overnight dry before proceeding with membrane application.

4.2 Membrane Application:

The membrane comprises **Dexx** and 300 gsm glass fibre mat applied in the following sequence:

Bodycoat
Glassfibre mat (laid into wet Bodycoat)
Bodycoat
Bodycoat



Application shall always be in accordance with Manufacturers instructions particularly with regard to spreading rates and dry times, to ensure a sound tight membrane is achieved.

4.3 Extra Thickness - Traffic Areas:

In areas of high traffic use allowance shall be made for an additional thickness of glass fibre mat and an additional bodycoat within the membrane system, to ensure resistance to such traffic and increased likelihood of impact damage. Such areas shall be clearly delineated on plans.

4.4 Glazecoat:

.1 All High Traffic Use Surfaces:

These surfaces shall be sealed with a minimum of one (1) coat of **Traxx Colourseal** applied by soft broom, roller or spray at a spreading rate of approx 11-12 sqm/litre as supplied.

.2 All other Surfaces:

These surfaces shall be sealed with one (1) full coat of **Chevaline Dexx Topcoat** applied by roller, brush or spray at a spreading rate of 10-11 sqm/litre as supplied.

5.0 GENERAL NOTES:

5.1 Upstands/Coves/Sumps:

The **Dexx** Membrane shall be taken 100mm up all associated upstands, and turned into any rainwater sumps which may be incorporated in the floor slab or deck. Where permanent ponding is likely in sumps and gutters, a finish coat of **Traxx 2000 Wearcoat** applied at 8-10 sqm/litre should be substituted for the normal glazecoat.

5.2 Water Entry Points:

Ensure that all likely construction details which may allow water entry to the slab beneath the membrane are adequately sealed. This may necessitate extension of the DEXX Membrane or a compatible waterproof coating system to drip edges, particularly on stub walls and bare slab edges, where the **Dexx** membrane should be turned down the entire thickness of the slab/roof to a drip edge.

5.3 Colour and Gloss:

The colour of the membrane and glazecoat shall be the same in any area, and shall be nominated by the Architect.

The gloss shall be stipulated by the Architect as either Gloss, Satin, or Eggshell, depending on service conditions and appearance required.

5.4 Optional Wearcoat:

Where a non-slip surface is necessary, **Dexx Wearcoat** shall be used as an additional coat prior to application of **Colourseal** or **Dexx Topcoat** . This is recommended on stairs and landings in particular.



5.5 Placing in Service:

The treated areas may be placed in service 48 hours after Glazecoat application.

6.0 MAINTENANCE AND WARRANTY:

6.1 Maintenance:

- .1 The **Chevaline Dext** Membrane may be cleaned at any time by low pressure spraying/brooming and hosing off using a weak (0.1%) neutral detergent solution. Floor sweeping machines and/or abrasive cleaning agents shall **not** be used.
- .2 It is recommended that the surface be inspected at 4-5 yearly intervals, and, if necessary a further application of Glazecoat be carried out to preserve the appearance and performance of the applied membrane.
- .3 Should mechanical damage occur because of undue wear, vandalism or associated building maintenance, the **Dext** can be easily repaired by patching and/or resurfacing as required, after simple preparation.

6.2 Warranty:

The **Chevaline Dext** Membrane system described in this specification may be warranted as waterproof for up to Fifteen (15) years provided that:

- (a) All work is carried out by an Approved Equus Contractor.
- (b) All work is done in accordance with this specification or any written additions or amendments thereto issued by the Manufacturer.
- (c) For warranty periods in excess of ten (10) years, the warranty includes the appropriate Maintenance Statement.

Such a warranty is issued by the Approved Equus Contractor who does the work, and is backed by the Manufacturer as to the fitness for the purpose of the materials supplied by them for the contract.

It should be noted that as the surface is a wearing surface, certain provisions regarding mechanical damage and maintenance re-coating may be incorporated within the warranty, depending entirely upon the declared intended use to which the surface is to be put.

-oooOooo-

Data Sheet



Chevaline Dexx

Flexible Reinforced Roof and Deck Membrane

Key Benefits Summary:

- 20 years of Proven performance in New Zealand conditions
- Excellent durability
- Ease of use
- Applicable to a variety of surfaces in both horizontal and vertical situations
- Wide colour range available
- Ease of detailing even on complicated shapes
- Easy long-term maintenance
- Applied by Approved Equus Applicators

Limitations:

- Special design and maintenance criteria apply for vehicular traffic installations.
- May require weather protection for correct cure when applied in cold/damp ambient daytime temperatures
- Creasing may occur at plywood joints in correctly detailed installations.

Colours:

Dexx is supplied as standard in 00-A-05 (grey) and white. Custom colours are available to match any colour chart. We do not recommend dark colours on plywood roofs/decks. Seek advice from Equus if in doubt.

Physical Properties:

Liquid Material:	(Dexx Bodycoat)
Volume Solids:	47%
Specific Gravity:	1.30
Flash Point:	None
Shelf Life:	3 years in original sealed container, when stored in cool, dry conditions.
Applied Film:	Standard System
Flexibility:	Passes 3mm mandrel
Durability:	Excellent long term service
Chemical Resistance:	Excellent resistance to all normal environmental pollutants.
Fungus Resistance:	Chevaline Dexx contains a highly effective anti-fungal preparation.
Normal Film Thickness:	1.2-1.5mm depending on number of glass cloth layer used.

Performance:

When correctly detailed and installed, **Dexx** membranes comply with the following clauses of the Building Code.

B2 Durability	E1 Internal Moisture
E2 Exterior Moisture	F3 Hazardous Materials

Purpose of use:

A liquid applied, glassfibre mat reinforced membrane for use in sealing old and new flat and near-flat roofs, walk-out decks and patios. Particularly useful where areas are subject to foot traffic and light vehicular traffic. Topcoats are available for various service conditions. Can also be used on specified substrates as a waterproof membrane under tiles. **Dexx** is always used in conformance with Equus standard specifications.

Product:

The liquid **Dexx** material is a heavy-bodied water-borne acrylic paste ready to use from the container. It is formulated for high adhesion, and water resistance, also toughness combined with flexibility in the cured film. The wear-coat contains graded silica for slip and wear resistance. **Dexx** is available in FD grade for application in adverse conditions.

Compatibility:

Dexx is always used in conjunction with 300gsm glassfibre E-mat as reinforcement except for parapet detailing where 225gsm E-mat may be used. **Dexx** is compatible with the following primers - depending on substrate and environment **Dexx Primer, Chevaprime PBT, Chevaprime-U and Epistixx.**

Dexx is compatible with the following topcoats, depending on environment and end-use. **Dexx Topcoat, Dexx Wearcoat, Colourglaze, Traxx Colourseal, Traxx 2000 Wearcoat.** Refer to Standard Specifications for guidance on primer and topcoat usage.

Standard Pack:

20 litre open headed pails with plastic head-liners.

Maintenance:

When **Dexx** is used as an exposed membrane, topcoat renewal will be required at 5-10 yearly intervals, depending on topcoats type and service conditions. Clean by medium pressure water washing, with detergent injection on trafficable areas, and recoat. If mechanical damage to the membrane has occurred, this can be easily repaired prior to re-topcoating.

Warranty:

Up to 15 years depending on location and service conditions.

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Phone: 03 578 0214 Fax: 03 578 0919
E-mail: admin@equus.co.nz
Web: www.equus.co.nz

Surface Preparation:**Concrete Roofs and Decks:**

Mosskill if necessary, patch all holes and pretreat cracks (but not movement joints), by cleaning out, filling with **Thermexx Plaster** and overlaying with 300gsm fiberglass E-mat 150mm strip embedded in **Dexx**. Ensure surface is well cleaned, and dry before proceeding with application.

Mastic Asphalt:

Ensure surface is level, and all holes and cracks are filled with a bituminous patch mix or **Chevacryl Admix Plaster**, particularly those where blisters have been cut out.

Exterior Plywood:

Ensure sheets are tight-butted, well fastened (stainless steel screws) glued to bearers and adequately supported. If in doubt about adequate below-surface ventilation, include venting either at upstands (with over-flashing) or with built-in vents.

Priming:

Concrete, Mastic Asphalt, Previously coated surfaces: **Dexx Primer** or **Epistixx**.

Priming:

Plywood: **Chevaprime-U**, **Dexx Primer** or **Epistixx**. Prime sheet backs and edges.

Spreading rates will generally be dictated by surface profile and porosity, but all **Chevaline** primers should be applied at between 6-10sqm/litre of dry mix.

Application Method:

All **Dexx** bodycoats should be roller-applied with a medium/long nap-roller. Final topcoat, glaze-coats or wearcoats may be rolled or sprayed, preferably using airless equipment. Application sequence is as follows (on primed surface)

1. Bodycoat
2. Glass Fibre Mat (laid into wet bodycoat)
3. Bodycoat
4. *Bodycoat
5. *Glass Fibre Mat
6. *Bodycoat
7. Bodycoat
8. Wearcoat/Glaze-coat

(*optional items depending on service conditions)

Minimum spreading rate for the three-coat bodycoat system is 1.5 litres/sqm. Care must be taken to ensure that the reinforcing mat is well embedded in the wet material and that the bodycoat application of the mat is well worked in to eliminate air-trap.

Application Properties:**Spreading Rate:**

3 coat system: 2.0-2.5sqm/litre/coat
(40-45sqm/pail/coat)

4 and 5 coat system: 2.25-2.4sqm/litre/coat
(45-48sqm/pail/coat)

Dexx Wearcoat: 3.0-4.0sqm/litre
(60-80sqm/lpail/coat)

Dexx Topcoat /
Colourglaze: 10sqm/litre (200sqm/pail).
Spreading rates indicated must **not** be exceeded if satisfactory performance is to be achieved.

Dry Time:

Do not apply **Dexx** in air temperatures less than 8°C or when surface temperature is less than 4°C. Use **Dexx** FD in adverse conditions.

Touch Dry: 1-2 hours)
Through Dry: 8-16 hours) at normal conditions
Full Hardness: -10 hours)

Recoat Time:

Self-recoat and 4-8 hours or as soon as operator can walk over the surface. In adverse weather conditions.

Dexx Wearcoat: Allow 24 hours between coats.
Colourglaze/
Dexx Topcoat: 12-24 hours.
Traxx 2000 Wearcoat: Allow 48 hours minimum. At least 72 hours in winter.

Thinning/Clean Up:

Use clean water for both. Clean equipment immediately after use. Fully dried material is difficult to remove.

NOTE: Normal conditions are 18-23°C and 60-70% R.H. Cooler and/or more humid conditions may prolong dry times.

Health and Safety:

Chevaline Dexx is a waterborne material and contains no mammalian-toxic substances. It is non-flammable and requires no special storage conditions other than protection from frost or prolonged heat. However, we do recommend the use of barrier cream on hands, and safety spectacles when handling/applying this material.

EQUUS SAFETY CLASS 1.
Shipping Restrictions: None.
Dexx Edition 3
Equus Industries Ltd 2002

Know How's



Chevaline Dexx

Application of Chevaline Dexx to new plywood surfaces.

Surface Preparation And Sheet Fixing:

Back-priming:

All plywood should be back and edge-primed with **Dexx Primer** to dry surfaces, or **Epistixx** to damp plywood surfaces, before fixing.

Sheet layout:

Organise sheet layout to maximise the use of whole sheets and to keep joints as straight forward as possible. All sheet joints must be laid over deck/roof framing members. On large areas, lay plywood in a brick-bond pattern to minimise the number of 4-way joints.

Sheet spacing:

Sheets of plywood should be tight butt-jointed. This means that in practice the gap between individual sheets will vary from zero to 1.5mm depending on accuracy of edge-cutting.

Sheet fixing:

Plywood must be fixed in accordance with manufacturers' instructions taking into account wind-loading, frame spacing and ply thickness. Screw-fixing is preferred using countersunk corrosion-resistant screws. At the very least, on small deck areas, all corners must be screw-fixing with screw-nails for the balance.

All fastener heads shall be recessed below the level of the sheet face. In addition it is preferred that sheets be laid in a bead of construction adhesive on all framing members.

Sheet filling:

All surface defects and fasteners shall be flushed over with **Epar 801 Epoxy Filler**. Any gaps between sheets shall be similarly treated.

Priming:

When sheets have been fixed and stopped, all surfaces shall be primed with one full coat of **Dexx Primer** to dry surfaces or **Epistixx Primer** to damp surfaces, applied at 8-10 sqm/litre and allowed to dry overnight. Note that pre-priming is permitted, if this is a practical site consideration, but any cut or exposed surfaces of plywood must be patch-primed to ensure the surface is sealed.

Upstands:

Where upstands to walls occur, an ex 25 x 25 or 50 x 50 timber can't strip/fillet shall be installed, fixed to the deck and primed.

Plywood quality:

The minimum recommended standard for plywood is B-D Grade construction ply, with A-D Grade being preferred. The thickness of plywood used will depend to a large extent on construction details, but normally, for trafficable areas 17.5mm plywood is considered to be acceptable, with appropriate framing details. The better the face-grade of the plywood, the less the preparation needed prior to laying Dexx. **Use of treated plywood is preferred, but may depend on local building regulations.**

Joint Treatment And Detailing:

Plywood joint:

All tight-butted, stopped plywood joints should be overlaid with a 150mm strip 300gsm E-mat thoroughly bedded in and wetted out with Dexx. The strip should be centered over the joint. The pretreatment must be allowed to dry thoroughly before overlaying with the full **Dexx Membrane**. Both edges of the glass should be teased out.

Upstands:

All upstands should be sealed by the application of a strip of 300gsm E-mat glass-fibre mat bedded into **Chevaline Dexx** so that the glass is thoroughly wetted out. As a guide the glass strip should be cut so that at least 50-65mm of glass extends beyond the interface between the adjoining surfaces e.g. on cant strips use 150mm strips of glass, on posts etc., use 100-125 strips.

Penetrations:

All penetrations for plumbing, flues etc., which are not fixed permanently to the deck/roof being sealed, must be sleeved and overflashed, with the sleeve being treated as an upstand when applying the **Dexx**.

Detailing of sleeves and over-flashing should be the responsibility of the designer/builder. Make sure that this is done to your satisfaction before laying **Dexx**.

Weatherproofness:

When joints and upstands have been sealed as described above, working on to primed plywood, the deck/roof surface can be regarded as temporarily weather proof, and will resist rain showers without the need for further protection. It is important to have temporary protection on site until this stage is reached.

Dexx Application:

Primer:

This is required only if the pre-primed plywood has a very open-grained surface.

Mix **Dexx**/water into ratio 2 volumes **Dexx** to 1 volume water and brush evening on to all surfaces as a primer coat at a spreading rate of approx. 7 sqm/litre of mix. (This will take 1 litre of **Dexx** for every 10 sqm). Allow to dry.

Glass fibre mat:

Measure and pre-cut glass fibre mat into lengths that will fit neatly from upstand top line to drip edge (or equivalent end points). Where possible always lay glass fibre mat in strips down the fall of a roof/deck. Re-roll the glass fibre mat after cutting. On long runs pre-cutting is not always necessary. Take a little time to work out your glass-fibre mat layout - it will pay off in terms of easier laying and a neater finished job. Use a chalk line to establish a guide for rolling out. (See over).

Basecoat (Bedding coat):

Brush or roll on (rolling is preferred) a liberal coat of **Dexx Bodycoat** into which the glass-fibre mat is to be laid. Spreading rate should be approximately 2sqm/litre. Start at the top end with an area approximately 300-600mm down the run, and 1m wide. Use this area to anchor the top end of the mat which should be accurately positioned. It helps to work to a chalk line on the deck. Bed the mat thoroughly and treat the upstand similarly. Then unroll the mat into the liquid material laying **Dexx Bodycoat** about 1 metre in advance.

Do not work so far in advance of the glass that the **Dexx Bodycoat** is surface-dry before the glass is embedded. If this occurs, re-apply a thin layer of Dexx and embed the glass immediately.

Embedding:

When mat is anchored (embedded) use a "dry" roller (short nap) over top surface to ensure mat is evenly pressed into the basecoat and wetted out. Use a "dry" brush to push edges firmly into upstand corners and over down-turn to drip edge. **This step is most important** as it ensures a good job.

When laying succeeding rolls of mat, proceed in a similar fashion, using the "dry" brush to tease the mat edges into each other, rather than deliberately overlapping them.

It is inevitable that with roll irregularities and surface variations, some overlapping will occur. Minimise the effect by teasing the overlapping edge well out on to the underlying sheet. It is important not to have gaps between adjacent runs of glass fibre mat.

Bodycoat (1):

Leave basecoat and mat to dry at least 3-4 hours (up to 24 hours) so that you can safely work over it, and then apply by roller (medium/long nap) and brush (to fascias and upstands) a **Dexx Bodycoat** at approx. 2 sqm/litre. This coat should fill the weave of the mat completely although the mat pattern will be apparent. Allow this coat to dry.

Note: On large jobs it is quite practical, and preferred, to leave the surface overnight before applying this bodycoat. In this case, check the surface to ensure that there are no white patches of glass showing. If there are, or if the surface looks too 'open' in areas, roll a thin coat of **Dexx** over these areas to ensure the glass fibre mat is wetted out and sealed against dew or overnight rainfall.

Tidy up:

When bodycoat is dry trim any threads of glass fibre which may be sticking up from the surface or hanging down from drip edges etc. This is an important detail, as protruding glass fibres can lead to localised water penetration of the membrane.

Bodycoat (2):

Finally, apply by roller (and brush) as previously, a topcoat of **Dexx** again at approximately 2-2.25 sqm/litre. This coat completely encapsulates the surface and provides an even finish. Ensure that all areas where trimming has been done, particularly on drip edges or upstands are well sealed. Allow to dry at least 24 hours before walking on the surface, and 72 hours before leaving objects in one place on the deck.

Overglazing:

If the surface is to be kept clean, we recommend the use of an overglaze which will minimise dirt penetration and staining.

On domestic decks and roof areas:

Seal with one full coat 10-12 sqm/litre as supplied of **Chevaline Dexx Topcoat**.

On commercial decks, carpark and gutters:

Seal with two thin coats of **Traxx Colourseal** applied by spray foam roller or soft broom at 13-15 sqm/litre/coat, with at least 4 hours between coats.

On areas subject to considerable pollution:

(including gutters and sumps etc.)

Allow Dexx to through dry at least 4-5 days and seal with one full coat of **Chevaline Colourcure** applied at 11-12 sqm/litre.

Equipment list:

Brushes 50/75/100mm
Roller trays
Medium/long nap rollers (for **Dexx** application)
Short nap (or foam) rollers (for 'dry' roller)
Soft split nylon yard broom (for **Colourseal**)
Stanley knife or retractable cutter (for cutting/trimming glass)
Large scissors (for cutting glass fibre mat)
Straight edge
Chalk line
10m and 2m tapes
75mm scraper
+sanding equipment, dust masks

Material list:

From Equus:

Chevaline Dexx Bodycoat
Chevaline Dexx Primer or Chevaline Epistixx Primer
Epar 801 Epoxy Filler
Epoxy or polyester filler
Xylol for cleaning
300 gsm e-mat glass fibre mat

Topcoat:

Chevaline Dexx Topcoat (Residential/Light Commercial) or
Traxx Colourseal (Medium/Heavy Commercial) or
Chevaline Colourcure (Ponding/High Pollution Areas)

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Chevaline Dexx

WA224 - Fixing requirements for bathroom internal wet areas to suit Dexx Membranes.

In all cases please refer to relevant manufacturer's detailed specifications if the builder/applicator is unsure of methods to be employed. The following is a guide only.

1. We recommend compressed cement fibre sheet as an underlay over particle board and T&G substrates or CD H3-treated plywood as an alternative option (minimum 18mm thick). Other suitable water resistant board designed for use in wet areas may also be used as an underlay.
2. Shower floors: if you want a level access shower on a concrete floor, drop floor by 30mm. On a timber floor, drop floor 50mm. Alternatively, use a concrete hob (usually available from the water proofer) which means a small step about 65x65mm. The fall for the shower should be formed before waterproofing. The tiler is the best person to form shower floors. Normally done with sand-cement and admix. You should leave to cure 5-7 days depending on admix used. The alternative is to use a 24-hour full cure screed such as Rapid Set 45. Timber hobs are no longer acceptable as they sweat, swell and rot.
3. Wastes need to be set in the middle of the shower and packed up to allow for the thickness of the screed, approx. 10mm (confirm with your tiler). The screed can then finish level with the flange of the waste. Englefield-type wastes cause ponding/seepage problems as they won't let the water flow away from under tiles. Also, they cannot be waterproofed properly in some applications. Recommend Allproof, Metalcraft and McAlpine wastes only.
4. Baths (that are not checked into walls because they have a ledge) should be out until the box is waterproofed. It is not possible to waterproof the ledge at the back wall once the bath is fitted. If the bath is to be checked into the wall, you need to check out the studs as well. Make sure the tile does not hit curves in the bath before it gets to the point it sits on bath. (Bath will need to be fitted and sealed as per manufacturer's specifications before waterproofing in this situation).
5. Plastic shower trays should be fitted after waterproofing, as waterproofing may not hold on the shower tray. Solid nog around perimeter 150mm.
6. All waterproofing should finish with an upturn or downturn of no less than 75mm. The recommended is 150mm.
7. Note that T&G plywood still requires support under tongue. Ensure sheets are close butted with no gaps. Sand sheet joints to remove any difference in levels. Fill any gaps with construction grade epoxy filler such as Equus Epar Epoxy.
8. Schedule waterproofing before the stopper. If the stopper comes in first, base coat only to wall joints to be waterproofed, but not corner joints of the shower. This is a two-day application over a 3-day period. There is a minimum of 48 hours after the final coat is applied before areas can be tiled.
9. Recommended joist spacing for 18mm plywood is 400mm, with nogs up to 600mm. Maximum joist spacing is recommended for 18mm plywood with 600mm joist, and nogs up to 400mm. Note that if using T&G plywood, joint

still needs to be fixed and supported by joist. Glue and screw fixing is recommended at 150mm centres to the perimeter of sheets and 200mm centres down the middle or closer as per supplier's instructions. Rib shank galvanised nails are acceptable when glue is also used. Ensure all screws/nails are countersunk just below the surface.

10. Underfloor heating when used must be installed on top of waterproofing, not underneath, once waterproofing is fully cured.

Commonly asked questions:

Can you waterproof up to skirting?

No. Skirting and architraves must be left off until waterproofing is completed.

Will the membrane hide imperfections?

No. As it is a gel coating, it does not self-level and has a dry film thickness of between 1-1.5mm.

Can it be built up thicker to fix leveling problems?

No. For same reasons as above and also, the system would need drying between the multiply layers required.

If the substrate is wet, can you torch it dry?

No, not if it is wet through as the torch will only dry the surface. The moisture can slow the curing time and will get trapped in, only to reappear as bubbles later.

When my shower is running, there is water getting under the screen onto the floor...

This is a common problem if the wrong waste is used or screen is fitted after tiling and no flashings or sealant work was done prior to tiling to contain any water running under tiles. Very hard to fix.

My plumber says he has a better waste?

Check with applicator first. What might be good for him to fit may not be good to waterproof or drain water trapped under tiles properly.

Can I tile it tomorrow?

Only if tomorrow is 48 hours after the final coat without rain at 18-23°C and 60-70% Relative Humidity. Cooler and/or more humid conditions may prolong dry times.

Can I waterproof when bathroom fittings are already fitted?

No, not properly, unless we can waterproof up onto the fittings at least 70mm (not a good look).

Do you need to waterproof the whole floor?

Yes. It is very important to apply waterproofing to the entire floor area to ensure complete protection of the wet area. There are some exceptions, eg. ground floor concrete floors. However, water can track into/under walls and along saw cuts. So we recommend these areas also be waterproofed, particularly if a tiled walk-in shower is required.

Do you need to flood test bathroom or shower tray?

Yes. If practical, this should be done by builder/owner before tiling.

For more detailed explanations refer to your local plywood supplier's installation procedures. Extracts of the above have been taken from the BRANZ publications, "Good membrane roofing practice" and "Good tiling practice"; Carter Holt Harvey's "Ecoply Manual", "GIB Aqualine wet area systems", and Equus "Chevaline Dexx to internal areas".

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Quality Assurance Checklists





Chevaline Dexx

Application of Chevaline Dexx to new plywood surfaces.

Specification No: P3011

Building Consent No: _____

Project & Address:

Equus Applicator:

Building Contractor:

Territorial Authority:

1. Statement of Intent

- (a) This checklist is to be completed by both the Equus Applicator and the Building Contractor, as a step by step record of compliance with both the Equus Specification provided for the contract, and the requirements of the Building Consent applicable to the contract.
- (b) A copy of this checklist must be forwarded to the nearest Regional Office of Equus Industries Ltd with any request for a Warranty and/or Manufacturers Producer Statement. A Warranty will not be issued by Equus Industries Ltd. without a copy of this Checklist being filed.
- (c) A copy of this checklist should form part of the Contract Documentation filed with the Territorial Authority on job completion, for issuance of Code Compliance Certification.

2. Areas Treated

The areas to which Membrane is applied are detailed below, with reference to plans (where appropriate).

3. Sign Off

We confirm that all applicable processes listed in Section 4 have been correctly completed and that sign-off on each stage has been made by a person with the authority to do so.

For: _____	_____	(Signature)
(Building Contractor)		(Name)

Date: ____ / ____ / ____	_____
--------------------------	-------

For: _____	_____	(Signature)
(Equus Applicator)		(Name)

Date: ____ / ____ / ____	_____
--------------------------	-------



4. Checklist And Method Statement

* Denotes those processes which must be signed off by the Building Contractor as well.

No.	Process	Completed On	Building Contractor	Equus Contractor
1.*	Plywood of correct thickness and treatment grade on site - back and edge primed.			
2.*	Timber framing correctly sized spaced and laid in accordance with NZS 3604.			
3.*	Plywood correctly laid - tight butted and screw fixed in adhesive bead with correct fixing spacings for site condition.			
4.*	Corrosion resistant fasteners used (stainless steel mandatory within 1km of coastline).			
5.*	Treated timber filets installed at all upstand transitions. All plywood/timber edges chamfered. Outlets in place.			
6.*	Plywood surface accepted as satisfactory for Dexx installation by Equus Applicator.			
7.	All exposed surfaces correctly primed with _____ (Nominate primer used)			
8.	All Dexx detail strips in place at transitions, in doorways, plywood joints and at wall upstands.			
9.	First full Dexx coat in place with one layer of 300gsm E-mat embedded and wetted out and E-mat correctly laid.			
10.	First filling coat of Dexx laid and E-mat totally sealed off.			
11.	Final coat of Dexx applied at correct spreading rate to fill and cover surface.			
12.	Dexx surface checked for adequate cover and absence of pinholes, blemishes and 'proud' fibreglass.			
13.*	Dexx surfaces recoated where necessary to achieve required finish and base membrane complete.			
14.	Dexx Wearcoat correctly applied where a non-slip finish has been specified Fine/ Medium/Coarse (delete non-applicable).			
15.	Final topcoat(s) correctly applied using _____ (nominate topcoat used)			
16.*	Completed installation inspected and signed off.			

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Chevaline Dexx

Application of Chevaline Dexx to exterior concrete surface.

Specification No: P3012 rev

Building Consent No: _____

Project & Address:

Equus Applicator:

Building Contractor:

Territorial Authority:

1. Statement of Intent

- (a) This checklist is to be completed by both the Equus Applicator and the Building Contractor, as a step by step record of compliance with both the Equus Specification provided for the contract, and the requirements of the Building Consent applicable to the contract.
- (b) A copy of this checklist must be forwarded to the nearest Regional Office of Equus Industries Ltd with any request for a Warranty and/or Manufacturers Producer Statement. A Warranty will not be issued by Equus Industries Ltd. without a copy of this Checklist being filed.
- (c) A copy of this checklist should form part of the Contract Documentation filed with the Territorial Authority on job completion, for issuance of Code Compliance Certification.

2. Areas Treated

The areas to which Membrane is applied are detailed below, with reference to plans (where appropriate).

3. Sign Off

We confirm that all applicable processes listed in Section 4 have been correctly completed and that sign-off on each stage has been made by a person with the authority to do so.

For: _____	_____	(Signature)
(Building Contractor)		(Name)

Date: ____ / ____ / ____	_____
--------------------------	-------

For: _____	_____	(Signature)
(Equus Applicator)		(Name)

Date: ____ / ____ / ____



4. Checklist And Method Statement

* Denotes those processes which must be signed off by the Building Contractor as well.

No.	Process	Completed On	Building Contractor	Equus Contractor
1.*	Concrete surface correctly laid to falls and cured 28 days.			
2.*	Concrete surface finish U3 (NZS3114) achieved and free of laitence/detritus.			
3.*	Plaster coves and/or treated timber fillets installed and concrete edges chamfered.			
4.*	Concrete surface accepted as satisfactory for Dexx installation by Equus Applicator.			
5.*	All exposed surfaces correctly primed with _____ (Nominate primer used)			
6.*	All Dexx detail strips in place at transitions, in doorways, and at wall upstands. Outlets in place.			
7.	First full Dexx coat in place with one layer of 300gsm E-mat embedded and wetted out and E-mat correctly laid with teased laps.			
8.	First filling coat of Dexx laid and E-mat totally sealed off.			
9.	Final coat of Dexx applied at correct spreading rate to fill and cover surface.			
10.	Dexx surface checked for adequate cover and absence of pinholes, blemishes and 'proud' fibreglass.			
11.*	Dexx surfaces re-coated where necessary to achieve required finish and base membrane complete.			
12.	Dexx Wearcoat correctly applied where a non-slip finish has been specified Fine/ Medium/Coarse (delete non-applicable grades).			
13.	Final top coat(s) correctly applied using _____ (Nominate top coat used)			
14.*	For surfaces to receive tile overlay—full 24 hour pond test carried out successfully.			
15.*	Completed installation inspected and signed off.			

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Chevaline Dexx

Application of Chevaline Dexx to interior wet areas.

Specification No: P3014

Building Consent No: _____

Project & Address:

Equus Applicator:

Building Contractor:

Territorial Authority:

1. Statement of Intent

- (a) This checklist is to be completed by both the Equus Applicator and the Building Contractor, as a step by step record of compliance with both the Equus Specification provided for the contract, and the requirements of the Building Consent applicable to the contract.
- (b) A copy of this checklist must be forwarded to the nearest Regional Office of Equus Industries Ltd with any request for a Warranty and/or Manufacturers Producer Statement. A Warranty will not be issued by Equus Industries Ltd. without a copy of this Checklist being filed.
- (c) A copy of this checklist should form part of the Contract Documentation filed with the Territorial Authority on job completion, for issuance of Code Compliance Certification.

2. Areas Treated

The areas to which Membrane is applied are detailed below, with reference to plans (where appropriate).

Brand/Type of tile adhesive used/to be used:

3. Sign Off

We confirm that all applicable processes listed in Section 4 have been correctly completed and that sign-off on each stage has been made by a person with the authority to do so.

For: _____ (Signature)
(Building Contractor) _____ (Name)

Date: ____ / ____ / ____ _____

For: _____ (Signature)
(Equus Applicator) _____ (Name)

Date: ____ / ____ / ____ _____



4. Checklist And Method Statement

* Denotes those processes which must be signed off by the Building Contractor as well.

No.	Process	Completed On	Building Contractor	Equus Contractor
1.*	Plywood of correct thickness and treatment grade on site - back and edge primed.			
2.*	Timber framing correctly sized spaced and laid in accordance with NZS 3604			
3.*	Plywood, or cellulose cement sheet lining correctly laid - butted in adhesive bead (refer to How To WA223)			
4.*	Corrosion resistant fasteners used (stainless steel mandatory within 1km of coastline).			
5.*	Treated timber or Tremflex PU-1 fillets installed at all upstand transitions. Outlets in place.			
6.*	Sheet substrate accepted as satisfactory for Dexx installation by Equus Approved Applicator.			
7.	All exposed surfaces correctly primed with _____ (Nominate primer used)			
8.	All Dexx detail strips in place at transitions, in doorways, plywood joints and at wall upstands.			
9.	First full Dexx coat in place with one layer of 300gsm E-mat embedded and wetted out and E-mat correctly laid with teased laps.			
10.	First filling coat of Dexx laid and E-mat totally sealed off.			
11.	Final coat of Dexx applied at correct spreading rate to fill and cover surface.			
12.	Dexx surface checked for adequate cover and absence of pinholes, blemishes and 'proud' fibreglass.			
13.*	Dexx surfaces recoated where necessary to achieve required finish and base membrane complete.			
14.	Final top coat(s) correctly applied using _____ (Nominate top coat used)			
15.	For surfaces to receive tile overlay - full 24 hour pond test carried out successfully.			
16.*	Completed installation inspected and signed off.			

Equus Industries Ltd
 PO Box 601
 Blenheim
 Phone: 03 578 0214 Fax 03 578 0919
 Email: admin@equus.co.nz
 Web: www.equus.co.nz

Warranty





Equus Industries Ltd.
45 Hutt Road
Petone, Lower Hutt
PO Box 38 636
Wellington Mail Centre.
Phone: 04 576 0333
Fax: 04 576 0334
Email: central@equus.co.nz
Web: www.equus.co.nz



WARRANTY REQUEST FORM

Date: _____

Project: _____

Spec. No: _____

Owner: _____

Site Address: _____

Building Consent No: _____

Issuing Territorial Authority: _____

Building Contractor: _____

I/We _____ have undertaken work at the above address in accordance with Equus Specification No. P _____

I/We confirm that the work was completed in a tradesman like manner using products supplied by Equus Industries Ltd.

SPECIFIC AREAS PERTAINING TO WARRANTY:

Please use separate sheet if required (attach to this form).

COMMENTS IN RELATION TO PROJECT WHICH MAY AFFECT WARRANTY:

Please use separate sheet if required (attach to this form).

The undersigned agrees to comply with all conditions of his appointment as an **Approved Equus Applicator**.

Date: _____ Authorised Signatory: _____

Completed project sighted and signed off: _____ Equus Representative

Date: _____



Equus Industries Ltd.
45 Hutt Road
Petone, Lower Hutt
PO Box 38 636
Wellington Mail Centre.
Phone: 04 576 0333
Fax: 04 576 0334
Email: central@equus.co.nz
Web: www.equus.co.nz



PRODUCER STATEMENT REQUEST FORM

Date: _____

Project: _____

Spec. No: _____

Owner: _____

Site Address: _____

Building Consent No: _____

Issuing Territorial Authority: _____

Building Contractor: _____

I/We _____ have undertaken work at the above address in accordance with Equus Specification No. P _____

I/We confirm that the work was completed in a tradesman like manner using products supplied by Equus Industries Ltd.

SPECIFIC AREAS PERTAINING TO PRODUCER STATEMENT:

Please use separate sheet if required (attach to this form).

COMMENTS IN RELATION TO PROJECT WHICH MAY AFFECT OUR PRODUCER STATEMENT:

Please use separate sheet if required (attach to this form).

The undersigned agrees to comply with all conditions of his appointment as an **Approved Equus Applicator**.

Date: _____ Authorised Signatory: _____

Completed project sighted and signed off: _____ Equus Representative

Date: _____

PRODUCER STATEMENT

CHEVALINE DEXX MEMBRANE TO PLYWOOD DECK AREAS

Location:
Building Contractor:
Equus Applicator:

Ref:

Date:

This statement confirms the following

1. Inspection

The above Chevaline Dexe installation has been inspected by an Approved Person employed by Equus Industries Ltd and the standard of installation has been found to be satisfactory.

2. Applicable Specification

The Chevaline Dexe membrane has been applied to plywood sheet over timber frame construction in accordance with Equus Standard Specification P3011rev which was the applicable specification at the time of installation.

3. Compliance

When the Equus Chevaline Dexe membrane has been applied to plywood sheeting in accordance with Standard Specification P3011rev and the recommendations of Equus Industries Ltd, it complies with and meets the relevant provisions of the New Zealand Building Code Clauses:

B2 – Durability
E2 – External Moisture
E3 – Internal Moisture
F2 – Hazardous Building Materials

4. Recommended Maintenance

It is recommended that the installation be inspected annually, to ensure that all drainage points are clear and working. It is required that between the 9th and 11th year of service, the installation is cleaned and re-top coated with an appropriate top coat from Equus Industries Ltd to maintain the integrity of the waterproof membrane. This is a requirement in terms of compliance with clause B2-Durability of the New Zealand Building Code.

For Equus Industries Ltd.

B J Greenall B.E.(Chem) AMIChemE MNZIC FTSC
Director



Project Name
Address
(Building Contractor -)
(Building Consent - ##### - Territorial Authority)
CHEVALINE DEXX MEMBRANE SYSTEM TO
DECK AND FLAT ROOF AREAS
(Standard Specification P3011rev)

Dear Sir

Further to our discussions regarding a material warranty covering coating materials supplied for the above contact, we would confirm the Terms and Conditions of the Warranty as set out in this letter as follows:

1. Limitations of Cover:

The terms and conditions of Warranty as set out in this letter refer specifically to materials supplied by Equus Industries Limited to your Company as our Approved Contractor for this contract.

2. Warranty Cover:

The Warranty covers quality and suitability for use of materials supplied for exterior application and relates to joint integrity in the sense that it covers waterproofing integrity of the applied membrane.

3. Warranty Period:

The maximum period for which such materials are covered by a materials warranty is fifteen (15) years from such date as stipulated in any form of warranty entered into by (Approved Applicator Name).

4. General Terms and Conditions:

- (a) This warranty is applicable only to materials manufactured by Equus Industries Ltd., and applied by (Approved Applicator Name) on the above contract.
- (b) This warranty is supplied to (Approved Applicator Name) as the purchase of materials. It is not an application or Process Performance Warranty and may not replace or supplant any warranty required of (Approved Applicator Name) for application/process performance.
- (c) The warranty is valid only for the satisfactory performance of materials which are applied to this contract strictly in accordance with specifications supplied for this contract, information contained in relevant Know How's, and any other specific written instructions supplied by Equus Industries Ltd., or amendments thereto.





5. Limitation of Liability:

No responsibility is taken by Equus Industries Ltd. for any failure of the applicator to apply materials in the correct manner to correctly nominated, prepared and designed surfaces. No responsibility is taken by Equus Industries Limited, for any alteration to performance of the materials caused by work carried out on the coated surfaces without prior written approval of Equus, or any change in the use of the coated structure from that pertaining at the time coating work was completed.

There shall be no liability for Equus Industries Limited in respect of damage to or deterioration in performance of the coatings caused by Act of God, exceptional weather conditions, fire or riot civil commotion, vandalism, nuclear explosions or fall out, damage caused by objects dropped from above, bursting or other forms of destruction or failure of gas or fluid carrying pipes or other vessels, electrical faults, negligence or willful damage by the main contractor, owner and/or occupier of the building and/or any visitors to the building on which the coatings are applied, or any criminal act, or any consequential damage, or any physical damage from mechanical causes, spillage of any substance or disruption of the surface to which the coatings are applied by any natural disturbance of the structure.

6. Indemnity:

If it is established that faulty materials have been supplied to (Approved Applicator Name), for this contract and the Terms and Conditions set out above have been satisfied, Equus Industries Limited, will there by indemnify (Approved Applicator Name), against the costs of rectification or upgrading of any coated surfaces where such materials have been used, so that the original warranty period and performance are met.

7. Payment for Materials:

This warranty shall not be binding on Equus until payment in full is received by Equus Industries Ltd for materials supplied to (Approved Applicator Name) for the contract described above.

8. Disputes:

Should there be any dispute in regard to any provisions of this warranty or the manner in which it is exercised or interpreted, the decision of an independently appointed arbitor will be accepted as final and binding.

Yours faithfully

EQUUS INDUSTRIES LTD
Brian J Greenall
Director



WORKMANSHIP AND APPLICATION WARRANTY

Certified Number: _____

Consent Number: _____

Issuing Authority : _____

To _____ (the Client)

We _____ (Applicator Company Name) an Approved Equus Applicator

having completed our contract on

_____ (Project Name/Location)

with the _____ (Name of Equus System)

Hereby undertake that we will rectify at our own cost, any failure in performance by the above mentioned system or systems resulting from defective workmanship and application or incorrect system nomination by the Applicator, which occurs within the period of years from the date of completion of our contract.

Namely

.....

The systems nominated in this Warranty have been applied as fully representative of the Manufacturer's current specification for each system to permit performance as claimed for that system.

Our liability under this Warranty is subject to the following terms and conditions:-

1. The Warranty shall not be binding on the Applicator until payment in full is received by the Applicator in respect of the above described contract.
2. This Warranty shall be void and of no effect, and the Applicator shall have no liability in respect thereof, if the Applicator is not given notice in writing of any alleged failure or fault or deterioration relating to the processes within seven days of the discovery by the Client if such alleged failure, fault or deterioration.
3. In the event of liability being established pursuant to this Warranty the Applicator shall repair and reinstate the systems as may be required to make good the areas requiring repair PROVIDED that the Applicator shall be entitled to demand and be reimbursed by the Client for all expenses incurred in the investigation of any alleged failure, fault or deterioration, if, on investigation and in accordance with the foregoing terms and conditions, it is found that this Warranty shall not apply, and it shall not be the responsibility under the terms of this Warranty for the Applicator to rectify such alleged failure, fault or deterioration.
4. The Applicator does not warrant that any repair work carried out pursuant to the terms of this Warranty when completed shall exactly match the existing applied systems in respect to colour and/or texture.
5. All other warranties, guarantees or conditions of whatsoever nature, relating to the application of the systems and whether expressed, implied or given to be expressed, implied or given by any agent or employee of the Applicator, or implied or prescribed, or to be implied or to be prescribed by law are hereby excluded.

6. There shall be no liability for the Applicator in respect of this warranty for any damage to the applied processes caused by act of God, exceptional weather conditions, fire, war, riots, civil commotion, vandalism, nuclear explosion and/or fallout, damage caused by objects dropping or falling from aeroplanes or other airborne devices, bursting or other forms of destruction or failure of gas or fluid carrying pipes or other vessels, electrical faults including fusion and short circuits, negligence or wilful damage by the main contractor, owner and/or occupier of the building and/or visitors to the building on which the processes are placed, and any criminal act or illegal act or any consequential damage.
7. There shall be no liability for the Applicator for any deterioration of the applied system resulting from physical damage by point loads or mechanical causes, spillage of any substance onto the surface however caused whether during construction work or thereafter which were not allowed for in the original design and specification contract documents or arising from any natural disturbance of the structure.
8. This Warranty is null and void if any work is carried out on the applied system without prior written consent of the Applicator or if a change in use of the building from that of which it was designed at the time of completion of the Applicator's contract affects the performance of the application.
9. The benefit of this Warranty is not assignable without prior written consent of the Applicator.

Signed

For
(APPLICATOR COMPANY)

A copy of the Warranty from Equus Industries Limited WW

Dated, for materials supplied for this contract, is appended herewith.

Test Reports





Central Laboratories Report 94-27390

**EVALUATION OF PERFORMANCE OF
DEXX MEMBRANE ON CARPARK DECKS**

V.K. Dravitzki

January 1994

Central Laboratories
P O Box 30-845
Lower Hutt
Telephone (04) 568-3119
Fax (04) 568-3169

Opus: *an accomplished work,
a creation, an achievement*

COPY
From original
11/3/05

Central Laboratories Report 94-27390

**EVALUATION OF PERFORMANCE OF
DEXX MEMBRANE ON CARPARK DECKS**

V.K. Dravitzki

January 1994

Central Laboratories
P O Box 30-845
Lower Hutt
Telephone (04) 568-3119
Fax (04) 568-3169

CLIENT: Equus Industries
P O Box 601
BLLENHEIM

CONTACT: Brian Greenall, Director
Phone: (03) 578-0214

1.0 BRIEF

The brief was to view a sample of vehicle decks in Wellington where the Chevaline DEXX system for concrete carparking decks had been used as a trafficked waterproof membrane and to:

- form an opinion as to its ability to withstand trafficking;
- to ascertain the ability of the system to bridge cracks which may form in the substrate (the deck);
- to ascertain the nature and extent of damage which may occur.

2.0 THE DEXX SYSTEM

The DEXX system as now specified is set out in detail in the Equus Specification P3013, dated January 1990. Appendix 1 of Specification P3013 details the associated TRAXX NS system for ramp areas. In summary, it consists of a primer coat, followed by the membrane proper, followed by a protective topcoat to the membrane.

The membrane is made up of four successive coats of Chevaline DEXX, an acrylic material, which are alternated with two layers of 300 g/m² glass fibre matt. The Chevaline DEXX is applied as a waterborne liquid material at a total rate of 0.5 m²/l, and the glass fibre matts are generally applied at right angles to each other.

The vehicle decks included in this study had been constructed (from the viewpoint of membrane application) over the period 1984 to 1990. The client stated that over this period there had been a progressive refinement of the system, in particular:

- a significant reformulation of the primer;
- a moderate reformulation of the top seal coat;
- the normal iterative changes to the formulation of the main membrane Chevaline DEXX that could be expected with a formulation over such a seven year period;
- a progressive development of the system that was applied to ramp areas from TRAXX (a polyurethane coating containing grit for non-slip and applied directly to the concrete base) to the current method of applying the TRAXX/non-slip layers over the DEXX membrane.

However, the main membrane system of four coats of Chevaline DEXX and two layers of fibreglass were stated as being present on all decks inspected.

3.0 DECKS INCLUDED IN STUDY

The decks included in this study were selected by the client who was in attendance during the first inspection, and who provided a description of the systems applied and a brief history of the subject. It is considered that the buildings selected are reasonably representative of the buildings constructed in Wellington in the period of the mid 1980's to 1990.

(1) Whitcoulls, Lambton Quay - Upper Level Deck Accessed from Gilmer Terrace

Deck construction - plywood.

System: Old primer
Four layers acrylic/two layers fibreglass
No sealer

Laid in late 1985/early 1986. Was a carpark but is now covered and a storage area.

(2) Carparking Building Adjacent the Settlement, Willis Street

Deck construction - mixture of Stalton and Double Tee concrete beam.

System: Decks Primer
Four layers acrylic/two layers fibreglass
Acrylic sealer

Ramps Primer
Three layers acrylic/two layers fibreglass
Acrylic sealer

Membrane on entrance, first and top levels. Laid in 1984/85, and same system laid on extension in 1987. The extension was intended to have touchup coats after its temporary use as a construction deck for an adjacent building.

(3) Digital House, Victoria Street - First Level Carpark Accessed from Bond Street

Deck construction - Stalton.

System: Decks Primer
Four layers acrylic/two layers fibreglass
Acrylic seal coat

Ramps Not treated

Laid in August 1987.

(4) Salvation Army, Cuba Street - Upper Deck of Carpark at Building Rear Accessed from Vivian Street

Deck construction - concrete Double Tee and Dycor.

System: Decks WB epoxy primer
Four layers acrylic/two layers fibreglass
Urethane seal coat

Ramps TRAXX urethane/non-slip grit/Colourcure over concrete

Laid in mid 1990.

(5) Mainzeal Building, Vivian Street - First Level Carpark Accessed from Walter Street

Deck construction - Double Tee beams.

System: Decks WB epoxy primer
Four layers acrylic/two layers fibreglass
Acrylic seal coat

Ramps TRAXX urethane/non-slip grit over concrete

Laid November 1987.

(6) Data General, Boulcott Street - Washdown Area, First Level (Over Plant Rooms)

Deck construction - rough concrete slab.

System: WB epoxy primer
Four layers acrylic/two fibreglass
Urethane sealer

No coated ramps. Laid in late 1988.

(7) No. 3 The Terrace - Deck at Street Level

Deck construction - various.

System: WB epoxy primer
Three layers acrylic/two fibreglass
Acrylic sealer

Laid in late 1990/early 1991. This is believed to be a semi-public carpark.

(8) Bowen House - Third Level Carpark and Ramp, Accessed by Single Ramp from Bowen Street

Deck construction - not stated.

<u>System:</u>	Decks	WB epoxy primer Four layers acrylic/two layers fibreglass Urethane sealer
	Ramps	WB epoxy primer Four layers acrylic/two layers fibreglass TRAXX urethane

Laid in November 1990.

4.0 AMOUNT OF TRAFFIC

For all sites except site 2, traffic volumes were light to moderate, being mainly staff and/or client vehicles. Traffic for site 2 was heavy as the building is a well used central city public carparking building.

5.0 GENERAL CONDITION

The general condition of the membrane was that the system had remained tightly adhered to the deck surfaces. There was no evidence of delamination or rucking that could be associated with vehicle use evident on any of the eight decks sighted. There was some localised damage to the membrane. This damage was, in aggregate terms, very small and appeared related to the amount of trafficking/amount of misuse received by the decking. The damage was characteristically a wearing through of the membrane through some or all of the layers.

Tyre blackening was pronounced on some ramps and high use areas, though its effect on membrane performance is negligible.

The standard of construction of a number of the decks did not appear to be high as they exhibited a number of cracks in the slab surface which have formed subsequent to construction. However, the membrane appeared to be able to bridge these fine cracks, as the cracks were not reflected through the membrane immediately above or adjacent.

Figures 1 to 7 show some characteristic aspects of the membrane's performance.

Figures 1 and 2 show general views of both a highly trafficked (site 2) and medium trafficked (site 3) deck after nine and six years use respectively. Overall the membrane is in sound condition and is well adhered.

Figure 1 (The Willis Street public carpark) shows tyre blackening, some of which appears to be from "joy riding". In both decks of Figures 1 and 2 there is some localised damage shown in more detail in Figures 3 and 4. Figure 3 shows where (possibly deliberate) wheel spinning has first softened the membrane, then allowed it to be immediately worn away down to the concrete substrate. This is the action of a single vehicle in a very short time. Figure 4 shows a more general wearing through of the membrane which has occurred at the top of the ramp, probably due to the progressive effects of the slight accelerating and turning action of vehicles in this position.

Figure 5 shows the ramp area of site 2, the Willis Street carpark. This ramp, which is relatively steep, was not finished with the non-slip system. Some wheel spin has occurred as is evidenced by the tyre blackening and partial wear through. In contrast, the Bowen House ramp, which is more gradual and finished in non-slip, did not show this aspect.

Figure 6 (Willis Street parking building) shows two aspects. This view is at the top of the first level ramp which is relatively steep and a very tight turn for incoming vehicles. Traffic is very heavy as almost all vehicles using the building traffic this area. Over the eight years the high shear action of the turning vehicles has worn away the membrane through to the substrate. The successive layers comprising the membrane are visible at the edges. However, even in this high shear area, the remaining membrane is still tightly adhered. The second aspect shown in Figure 6 is the crack in the concrete surface, and that it has been bridged by the membrane. Cracks similar to this one were visible on uncoated decks at other levels. They corresponded to the edges of the double T beams and run the full length of the beam. It is reasonable to conclude that the crack in Figure 6 extends beneath the membrane.

Figure 7 shows an isolated example of non-vehicle induced failure where it appears that lack of detailing at the ramp edge has allowed water to ingress beneath the membrane which is now delaminating.

The client stated that in all cases normal maintenance procedures could restore the membrane. In summary, these would consist of either cutting out the affected area to give clean edges, then applying the same system as before and overlapping it onto the existing membrane or, if more appropriate, applying additional coats over partial worn areas. In the instances shown in the figures, maintenance is the responsibility of the building owner who had not undertaken the work. However, the inspection indicates that the maintenance as set out in Section 6 and part of Section 7 of Equus Specification P3013 would be reasonable for normal use.

Two other aspects are not shown in the figures. At site 3 some crazing of the clear seal coat was evident. Maintenance procedures of renewing this periodically did not appear to have been carried out by the building owner. At site 7 some scuffing of the membrane was occurring at upstands where it has been impacted by skate boarders' unauthorised use of the vehicle decks.

6.0 NEW ZEALAND BUILDING CODE

The requirements of the New Zealand Building Code in Clause B2, Durability is for building elements, with only normal maintenance to satisfy the performances of the code for the lesser of the specified life of the building or for the building envelope 15 years. Acceptable solution B2/AS1 in Table 1 also lists roofs as requiring a 15 year durability.

7.0 CONCLUSION

The evidence of the eight sites inspected is that the DEXX membrane system is able to withstand vehicle trafficking, with damage being minor and localised such that

maintenance to repair the membrane is feasible. It is also evident that the nature of the damage that occurs is readily detectable by simple inspection.

Several of the sites demonstrated that the system can accommodate cracks forming in the slab such as those which often form in slabs over double T beams or Stalton construction.

None of the sites visited have been in place for 15 years. However, after 3-8 years' exterior weathering, none of the sites indicate that a rapid breakdown of the coating is imminent. Reasonable expectations are for the system to have a 15 year durability but only if the normal specified maintenance, as set out in Equus Specification P3013, is undertaken and only if worn or damaged areas are repaired as they occur.



V.K. DRAVITZKI
Section Head (Building Science)

Reviewed by



F.D. EDMONDS
Manager

January 1994



FIGURE 1: Upper Deck, Willis Street Carpark



**FIGURE 2: First Level Deck, Digital House
(beige colouring is reflection of adjacent building in the surface water)**

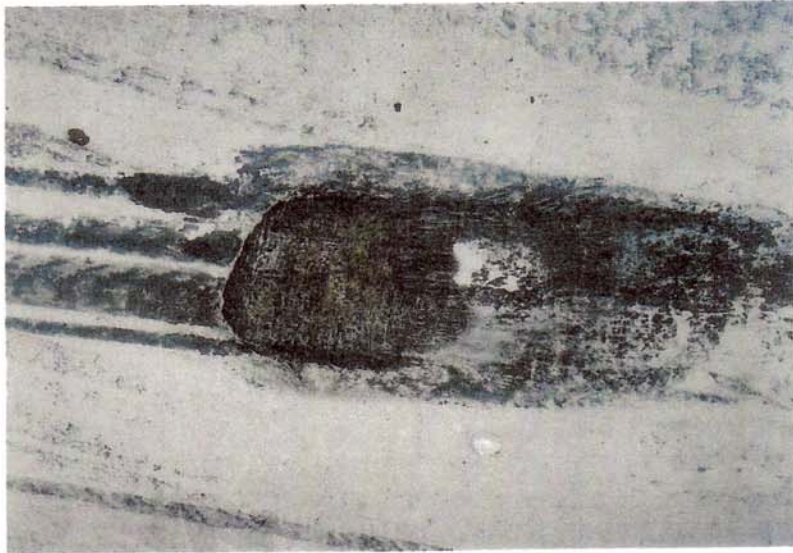


FIGURE 3: Wear Through from Wheel Spin of Single Vehicle, Willis Street Parking Building



FIGURE 4: Wear Through at Top of Ramp, Digital House



FIGURE 5: Ramp (Willis Street) Showing Blackening and Wheel Spin Areas



FIGURE 6: High Stress Area at Level 1, Willis Street Showing:
- crack and its bridging by membrane
- removal of membrane but no delamination



FIGURE 7: Delamination in Localised Area of Water Ingress

