

BC 26-012748 CANCELLED

SPECIFICATION

WORK TO BE DONE AND
MATERIAL TO BE USED FOR

RECEIVED
26 MAR 2026

BRUCE NICKALLS

177 OLD TAUPŌ ROAD

ROTORUA

INDEX

SECTION

1. PRELIMINARY AND GENERAL
2. EXCAVATION
3. CONCRETE WORK
6. CARPENTRY
7. PLUMBING
9. DRAINAGE
10. ROOFER
COVERING 407
STEEL & TUBE CORR IRON

COUNCIL
COPY

DRAUGHTING SERVICES



TREVOR ROWSON

Regency Park Estate
3A Brent Road, Unit 25
Rotorua 3010
Ph: (07) 348 2577

DRAUGHTING SERVICES

TREVOR ROWSON,

25/36 BRENT RD
ROTORUA
Phone: (07) 348 2577

risk matrix form

BRUCE WICKALLS

ELEVATION OR WALL:	RISK SEVERITY							
Risk factor	Low		Medium		High		Very high	Subtotals for each risk factor
Wind zone	0	✓	0		1		2	0
Number of storeys	0	✓	1		2		4	0
Roof/wall intersection design	0	✓	1		3	✓	5	0
Eaves width	0	✓	1		2	✓	5	2
Envelope complexity	0	✓	1		3		6	0
Deck design	0	✓	2		4		6	0
Total risk score:								2

ELEVATION OR WALL:	RISK SEVERITY							
Risk factor	Low		Medium		High		Very high	Subtotals for each risk factor
Wind zone	0		0		1		2	
Number of storeys	0		1		2		4	
Roof/wall intersection design	0		1		3		5	
Eaves width	0		1		2		5	
Envelope complexity	0		1		3		6	
Deck design	0		2		4		6	
Total risk score:								

ELEVATION OR WALL:	RISK SEVERITY							
Risk factor	Low		Medium		High		Very high	Subtotals for each risk factor
Wind zone	0		0		1		2	
Number of storeys	0		1		2		4	
Roof/wall intersection design	0		1		3		5	
Eaves width	0		1		2		5	
Envelope complexity	0		1		3		6	
Deck design	0		2		4		6	
Total risk score:								



BRUCE NICKALLS

ROOF STORMWATER CALCULATIONS

GUTTERS & DOWNPIPES: AS per NZBC Acceptable Solution E1/AS1

RAINFALL INTENSITY: 100 mm/hr

Roof Pitch: 15°

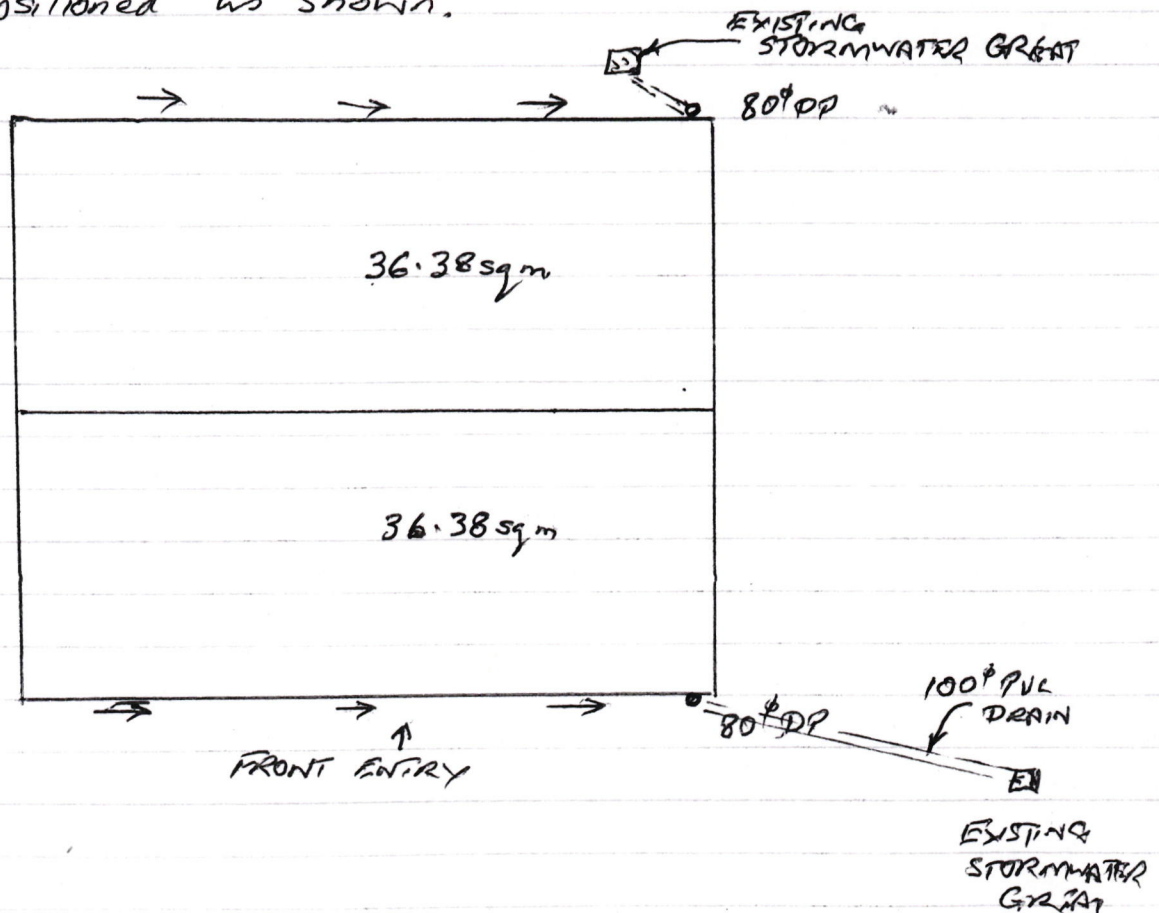
DOWNPIPES: From table 5 a 74^{mm} downpipe will service 85 sqm of roof at discharge

∴ Provide 2 - 80^{mm} downpipes as shown.

GUTTERING: Marley Classic Cross Section 6200 sqmm

Allowable area to be serviced by gutter before discharge as per fig 15 is 48 sqm at 100 mm/hr.

∴ GUTTERING is adequate with downpipes positioned as shown.



SECTION 1

PRELIMINARY AND GENERAL

PRELIMINARY AND GENERAL

This specification is of a general type covering all the basic requirements of the building. Should there be any words that do not pertain to this contract, eg unit instead of houses etc, the wording shall be read to mean this contract. All work is to comply with the Building Act 2004 the New Zealand Building Code 1992 and current New Zealand Standard specifications unless otherwise specified.

CONTRACT

This contract includes the supply and delivery of all materials, labour, tools, fittings, plant etc, necessary for the due and proper completion of the building shown on plans and herein specified in a thorough and workmanlike manner in strict accordance with the New Zealand Building Code and the territorial authority concerned. Amendments to, or new bylaws instituted by the territorial authority or new or special requirements after the date of tendering and which involve additional cost, will be carried out and such additional cost added to the contract.

BUILDING CONSENT AND NOTICES

Contractor to comply with labour and building laws of the district, to apply for and obtain the necessary building consents and pay all fees for the same. The contractor shall be responsible for giving of all notices to the territorial authority and for all works which require inspection and approval before they are covered in. Should any such notices not be given and works have to be uncovered, any expense caused by this shall be paid by the contractor for that particular works.

SITE

Tenderers shall visit the site to ascertain conditions as no extras will be allowed through failure to ascertain works required below and above ground.

PROVIDE AND FIX

The words "provide and fix" shall be construed to mean "provide and fix" where mentioned separately unless otherwise specified.

INSURANCE

The contractor is to take out a builder's risk insurance for a sufficient sum to cover the contract cost. This policy is to remain in force unless taken over by the owner. Proof of such insurance shall be lodged with the building owner.

MATERIALS AND WORKMANSHIP

The contractor shall provide all materials and labour of every description necessary, whether or not particularly noted or specified, needed for the completion of the building. All plant, haulage and cartage shall be allowed for the work carried out according to the true intent and meaning of the drawings and specifications. All workmanship must be careful and thorough and in accordance with normal trade practices and all materials to the approval of the territorial authority. Any specified materials non procurable when required and thus retarding progress of contract, may be substituted with others similar provided that such substituted materials conform to the territorial authority bylaws and are approved by the owners.

INTERPREATION

Materials shown and not specified must be of the kinds commonly used for the services they are intended to perform. Any figured dimensions shall be taken in preference to scale. Any difference between specification and plan, to be read as plans being right. Anything shown on plan and not mentioned in specifications and vice-versa and that is necessary to complete job to be read as being included in both.

STABILITY OF STRUCTURE

The contractor shall, in all cases, use proper care and diligence in bracing and supporting all parts of his work against damage by wind. He shall also support and protect the work from damage by water. His work shall at all times be self-supporting, absolutely strong and fully equal to resist all strains to which it may be subject.

LEVELS

The contractor shall check all levels on the site. It is the contractor's responsibility to confirm the accuracy of any levels.

SETTING OUT

The contractor shall perform all setting out and he shall be responsible for its accuracy and shall amend any errors without cost to the employer.

MAINTENANCE

Maintenance period is 365 days after the owner has taken possession. Any defects in materials, workmanship, or any part(s) that require replacing or adjusting which have been included in this contract shall be adjusted or replaced as specified in this specification at the contractor's own expense.

TEMPORARY CONVENIENCES

The contractor upon the works shall make provision for the installation of adequate toilets for the use of the workmen in accordance with the requirements of the local Environmental Health Officer. Such toilet shall be removed upon completion of the works.

WATER AND POWER

Allow for all temporary water and power connections from reticulation laid to the head of the drive, and remove on completion.

PROTECTION OF WORK

The contractor shall substantially cover and protect all parts of his work exposed to damage either during progress of the work or when same is finished and shall deliver the same done by him or his sub-contractors upon completion of the contract in a new, sound, clean and perfect condition.

VARIATION OF EXTRA WORKS

After the final approval of plans by the owner, no variation or extra works shall be carried out by the contractor except with the written authority of the owner. Before such works are proceeded with, the owner shall pay for the same.

DAMAGE TO PROPERTY

The contractor shall provide for making good all damage to any adjoining buildings, footpaths, fences, right of ways, trees, shrubs, garden walls and all damage of every kind arising during or out of his works.

PROGRESS PAYMENTS

Progress payments shall be made at monthly intervals in accordance with the general conditions of the contract on receipt of the contractors written claim. The contractor shall also make written application for liens and maintenance moneys as these become due.

FLUCTUATION IN COST

If there should be either a rise or fall in the award of ruling rate of labour or price of materials between the date of the quotation and the date when such labour is employed or such materials are procured for this contract, then on final settlement a compensating adjustment of the contract price shall be made and the owner shall make such additional payment or receive such allowance from the contract price as such a rise or fall shall cause.

CLEANING

At the conclusion of the work, premises shall be carefully cleaned out, windows washed and glass left free from scratches or paint, etc, and the entire building left in perfectly clean and immaculate condition for occupation. The site shall be generally tidied up and all signs of building debris removed.

HEALTH AND SAFETY

Refer to the requirements of the Health and Safety in Employment Act 1992. Comply with all relevant New Zealand safety legislation.

Take all practical steps to make the site and the contract works safe and to provide and maintain a safe working environment. Ensure that all those working on or visiting the site are aware of the rules governing site safety, are properly supervised and are not unnecessarily exposed to hazards.

Identify any significant hazards.

Maintain proper procedures for dealing with any emergencies that may arise. Immediately investigate accidents, identify their cause and maintain a register of accidents and serious harm. Provide a copy of any report which the contractor is required to make to a public authority on any accident which is associated with carrying out the contract works and results in serious harm to any person.

SECTION 2

EXCAVATION

PRELIMINARY AND GENERAL

Refer to the preliminary and general section which also applies to this section of the work.

EXCAVATION

Excavate as required for all foundations, footings, steps, piles, water pipes, drainage, etc to the various depths, levels and grades as required for the proper excavation of the works. All footings to have a solid bottom and all to the approval of the territorial authority. Keep all excavations clear of water and fallen material. Allow for taking foundations down through filling into original undisturbed clay.

BACKFILL

No ancillary trades shall commence, nor shall filling-in be commenced until the work has been inspected and approved. Back fill where required in layers not exceeding 150mm and consolidate with ramming.

SECTION 3

CONCRETE WORK

IMPORTANT

All concrete work shall comply with NZS 3109 minimum concrete compressive strength at 28 days shall be:

..... 20 MPa for FOOTINGS & SLABS
..... MPa for

At least 24 hours notice **MUST BE GIVEN** to the Inspector's Office **BEFORE POURING** CONCRETE FOUNDATIONS, BOND BEAM SUSPENDED TERRACE SLABS, CONCRETE FLOORS ETC.

PRELIMINARY AND GENERAL

Refer to the preliminary and general section which also applies to this section of the work.

WORKMANSHIP

Placing – before placing, all boxing and reinforcing steel shall be inspected and approved. Clean out and hose down all formwork before placing concrete. Concrete shall be finally deposited in place within 15 minutes of delivery from the mixer or agitator truck as the case may be. Thoroughly tamp concrete in place and protect with damp sacks or other approved method as directed.

FORMWORK

Formwork shall be of timber of nonstaining quality, accurately and securely set up with adequate bracing and close joints. Fillet all external and internal angles if directed. Formwork shall be removed without shock or vibration to the concrete after setting time has expired.

BUILD IN

Build in all iron work, pipe sleeves, H D Bolts, plumbing work, plugs, etc as required. Box for and form all openings and recesses as required. Allow for 12 mm diameter holding down bolts complete with nuts and washers built into the concrete wall band, maximum 1200mm centres, for fixing plates, etc or as required and 150mm in from all angles.

FOOTINGS ETC

Box for and reinforce concrete work as shown on the drawings. Allow for stepping the foundations down to ensure adequate bearing on undisturbed ground. Where foundations step down reinforcement shall be bent down and shall be continuous at this point.

SLABS

Lay 100mm thick reinforced concrete slabs over D P C membrane, reinforced with a single layer of SE 62 mesh 40mm down from top of slab. Lap mesh joints 225mm and wire tie. Screen off and trowel and finish off with a steel float. Econo-mesh of the equivalent grade may be substituted.

WATERPROOF MEMBRANES

Under all concrete slabs provide and lay .250 thick polythene D P C membrane. Heat seal or tape joints using approved tapes and overlay and wrap around all penetrations through this membrane. Care shall be taken not to puncture and any such puncture shall be repaired by overlapping with a patch extending 150mm beyond the puncture in all directions. Tape in position. Extend polythene up around perimeter walls. When pouring adequately protect the film from damage from boots, wheel barrows, planks and other damage. Repair all damage as previously specified.

SECTION 6

CARPENTRY AND JOINERY

PRELIMINARY AND GENERAL

Refer to the preliminary and General section which also applies to this section of the work.

All timber to comply with NZSS 3631 for classification and grading National Grading Rules.

GENERAL

- (a) The whole of the timber shall be the best of all the several kinds specified free from shakes, sapwood, all large or loose knots, large gum streaks and shall be thoroughly seasoned and all timber including joinery, shall be put in hand immediately the contract is signed. Any timber not up to standard or warps excessively must be removed from the job on the instruction of the owner.
- (b) Care must be taken when ordering lengths of timber as no butts will be allowed where it is possible to avoid them.
- (c) Framing timber when delivered to the site shall be stacked on skids and if unseasoned shall be fillet stacked. Finishing lines and joinery shall be stacked in a similar manner and covered or stored inside the closed-in building.
- (d) All nails, screws and iron work used externally shall be galvanized. Junctions of all woodwork and concrete shall be separated by 3 ply Malthoid.
- (e) All exposed timber shall be planed sanded and primed before fixing and all inside work shall be hand-dressed and glass papered to a smooth surface. All nails shall be carefully punched and all bruises and tool marks shall be removed. All framing timber shall be gauged.
- (f) Provide totara grounds in concrete work for fittings or approved purpose made fixings.
- (g) All scantlings and thickness of timber in carpentry work and joinery are to be finished the given dimensions unless otherwise stated.

WORKMANSHIP

All work to comply with NZS 3604 2011 and the New Zealand Building Code unless otherwise stated.

- (a) All carpentry work shall be set up and constructed to the dimensions given. The carpenter shall set out and ensure the proper execution of the work carried out by other tradesmen and shall attend on and make good for all other trades. He shall provide and fix all necessary plant and temporary structure including formwork, centring, boxing, shoring, strutting, and scaffolding and shall remove them as required; he shall provide and maintain any temporary coverings for any finished work subject to likely damage; he shall ensure the property closure for the works during constructions and shall clean up on completion.
- (b) **Framing**
To existing walls when required. All work shall be according to the best trade practice. The framework shall be so arranged and will provide all necessary support and fixing for the linings, and all post beams, studs, joists and walings shall extend in one piece between supports and shall only be joined over solid bearings. Spacings of all framing shall be regular throughout and shall be to suit the sizes and standards of all linings and sheathings specified. Joints shall be constructed to transmit the loads and stresses to which they are subjected. Plates shall be joined by 3 kn and 6 kn connections and shall be double nailed to every stud. Framework shall be well anchored to foundations, the steel framework and the roof structure.

SECTION 7 PLUMBING

PRELIMINARY AND GENERAL

Refer to the preliminary and general Clauses which also apply to this section of the work.

GENERAL

All work shall be carried out in accordance with the drawing specifications, and of the New Zealand Building Code. All materials shall be of the best of their respective kinds. Water pipes and tubes shall be set out in straight runs of even gradients, where possible avoiding all places where air locks are likely to occur. Secure copper tubing in position with copper straps. All piping including water, waste and vents shall be concealed. Provide for wet-back to fireplace if indicated on plans.

FLASHINGS

Flash as necessary to render building water-tight. All flashings shall accurately fit the work and cut in as long lengths as possible with all joints well lapped and fixed with 19mm flat head galvanized nails. Flashings required at gable ends. Also refer to Section 5: Bricklayer flashing trays. Flashings must be provided over all windows and doors.

SPOUTING AND DOWNPIPES

~~MARLE~~ Fascia ~~CLASSIC~~ and gutter where shown supported with clips to manufacturer's instructions. Downpipes shall be as required by Table 5 New Zealand Building Code, galvanized iron seamed and welled and strapped off walls with 1mm galvanized iron stand-off brackets fixed with galvanized iron screws, or PVC if required.

VENTS

Provide terminal vent and soil pipes as required. Soil pipe shall be 80mm PVC. Fix PVC cage to top.

WASTES

All wastes to be 40mm except hand basin 32 mm galvanized trays and PVC pipes. All wastes to be discharged over gully traps. Provide and fix back vents to all wastes over 3.600 metres in length.

ELECTROLYSIS

The contractor shall ensure that no dissimilar metals are in electrolytic contact. Dissimilar metals shall be installed from each other by painting or insertion of a bituminous felt insulator to the satisfaction of the owner.

COLD WATER

Lay water from supply in 12mm copper, close cap up with all necessary bends, tees, elbow, etc lead off with 12mm copper branches to sink, basin, laundry tubs, washing machine, W C, shower and two stand pipes and 12 mm branch to bath. Connect from branch to 'Ajax' valve and to hot water cylinder with 12mm copper pipe.

HOT WATER

Provide and fix one 180 litre copper electric cylinder complete with 1.5kw element and thermo-stat control and all necessary connections to make the same in working order. Lay water through 19mm copper piping to bath, then with 12mm to sink, hand basin, laundry tub, washing machine and shower. All hot water pipes to be lagged. Provide anti spill tray beneath cylinder if required. Provide a temperature reducing valve at cylinder.

BATHROOM AND SHOWER

Provide acrylic hand basin to vanity unit, 1675mmbath, shower tray as shown. Provide large type soap recesses over bath and to shower.

W C

Provide and fix W C earthenware pan complete with double flap white plastic seat, buffer, etc, 14 litre push button twin flush cistern, flush pipes, approved soil pipes, fittings, stop-cocks and vents. Cisterns to have silent valves and overflow. One toilet roll holder to be fixed in suitable position.

LAUNDRY

Provide and fix where shown in laundry a pressed S S tub with cupboard under and large type soap recess in suitable position.

TAPS

All taps and extensions except hose taps to be chrome plated, streamlined bibcocks marked "hot" and "cold".

SECTION 9

DRAINAGE

PRELIMINARY AND GENERAL

Refer to the preliminary and general section which also applies to this section of the work.

DRAINAGE

The drainage will be carried out strictly in accordance with the New Zealand Building Code and the local bylaws. Provide and lay in 110mm diameter, PVC, all to have the necessary junction bends, angles, gully traps, inspection pipes, grease traps and chambers, Buchan traps, etc and all vents and fittings necessary to complete the system to the Environmental Health Officer's satisfaction. Stormwater to be carried out in materials specified by the inspector.

STORMWATER

To local authority requirements and the New Zealand Building Code.

SEPTIC TANK

Build septic tank to local authority requirements and the New Zealand Building Code.

SEWER

Connect to sewer where available as shown on plans. All to comply with the New Zealand Building Code.

SECTION 10

ROOFING

PRELIMINARY AND GENERAL

Refer to the preliminary and general section which also applies to this section of the work.

ROOFING

Supply and lay to roof joists CORR GALV IRON

Allow for all necessary flashings in materials to match roof. All work shall be in strict accordance with the manufacturer's instructions.

COVERTEK™ 403/405/407



ROOF

This is a Thermakraft roofing product



WALL

This is a Thermakraft wall product

SYNTHETIC UNDERLAY
FIRE RETARDANT // ABSORBENT
BREATHABLE // LIGHT DIFFUSER





COVERTEXTM

403/405/4

► **Covertex is a fire retardant, absorbent and breathable synthetic roof and wall underlay.**

Constructed using a microporous water resistant film sandwiched between two layers of shrink resistant spun-bonded polyolefin. Designed as a means of managing condensation, water vapour transfer and water ingress in roofs and wall applications.

In Roof Applications

Intended for use as a alternative to conventional kraft paper roof underlay, fixed over timber or steel framed roofs and to assist in the moisture management of roof cladding systems.

In Wall Applications

Intended for use as an alternative to conventional kraft paper wall underlays, fixed over timber or steel frame walls in order to limit the entry of wind and water into building cavities.

Covertex has a Flammability Index ≤ 5 and therefore meets the requirements of NZBC Acceptable Solutions C/AS2 to C/AS6 Paragraph (4.17.86), for the surface finish requirements of suspended flexible fabric used as an underlay to exterior cladding that is exposed to view in occupied spaces. It may therefore be used with no restrictions in all building.

For horizontal laying, see NZBC E2/AS1. For vertical laying, refer MRM Roofing Code of Practice.

Note: If applying window sealing tape to Covertex, improved adhesion performance can be achieved by using a hot air gun (gentle on the window sealing tape) or the use of a spray primer/adhesive.

CONTROL OF CONDENSATION

In climatic regions where condensation risks are high, such as cold or high humidity areas, care needs to be taken in specifying the correct design and installation to prevent moisture build-up in the roof cavities. Factors which adversely affect the condensation risk in roofing systems include:

- Humid, and/or cold climatic regions
- Warm/Skillion roof construction
- Low roof cavity air volume and restricted air movement
- Omitting Vapour Control Layers
- Ceiling penetrations and entry of warm air into roof cavities
- Occupancy activities which have high moisture loading on conditioned spaces
- Low pitched roof
- Bulk insulation
- Building structures ability to naturally dry Construction Moisture

Skillion and Warm Roof Construction are particularly sensitive to moisture accumulation and the design and installation of roof construction needs to take into account the higher condensation risks. Refer MRM Code of Practice for details.



KEY FEATURES

- Can be used in direct fix or cavity fix for roof and wall construction
- Is more stable and more shrink resistant than kraft based products
- May be installed during adverse conditions (rain) without affecting its durability and performance
- Will not increase risk of condensation as compared with comparable kraft underlays
- Has an edge tear greater than 120N
- Has a 150mm lap line printed on each edge
- In wall applications, limit exposure to the elements for no more than 14 days
- In roof applications, limit exposure to the elements for no more than 7 days
- Green and recyclable, tear resistant, lightweight, strong

DURABILITY

Covertex will meet the performance requirements of NZBC Clauses C/AS2 to C/AS6, Flammability Index ≤ 5 , Durability (B2.3.1[a] not less than 50 years, B2.3.1[b] 15 years), E2 External Moisture E2.3.2, F2 Hazardous Building Materials F2.3.1, providing:

- It is not damaged
- Installed in accordance with Thermakraft Literature.
- In roof applications, Thermakraft recommend covering the underlay in 24 hours
- Installed to the NZ Metal Roofing Manufacturers Inc. - NZ Metal Roof and Wall Cladding Code of Practice
- Installed by or under guidance of Licensed Building Practitioners

Visit thermakraft.co.nz for additional product and application information.

RELATED PRODUCTS



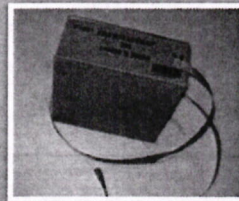
Ausmesh Safety Netting

Galvanised Safety Mesh, complying with AS/NZS 4389:1996, for use in commercial roof applications.



White General Purpose Tape (Underlay Tape)

A premium white polypropylene tape, using the latest in acrylic adhesive technology.



Blue Strap

A premium polythene embossed strap, for use as a support for non-self-support roof underlays.



Drainage Matt

Extruded three dimensional synthetic black mesh, used as an air separation layer between fully sarked roof, and roof cladding.

TECHNICAL INFORMATION

PROPERTIES	COVERTEK 403	COVERTEK 405	COVERTEK 407
Construction:	Non-Woven, Breathable Film, Non-Woven	Non-Woven, Breathable Film, Non-Woven	Non-Woven, Breathable Film, Non-Woven
Basis Weight (g/m²):	130	186	220
Item Code / Weight (kg):	CTH1350025 / 3.25 kg CTH1350050 / 6.50 kg CTH1350075 / 9.75 kg	CTK1250025 / 4.50 kg CTK1250050 / 9.00 kg	CTS1250025 / 5.50 kg CTS1250050 / 11.00 kg
Flamability (FI):	< 5	< 5	< 5
Water resistance (mm):	Requirement: 100mm (Roof Underlay) Pass: ✓	Requirement: 100mm (Roof Underlay) Pass: ✓	Requirement: 100mm (Roof Underlay) Pass: ✓
Vapour Permeability (µg/N.s):	> 3.0	> 3.0	> 2.5
Vapour Resistance (MN.s/g):	< 0.5 Requirement: ≤7.0	< 0.5 Requirement: ≤7.0	< 0.5 Requirement: ≤7.0
pH Extract (pH):	Requirement: 5.5-8.0 Pass: ✓	Requirement: 5.5-8.0 Pass: ✓	Requirement: 5.5-8.0 Pass: ✓
Shrinkage (%):	Requirement: ≤ 2% Pass: ✓	Requirement: ≤ 2% Pass: ✓	Requirement: ≤ 2% Pass: ✓
Air Barrier:	--	--	--
Durability (Years):	15/50	15/50	15/50
Max UV Exposure (days):	7 days roof, 14 days wall	7 days roof, 14 days wall	7 days roof, 14 days wall
Wind Zone:	Extra High for Roofs, Very High for walls	Extra High for Roofs, Very High for walls	Extra High for Roofs, Very High for walls
Duty Classification:	Unclassified	Unclassified	Unclassified
Absorbency (g/m²):	> 150	> 150	> 150
Cavity:	✓	✓	--
Cladding:	No restrictions, includes; absorbent / non-absorbent; direct fix / cavity fix; metallic / non-metallic	No restrictions, includes; absorbent / non-absorbent; direct fix / cavity fix; metallic / non-metallic	No restrictions, includes; absorbent / non-absorbent; direct fix / cavity fix; metallic / non-metallic
Breathable:	✓	✓	✓
Vapour Control Layer:	--	--	--
Fire Retardant:	✓	✓	✓
Roll Sizes (m²):	1350mm x 18.5m(25m²), 1350mm x 37m(50m²), 1350mm x 55.6m(75m²)	1250mm x 20m(25m²), 1250mm x 40m(50m²)	1250mm x 20m(25m²), 1250mm x 40m(50m²)

Support Requirements

- a.** For Pitches ≥3° <10° **i.** 403 Horizontal only on netting / **ii.** 405/407 Horizontal unsupported / **iii.** 405/407 Vertical supported
b. For Pitches ≥10° **i.** 403 Horizontal or Vertical Supported / **ii.** 405/407 Horizontal or Vertical Unsupported

NZMRM CoP (an alternative solution) advises 8° as the minimum pitch for self-support underlays - Thermakraft products are suitable for installation within this guidance. Ministry of Education CoverTek must be laid horizontally.

The recommendations contained in Thermakraft's literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to any conditions contained in the Warranty. All product dimensions and performance claims are subject to any variation caused by normal manufacturing process and tolerances. Furthermore, as the successful performance of the relevant system depends on numerous factors outside the control of Thermakraft (for example quality of workmanship and design), Thermakraft shall not be liable for the recommendations in that literature and the performance of the Product, including its suitability for any purpose or ability to satisfy the relevant provisions of the Building Code, regulations and standards. Literature subject to change without notification. Latest documentation can be found on the website.



BRANZ Appraised
 Appraisal No. 710 (2010) & 711 (2011) - Covertek 403
 Appraisal No. 743 (2013) - Covertek 405
 Appraisal No. 651 (2009) - Covertek 407

CI/SIB			
--------	--	--	--

CONTACT THERMAKRAFT

Thermakraft's large and varied range of products are available through all leading hardware stores, building supplies, timber merchants and roll formers throughout New Zealand.



Thermakraft Industries Ltd

11 Turin Place, East Tamaki, Auckland, New Zealand
 P.O.Box 58-112, Botany, Auckland 2163

Free Phone 0800 806 595 **Phone** + 64 9 273 3727 **Fax** + 64 9 273 3726
Email info@thermakraft.co.nz **www.thermakraft.co.nz**



TECHNICAL DETAILS

MATERIALS

All our products are available in a wide range of materials and finishes. The following are some of the options:

Metallic Coated:

Galvanised Steel, Zinc/Aluminium coated steel.

Pre-Painted Steel:

COLORSTEEL Endura, COLORSTEEL Maxx, Colorcote ZR8, Colorcote ZRX, Colorcote ZM8 and Colorcote ZMX.

Pre-Painted Aluminium:

Colorcote ARX and Colorcote AR8.

Other:

Aluminium plain or mill finished, stainless steel, pure copper or solid zinc, all subject to profile choice and material availability.

MINIMUM PITCH

To comply with E2/AS1 the recommended minimum pitch for roofing is:

CUSTOM ORB	SIX RIB	ALL OTHER ROOFING PROFILES
8°	4°	3°

STORAGE

Products are despatched from the factory in top condition, however the material can be damaged before installation by incorrect storage practices. Premature deterioration due to incorrect storage may be avoided if these simple guidelines are followed:

- On arrival, ensure sheets are dry. If wet, open the pack and separate the sheets to allow them to dry. Store packs of the product off the ground in a sheltered position providing some fall to allow water to run off. Protect packs with a loose fitting waterproof cover, allowing air to circulate.
- Contact with wet cement should be avoided at all times.

INSTALLATION

The installation of metal roofing products is a specialised field requiring knowledge and experience of numerous issues with regard to trade practice and material compatibility.

- Poor handling prior to or during installation can cause damage which may affect the appearance and ultimate performance of the product. Don't handle sheets roughly or carelessly or drag or slide sheets over each other or rough surfaces, as damage to the coating may occur. Equipment used to handle the sheets should be clean and free of dirt and grit.
- Soft soled shoes should be worn whenever walking on the product to prevent damage to the coating; traffic up the roof should be in the pans of the profile and across the roof should be on the purlin line.
- Prior to installation ensure that the tops of the purlins or girts are all in the same plane; if packing or easing is necessary ensure this is not to the detriment of the connection between the fastener and the structure.
- Sheets should be lapped away from the line of sight wherever possible to enhance aesthetic appeal and all sheets should be stop ended at the top, and lipped at the bottom on pitches below 8°.
- Ensure that the anti-capillary edge is fitted as the external overlap and is visible from the top side.
- The use of touch-up paints is not recommended; if a pre-painted sheet is excessively damaged by scratching it should be replaced. Accessories should be colour matched prior to installation.
- Regularly clean up the area by sweeping swarf, offcuts, rivet shanks and loose fasteners with a soft-bristled broom. Collect and remove all debris daily as unsightly staining from swarf and other unprotected steel items can occur overnight.
- The strippable film applied to some prepainted products must be removed within two weeks of installation, or earlier if storage is in direct sunlight.
- Recommended references are the *New Zealand Steel Installer's Guide* and *NZMRM Profiled Metal Roofing Code of Practice*.

DESIGN FOR DURABILITY

Steel & Tube roofing and cladding solutions are available on our website providing design and installation details for residential and commercial applications.

Contact your local branch or the Technical Helpline on 0800 333 247 for specific advice.

With correct product selection, installation and maintenance, your Steel & Tube roof will remain attractive and weatherproof for many years. Unfavourable design practices will detrimentally affect the performance of your roof and should be avoided. If any of the following situations are evident in your design you should contact your Steel & Tube representative for advice.

- Areas of roofing, cladding and rainwater systems unwashed by rainfall will accumulate atmospheric debris which can become corrosive when damp. These areas will require maintenance depending on the product used and the environment. Refer to the Maintenance section of this publication.

- Do not discharge water runoff from inert materials such as Zinalume steel, pre-painted roofing, tiles or clear sheeting onto unpainted galvanised roofing and gutters, as the corrosive salts formed in this situation are unstable and can lead to premature corrosion.
- Where two different metals are in contact one metal will tend to sacrifice itself to protect the other. A similar effect can occur with water flowing over dissimilar metals. In particular, avoid runoff from copper or brass onto Zinalume steel roofing, and avoid contact with, or runoff from unpainted lead onto Zinalume steel.
- Fasteners should be compatible with the roofing material chosen and have durability not less than the material being fastened. Stainless steel or aluminium fasteners should be used with pre-painted aluminium roofs.
- Wall cladding should terminate at least 50mm above ground level. Lower edges of sheets must be kept clear of vegetation and debris.

WARRANTIES & ENVIRONMENTS

WARRANTYPLUS

Steel & Tube offer exclusively to our customers, the unparalleled peace of mind afforded by **WarrantyPlus**.

WarrantyPlus is the most comprehensive warranty available in the industry today. **WarrantyPlus** covers an extended range of criteria, is supported back to back by our suppliers, includes site-specific maintenance requirements and is transferable to subsequent owners.

WarrantyPlus for pre-painted products in residential roofing applications is available for up to 30 years against perforation as a result of corrosion and up to 18 years against flaking, peeling and excessive fade of the coating, depending on the environment and coating system.

WarrantyPlus guarantees that your roof will be a suitable surface for the collection of rain water for drinking.

Non-residential warranties are for a maximum of 15 years duration.

Refer to your nearest Steel & Tube representative or *New Zealand Steel's Specifiers & Builders Guide* for information on warranty periods.

ENVIRONMENTS

The following guide is an indication of product recommendations for residential roofing, rainwater systems and walling. Wall cladding and rainwater systems are often less effectively rain washed than roofing, so selecting a suitably durable material is important.

Your nearest Steel & Tube representative will be happy to give you specialist advice for your area.

Marine environmental category is better expressed by way of defining characteristics rather than distance from water, typical zones are given for additional guidance only.

CHOOSING THE RIGHT PRODUCT

CATEGORY	CHARACTERISED BY	TYPICAL ZONES	SUGGESTED MATERIAL	
			ROOFING AND RAINWATER SYSTEMS	WALL CLADDING
VERY SEVERE MARINE	• Heavy salt deposits • Almost constant smell of salt spray in air	Within 50 metres from breaking surf on East Coast and 100 metres from breaking surf on West Coast	Colorcote AR8	Colorcote AR8
		Within 50-100 metres from breaking surf on East Coast, 100-200 metres from breaking surf on West Coast	COLORSTEEL Maxx	Colorcote AR8
SEVERE MARINE	• Light salt deposits • Frequent smell of salt in the air	Commencing from Very Severe zone up to 500 metres or more inland from breaking surf; or in the immediate vicinity of calm salt water such as harbour foreshores	COLORSTEEL Maxx or COLORSTEEL Endura	COLORSTEEL Maxx
MODERATE MARINE	• Little or no salt deposits • Occasional smell of salt in the air	500 metres to 1km from breaking surf; or in the immediate vicinity of calm salt water such as estuaries	COLORSTEEL Endura or Zinalume	COLORSTEEL Endura
MODERATE INLAND	• No obvious marine influences	More than 1000 metres from salt water	COLORSTEEL Endura or Zinalume	COLORSTEEL Endura or Zinalume

Please Note: Industrial and Geothermal areas are subject to individual assessment. The above terms are subject to correct design, storage, installation and maintenance provisions. Marine environments may be extended inland by prevailing winds and local conditions.

MAINTENANCE

Few products are absolutely maintenance-free and all Steel & Tube profiles are subject to the cumulative effects of weather, dust and other airborne deposits, some of which are extremely aggressive. WARRANTIES & ENVIRONMENTS on Page 9 will assist in identifying the category into which the site fits. In order to ensure the maximum service life from the chosen coating system, the property owner should note the following maintenance advice:

- Soft soled shoes should be worn whenever walking on roofing to prevent damage to the coating; walk only in the pans of the profile, and on the purlin line whenever possible.
- Normal rainwashing will remove most accumulated atmospheric debris, but manual washing is required for areas which do not receive adequate rainwashing. These areas, such as wall cladding under eaves, or sheltered areas where overlapping of roof areas occurs due to the design, are known as unwashed areas.
- Other high risk areas that require manual washing include around flues and extractor vents, under television aerials and trees and sites prone to mould, lichen, bird droppings or debris.
- Spoutings and gutters must be regularly inspected to remove debris, which may cause ponding.
- Surfaces may be washed with water and a soft-bristled brush, or for larger areas waterblasting at pressures up to 20 MPa may be more appropriate.
- The following table shows maintenance requirements for roofing products relative to the environment in which the building is located.

THESE RECOMMENDATIONS ARE DEPENDANT ON SELECTION OF THE APPROPRIATE ROOFING MATERIAL FOR THE PREVAILING ENVIRONMENT.

MATERIAL	ENVIRONMENT	MAINTENANCE REQUIREMENT			
		ROOF	WALLS	RAINWATER SYSTEMS	UNWASHED AND HIGH RISK AREAS
PRE-PAINTED STEEL	Very severe	Rainwashing Only	Wash every 3 months	Wash monthly	Wash monthly
	Severe	Rainwashing Only	Wash every 6 months	Wash every 3 months	Wash every 3 months
	Moderate	Rainwashing Only	Wash every 12 months	Wash every 6 months	Wash every 3 months
ZINCALUME	Moderate	Rainwashing Only	Wash every 6 months	Wash every 3 months	Wash every 3 months

OVERPAINTING

- Galvanised or Zincalume products can be overpainted immediately or after weathering. Use primer and top coat from a reputable paint manufacturer suitable for galvanised steel.
- Do not use calcium plumbate primers if rain water is to be collected for drinking purposes.
- Pre-painted roofing is best left weathered for at least twelve months prior to overpainting, unless special steps are taken to improve adhesion.
- As with all paint systems preparation is the key. For more information on overpainting Steel & Tube's roofing pre-painted materials, refer to the *New Zealand Steel Specifiers and Builders Guide*.

Please Note:

Trademarks apply to the following products presented in this publication:
 Customline, Colorcote, ARX, COLORSTEEL, Endura, Maxx, EuroLine, Multiline, Multispan, Paneldek, Plumbdek, Plumblin, ST900, STC900, ST7, Trimklad, Trimline, Trimform, Zincalume.
 Patent applies to ST963.

DRINKING WATER

- Pre-painted and metallic coated products are suitable for the collection of drinking water.
- On new installations the first 25mm of rainfall should be discarded to avoid contamination from any manufacturing or installation residue.
- Some post-painted systems are unsuitable for the collection of drinking water, check with the paint supplier for compatibility.

STRO205



STEEL & TUBE

ROOFING PRODUCTS



Number of Fasteners per Sheet per Purlin for Roof and Wall Cladding (Fully Lined Buildings)

**Supported
at 1.200mm
Maximum
Centres**

Profile	Wind Zone (to NZS 3604)				Ends
	Low	Medium	High	Very High	
Custom Orb .40mm	2	2.5	3	4	5
Plumbdek, Trimform .40mm	2	2	2.5	4	4
Trimline .40mm	2	2	3	4	5
Trimklad .40mm	3	3	3	3	4

**Supported
at .900mm
Maximum
Centres**

Profile	Wind Zone (to NZS 3604)				Ends
	Low	Medium	High	Very High	
Custom Orb .40mm	2	2	3	4	5
Plumbdek, Trimform .40mm	2	2	2	3	4
Trimline .40mm	2	2	2	3	5
Trimklad .40mm	3	3	3	3	4

Notes

1. Trimklad figures are for pan fastened, other figures for worst case pan or rib fastened.
2. Treat penultimate purlin as Very High wind condition in all zones
3. Three fasteners per sheet minimum adjacent to eaves.

FASTENING LAYOUTS

CUSTOM ORB



- a) 2 per sheet: miss 4, hit 1
2.5 per sheet: alternate a) and b)



- b) 3 per sheet: miss 2, miss 3



- c) 4 per sheet: miss 2, miss 1



- d) 5 per sheet: every second corrugation

PLUMBDEK & TRIMFORM



- a) 2 per sheet: miss 1, hit 1
2.5 per sheet: alternate a) and b)



- b) 3 per sheet: hit 2, miss 1



- c) 4 per sheet: every rib

TRIMLINE



- a) 2 per sheet: miss 1, hit 1 Alternate miss 2, hit 1



- b) 3 per sheet: hit 2, miss 1, hit 1



- c) 4 per sheet: hit 2, miss 1, hit 2



- d) 5 per sheet: every rib

TRIMKLAD



Pattern as per Trimline fastener in pan beside rib

WHANGAREI
9 Southend Ave
Otaika
PO Box 1869
Ph: 09 438 4600
Fax: 09 438 0342

NORTH SHORE
2 Ride Way
Nth Hbr Ind Estate
PO Box 100-182
Ph: 09 415 8080
Fax: 09 415 9192

AUCKLAND
14 Kerwyn Ave
East Tamaki
PO Box 58-216
Ph: 09 274 4056
Fax: 09 274 8972

HAMILTON
32 Kaimiro St
Pukete Ind Estate
PO Box 10 458
Ph: 07 850 9200
Fax: 07 850 9330

TAURANGA
67 Koromiko St
Judea
PO Box 2001
Ph: 07 578 1089
Fax: 07 577 0186

WELLINGTON
201 Gracefield Rd
Lower Hutt
PO Box 36 082
Ph: 04 568 4359
Fax: 04 568 6770

CHRISTCHURCH
106 Antigua St
Sydenham
PO Box 7306
Ph: 03 377 0994
Fax: 03 377 2680



STEEL & TUBE
ROOFING PRODUCTS



CUSTOM ORB

✦ *Profiled Metal Roofing and Cladding*

NOMINAL DIMENSIONS



DESCRIPTION

Custom Orb is a premium quality corrugated profile manufactured under licence to BHP.

APPLICATIONS

- Residential Roofing & Cladding
- Industrial/Commercial Roofing & Cladding
- Curving
- Specialty Cladding
- Ceilings and Linings

FEATURES

Corrugated steel is a timeless classic. **Custom Orb** is manufactured to controlled tolerances, allowing it to be used with confidence in a great variety of applications.

Custom Orb can be roll curved (bullnosed) to 400mm radius, or spring curved to radii greater than 9 metres depending on grade, thickness and material used (see *Spring Curved Custom Orb Design Guide* for details). It is also popular in perforated patterns for decorative or sound control situations. Matching translucent sheeting is available in G.R.P. (fibreglass) and Polycarbonate.

MATERIALS

Available in metallic coated and pre-painted steel in .40mm and .55mm B.M.T. (base metal thickness), aluminium plain and prepainted in .70mm and .90mm, and other non-ferrous metals.

FASTENERS

Typically: Steelfix 12g x 45mm, Timberfix 12g x 55mm, Class 4 minimum, of material compatible with that being fastened and durability no less than the sheet material. Class 5 or non-ferrous fasteners are recommended for severe or very severe marine environments.

DURABILITY

All material selections must be compatible with prevailing environmental conditions and adjacent materials, see *Roofing Solutions Product Guide* or *Specifiers Guide* for details. Areas not exposed to rain washing will require programmed maintenance.

WARRANTY PLUS

Steel & Tube **WarrantyPlus** is the most comprehensive warranty available in the industry. **WarrantyPlus** covers an extended range of performance criteria, is supported back-to-back by our suppliers, includes site-specific maintenance requirements and is transferable to subsequent owners.

PERFORMANCE DATA

MASS (KG/M²)

.40mm B.M.T.	4.08	.55mm B.M.T.	5.54
--------------	------	--------------	------

MAXIMUM SPANS

Base Metal Thickness (mm)	Maximum Spans (mm)	
	Roof	Walls
0.40	1200	1800
0.55	1600	2400

FASTENING REQUIREMENTS

Base Metal Thickness (mm)	Fixings per sheet per support	Roof Span (mm)		
		900	1200	1500
0.40	3	.	.	N/R
	4	.	.	N/R
	5	.	.	N/R
0.55	3	..	.	.
	4	..	.	.
	5	..	.	.

* Suitable for Controlled Traffic ** Suitable for Heavy Traffic N/R Not Recommended

Wind Zone	High	Very High	Extra High	SED
Design Wind Speed (m/s)	<44m/s	<50 m/s	<55 m/s	<60m/s
Load ULS (kPa)	2.32	3.00	3.63	4.32

Notes:

- End spans should be not more than 2/3 of maximum internal spans.
- Sheet ends should be fastened through every second crest.
- To correlate Wind Zone figures to kPa a local pressure factor of 2 has been applied to the entire roof. Specific design is required for roofs designed in accordance with NZS1170 where a local pressure factor of 3 occurs over areas greater than one sheet width or end purlin spacing.
- The above tables are governed by serviceability load factors applicable to normal buildings (importance level 2) for all geographic areas.

MINIMUM PITCH

In accordance with Acceptable Solution E2, the minimum pitch for **Custom Orb** for roofing dwellings is 8°. Roof runs in excess of 12 metres should be checked for water runoff capacity.

FOOT TRAFFIC

Foot traffic up the roof must take place with load spread equally across two crests, or over purlin lines. Traffic across the roof must take place along purlin lines.

SPECIFICATIONS

Recommended specifications are available in the branded sections of MasterSpec *BASIC* or MasterSpec *STANDARD*, or from your local Steel & Tube branch or visit www.steelandtube.co.nz.

DESIGN DETAILS

Design details covering many applications are available on our website in CAD and PDF under each product section. Visit www.steelandtube.co.nz.

Note:

Trademarks apply to the following products presented in this publication:
MasterSpec *BASIC* and MasterSpec *STANDARD*.

IMPORTANT PUBLICATIONS

For your installation to perform to its potential, it is essential that it is designed, installed and maintained in accordance with good trade practice. Please refer to:

- Steel & Tube: Roofing Solutions Product Guide
- Steel & Tube Roofing Products: Spring Curved Custom Orb Design Guide
- New Zealand Steel: Installation Guide
- New Zealand Steel: Builders and Specifiers Guide
- BRANZ: Good Profiled Metal Roofing Practice
- MRM: New Zealand Metal Roofing and Wall Cladding Code of Practice
- E2/AS1

INSTALLERS

A list of local installers for your area and contract type is available from your local Steel & Tube branch or visit www.steelandtube.co.nz.