



Industrial Slab-On-Ground
Load Transfer System

PD3™ Tapered Plate Dowel Cradle

Product Guide

Danley™ PD3™ with



- Provides the flattest joints
- Complies with ACI 360R-10
- Limits differential deflection under load to <math><0.25\text{mm}</math>

Refer to the back of this
booklet for contact information.



Saves time on site!
Faster set-up
& installation.



RYNOBAR™
DANLEY

RynoBar™ is now available on the
full range of Danley™ PD3™ Cradles:
6mm, 10mm & 20mm



Improved Safety
Eliminates the sharp edges
on steel travel bars.



Faster set up & Installation
Save time and effort on site!
Say goodbye to cutting
traditional steel travel bars.



Quality Assurance
RynoBar™ is engineered
to accurately yield at
the saw cut joint.

PD3™ Dowel Cradle with RynoBar™

Product Description

The PD3™ Tapered and Sleeveless Plate Dowel Cradles which provides the world's best performance in limiting joint deflection under load, is now available with RynoBar™

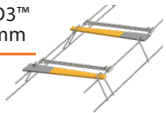
The PD3™ Dowel Cradle provides the highest deflection control tolerance in line with ACI Standards recommendations to limit joint spalling, facilitate load transfer and provide the lowest risk of restraint to ensure the best serviceability outcome for the slab design.

The use of the PD3™ Dowel Cradle System extends the life-cycle of the floor to provide the highest level of floor efficiency for tenants and the highest return on investment for the asset owner.

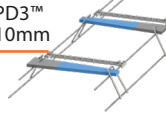
PD3™ Dowel Cradle Range

The full range of Danley™ PD3™ Plate Dowel Cradles are delivered to site, fitted with RynoBar™ travel bars.

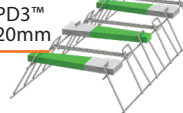
PD3™
6mm



PD3™
10mm



PD3™
20mm



✓ Features

- UV Stabilised shrink-wrapped bond breaker
- The PD3™ Dowel Cradle features a plate dowel with bond breaker, allowing concrete to steel contact.
- The PD3™ Dowel Cradle utilises a tapered plate dowel that allows lateral movement without the use of a plastic sleeve.
- The wire cradle construction ensures the accurate placement and alignment of the plate dowels at the correct centres and height within the slab.
- Hot-dip galvanised plate dowels to AS/NZS 4680.

✓ Advantages

- UV stabilised shrink wrap maintains bondbreaker integrity if cradles have prolonged exposure to the elements.
- Direct concrete to steel contact allows superior load deflection control.
- Engineered to meet Super Flat Floor (SFF) requirements of ACI360R-10.
- The use of the PD3™ Dowel Cradle creates a lateral and longitudinal movement void.
- Reduces the risk of restraint.
- Provides fast and accurate horizontal and vertical placement.

PD3™ System Trade Benefits

Engineering Benefits:

- Provides highest performance in controlling joint deflection.
- Compliance with ACI 360R-10, design recommendations, limits differential deflection under load to <0.25mm.
- The RynoBar™ is designed to yield at <1kN eliminating the risk of restraint.
- Galvanised finish to AS/NZS 4680.
- Accuracy of dowel placement ensures the most effective load transfer performance.

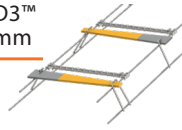
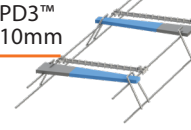
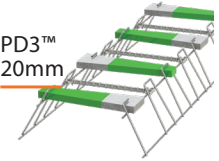
Asset Protection Benefits:

- Reduces the risk of spalling damage to the concrete at the joints.
- Reduces maintenance & downtime costs.
- Provides a smoother surface at the joints.

Concrete Benefits:

- Speed and accuracy of dowel placement.
- Lowest placement cost. RynoBar™ eliminates the need to cut travel bars.
- Pour through capability.
- Greater stakeholder satisfaction.
- Wider sweet spot for saw cut placement provides greater tolerance for accuracy.

Performance & Technical Data

 PD3™
6mm

 PD3™
10mm

 PD3™
20mm


Product Performance Data:

Concrete strength: 30MPa. **Joint opening:** 5mm
Design capacities should be compared with factored loads
Limiting capacity is concrete shear cone capacity

Slab Thickness (mm)	PD3™ with RynoBar™ Item Code	Dowel Thickness (mm)	Dowel Spacing (mm)	Single Dowel Design Capacity (kN)	Single Wheel Design Load (kN) (mid panel joint)	Single Wheel Design Load (kN) (edge loading)
125	PD306450125 *	6	450	10.3	55	30
150	PD306450150 *	6	450	14.3	82	45
175	PD306450175 *	6	450	18.8	112	62
200	PD306450200 *	6	450	23.9	154	84
150	PD310450150 *	10	450	14.3	82	45
175	PD310450175 *	10	450	18.8	112	62
200	PD310450200 *	10	450	23.9	154	84
250	PD320300250G	20	300	40.2	392	215
300	PD320300300G	20	300	55.6	605	333
360	PD320400360G	20	400	77.3	747	410
425	PD320400425G	20	400	99.9	1062	584

* Add either a "B" or "G" to the end of these item codes to order cradles with Dowels in **Black** or **Galvanised** finish.

Concrete Compressive Strength Effect:

Strength (MPa):	30	32	35	40	45
Factor:	1	1.03	1.08	1.15	1.22

Cradle Manufacturing Tolerances:

Overall Length:	Overall Height:	Dowel Centres:
±10mm	±5mm	±5mm

Material Technical Data:

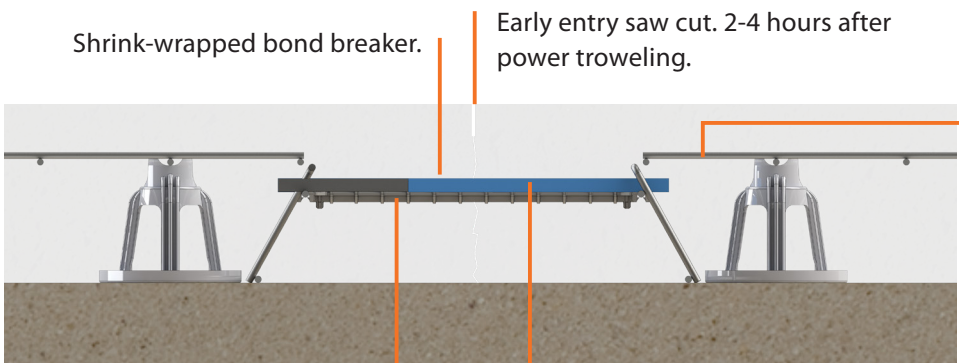
Component	Dimension (mm)	Material Type	Material Standards	Steel Grade Equivalent	Yield Stress	Tensile Strength (MPa)	Standards Compliance
6mm PD3™ Dowel	6 x 300	Cold Drawn Steel	Q345	≥Grade 300	345 MPa	550	AS/NZS 3679.1
10mm PD3™ Dowel	10 x 300	Cold Drawn Steel	Q345	≥Grade 300	345 MPa	550	AS/NZS 3679.1
20mm PD3™ Dowel	20 x 300	Cold Drawn Steel	Q445	≥Grade 300	345 MPa	550	AS/NZS 3679.1
Wire Cage	Ø4.95	Hard Drawn Wire	AS/NZS 4671	Grade 500L	500 MPa	650	AS/NZS 4671
RynoBar™	Ø12.5	Polypropylene	-	-	<1kN	-	-
Galvanising	-	Hot Dipped Galv	AS/NZS 4680	-	-	-	AS/NZS 4680

How to Specify

How to Specify the PD3™ Dowel Cradle with RynoBar™

Danley™ PD3™ sleeveless and tapered plate dowel cradle system fitted with the RynoBar™ plastic self-yielding travel bars is for use in saw-cut contraction joints, providing bilateral movement and limiting differential deflection under load to no more than 0.25mm. Complies with ACI 360R-10.

Available in 6mm, 10mm and 20mm. Available in Black or Galvanised.



Shrink-wrapped bond breaker.

Early entry saw cut. 2-4 hours after power troweling.

Danley™ PD3™ Tapered Plate Dowel Cradle
Supplied with RynoBar™ plastic self yielding travel bar system.

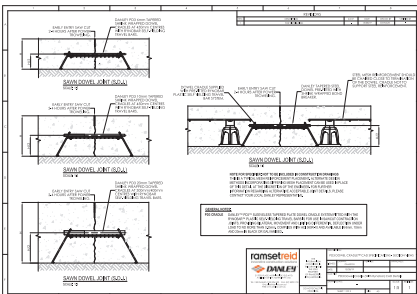
Tapered plate dowel centres as per manufacturer's recommendations.

In the absence of any other information, this mesh placement is a suggestion only, and is superseded by the engineer's design.

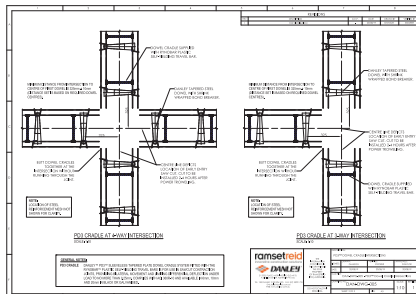
Reinforcement should be supported correctly with bar chairs complying to AS/NZS 2425:2015. The cradle/dowel should not be used as reinforcing support.

PD3™ Dowel Cradle with RynoBar™ Specification Details

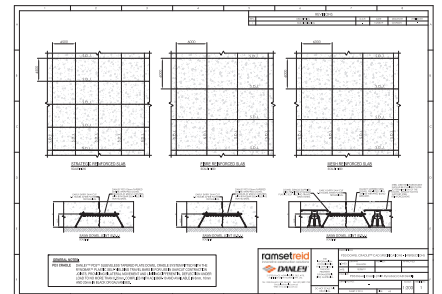
Visit our website, or scan the QR Codes to download a copy of the Danley™ PD3™ Tapered Plate Dowel Cradle Specification details.



PD3™ Dowel Cradle (With RynoBar™) Sectional Details



PD3™ Dowel Cradle (With RynoBar™) Intersection Details

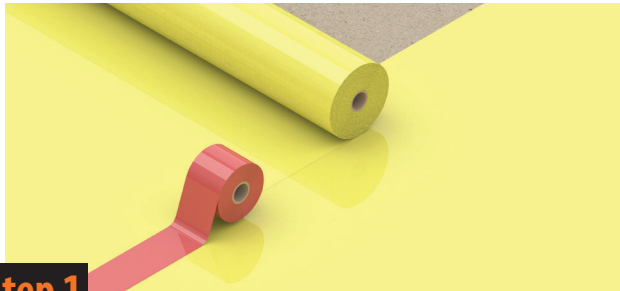


PD3™ Dowel Cradle (With RynoBar™) Slab Type Details

Installation Guidelines

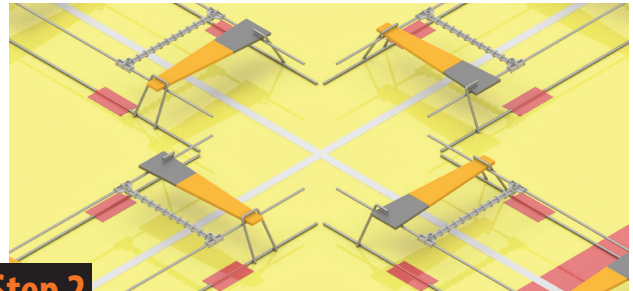
Traditional Mesh Reinforcement Slab Design

For more information relating to installation, please download the [PD3™ Plate Dowel Cradle Details](#) (see page 5)



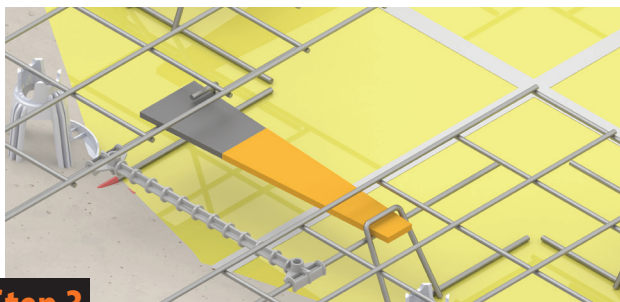
Step 1

Where vapour mitigation is critical, Reid Construction Systems recommends the use of Stego® Wrap Vapour Barriers. Unroll Stego® Wrap over the area where the slab is to be placed and ensure the membranes are installed as per the supplier's installation guidelines. Mark out joint lines on the membrane with marking paint to ensure accurate placement of the PD3™ Cradles with RynoBar™.



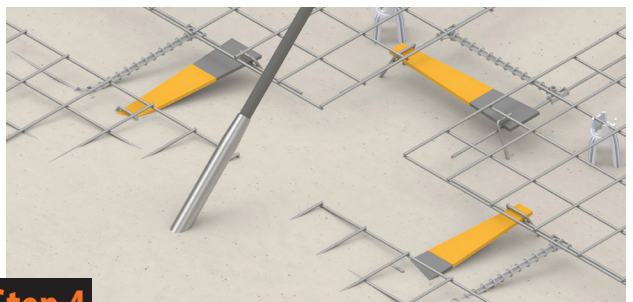
Step 2

Place PD3™ Cradles along mark out lines with the PD3™ dowels centered over joint line. Cradles are to be placed in-line ensuring that the distance between cradles maintains the correct dowel centres. Using Stego® Wrap Seaming Tape, adhere the legs of the PD3™ Cradles to the membrane. Cradles can be cut to provide infill lengths.



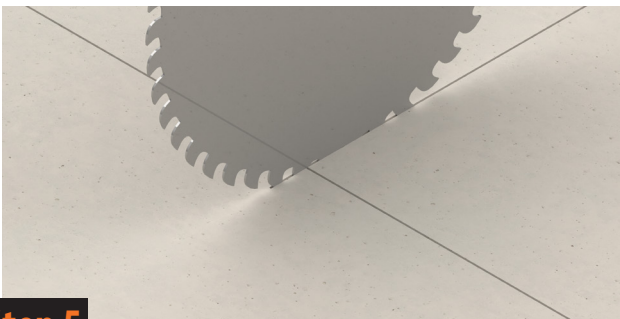
Step 3

The mesh should be supported by bar chairs to rest at the specified height. Make sure mesh is placed back from the joint line (in-line with the edge rail of the cradle), do not place directly on the cradles.



Step 4

There is no need to cut the RynoBar™ prior to the concrete pour. RynoBar™ Travel Bars are designed to yield in early concrete shrinkage, eliminating the need to cut the bar and reduces the risk of restraint. Pour through concrete, ensuring that both the cradles and the reinforcement are not displaced.



Step 5

Form the joint with a soffcut, or early entry saw cut ($\frac{1}{4}$ slab depth) as soon as the concrete will support the saw and operator. This is usually within 2 to 4 hours of the last pass of the power trowel.



Step 6

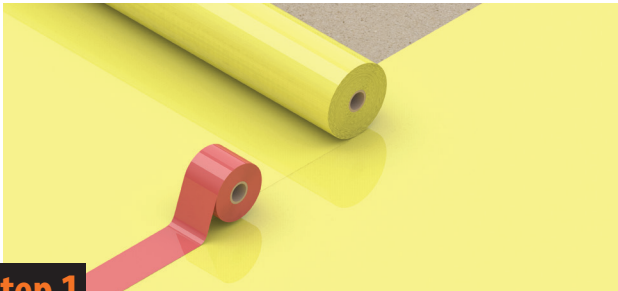
Once the joint has opened fully, fill the joints with a semi-rigid joint filler. The joint should be filled as late as possible in the construction process.

Note: Where vapour transmission is a potential issue for sensitive floor coverings and adhesives, Reid Construction Systems recommends the use of the Stego® Wrap Vapour Barrier System.

Installation Guidelines

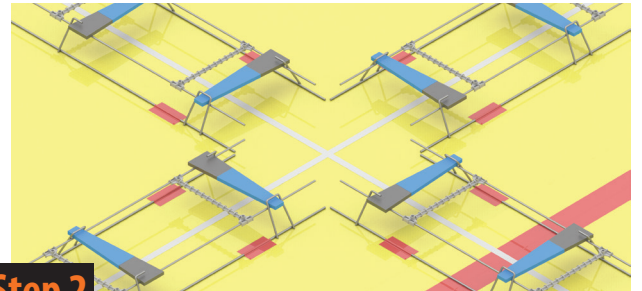
Strategic Reinforced or Fibre Reinforced Slab Designs

For more information relating to installation, please download the [PD3™ Plate Dowel Cradle Details](#) (see page 5)



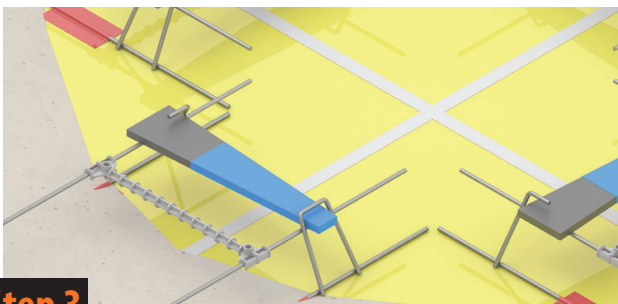
Step 1

Where vapour mitigation is critical, recommends the use of Stego® Wrap Vapour Barriers. Unroll Stego® Wrap over the area where the slab is to be placed and ensure the membranes are installed as per the supplier's installation guidelines. Mark out joint lines on the membrane with marking paint to ensure accurate placement of the PD3™ Cradles with RynoBar™.



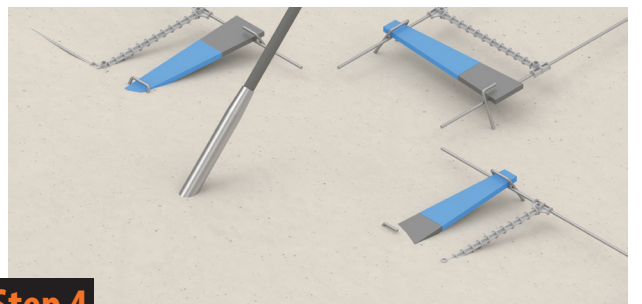
Step 2

Place PD3™ Cradles along mark out lines with the PD3™ dowels centered over joint line. Cradles are to be placed in-line ensuring that the distance between cradles maintains the correct dowel centres. Using Stego® Wrap Seaming Tape, adhere the legs of the PD3™ Cradles to the membrane. Cradles can be cut to provide infill lengths.



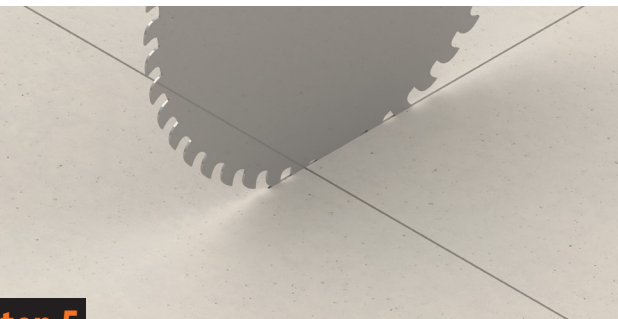
Step 3

There is no need to cut the RynoBar™ prior to the concrete pour. RynoBar™ Travel Bars are designed to yield in early concrete shrinkage, eliminating the need to cut the bar and reduces the risk of restraint.



Step 4

For Fibre slabs: Pour through steel fibre reinforced concrete ensuring PD3™ Cradles are not displaced. **For Strategic slabs:** Pour through concrete ensuring PD3™ Cradles are not displaced.



Step 5

Form the joint with a soffit cut, or early entry saw cut ($\frac{1}{4}$ slab depth) as soon as the concrete will support the saw and operator. This is usually within 2 to 4 hours of the last pass of the power trowel.



Step 6

Once the joint has opened fully, fill the joints with a semi-rigid joint filler. The joint should be filled as late as possible in the construction process.







Note: Where vapour transmission is a potential issue for sensitive floor coverings and adhesives, recommends the use of the Stego® Wrap Vapour Barrier System.

Product Compliance

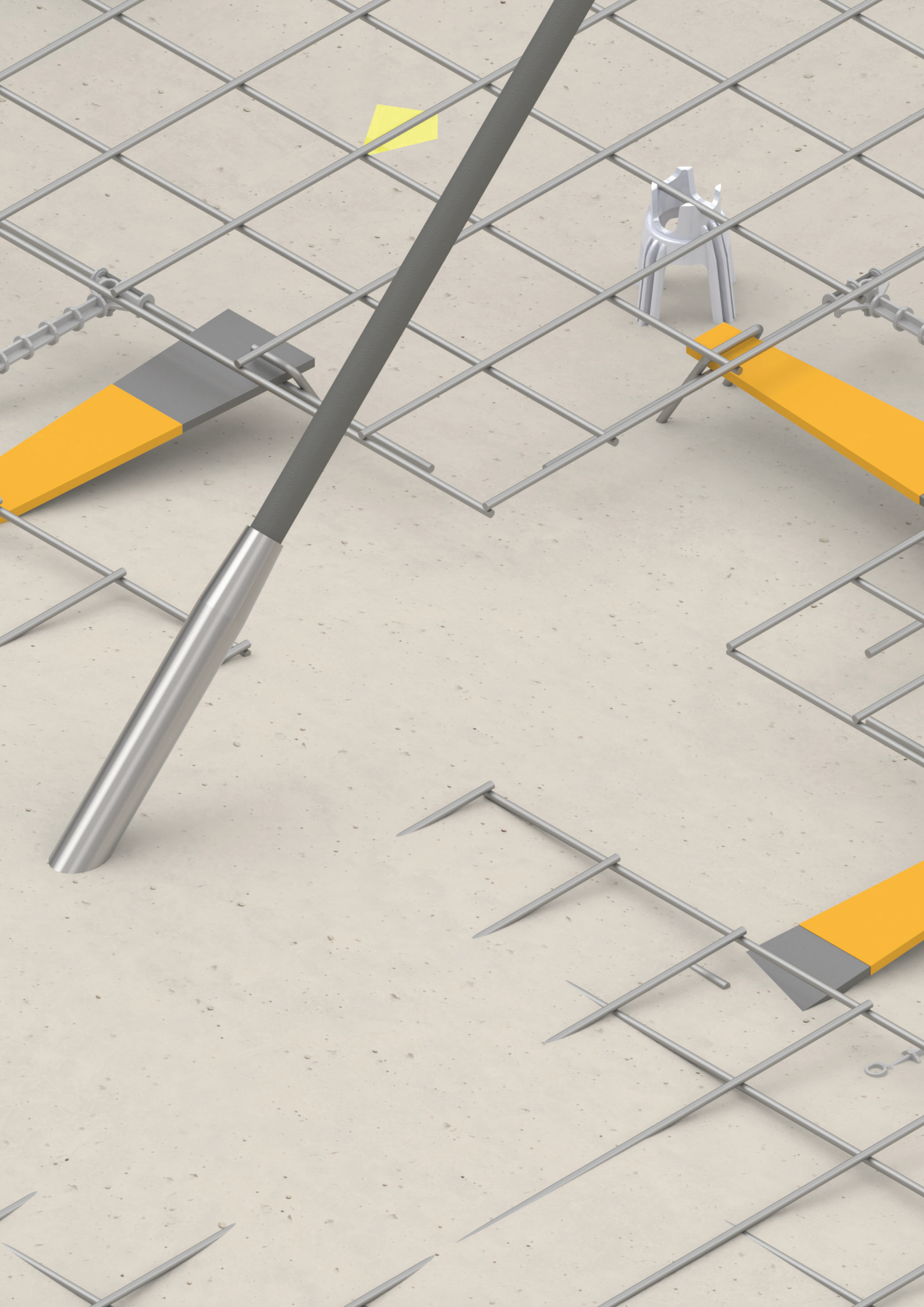
Compliance statement

Danley™PD3™ Dowel Cradle with RynoBar™ complies with the New Zealand Building Code clauses identified below.

Compliance details: NZBC

NZBC Clause	Criteria	Compliance Status
B1.3.1	'Buildings, building elements and sitework shall have a low probability of rupturing, becoming unstable, losing equilibrium, or collapsing during construction or alteration and throughout their lives.'	
B1.3.2	'Buildings, building elements and sitework shall have a low probability of causing loss of amenity through undue deformation, vibratory response, degradation, or other physical characteristics throughout their lives, or during construction or alteration when the building is in use.'	
B1.3.3 (a), (b), (d), (e), (f), (g), (h), (j), (q)	'Account shall be taken of all physical conditions likely to affect the stability of buildings, building elements and sitework, including: (a) Self weight, (b) Imposed gravity loads arising from use . . . (d) Earth pressure, (e) Water and other liquids, (f) Earthquake, (g) Snow, (h) Wind . . . (j) Impact . . . (q) Time dependent effects including creep and shrinkage.'	
B1.3.4	'Due allowance shall be made for: (a) The consequences of failure, (b) The intended use of the building, (c) Effects of uncertainties resulting from construction activities, or the sequence in which construction activities occur, (d) Variation in the properties of materials and the characteristics of the site, and (e) Accuracy limitations inherent in the methods used to predict the stability of buildings.'	
B2.3.1 (a)	'Building elements must, with only normal maintenance, continue to satisfy the performance requirements of this code for the lesser of the specified intended life of the building, if stated, or: (a) The life of the building, being not less than 50 years, if (i) Those building elements . . . Provide structural stability to the building, or (ii) Those building elements are difficult to access or replace, or (iii) Failure of those building elements to comply with the building code would go undetected during both normal use and maintenance of the building.'	
F2.3.1	'The quantities of gas, liquid, radiation or solid particles emitted by materials used in the construction of buildings, shall not give rise to harmful concentrations at the surface of the material where the material is exposed, or in the atmosphere of any space.'	

Note: Where vapour transmission is a potential issue for sensitive floor coverings and adhesives, Reid Construction Systems recommends the use of the Stego® Wrap Vapour Barrier System.





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