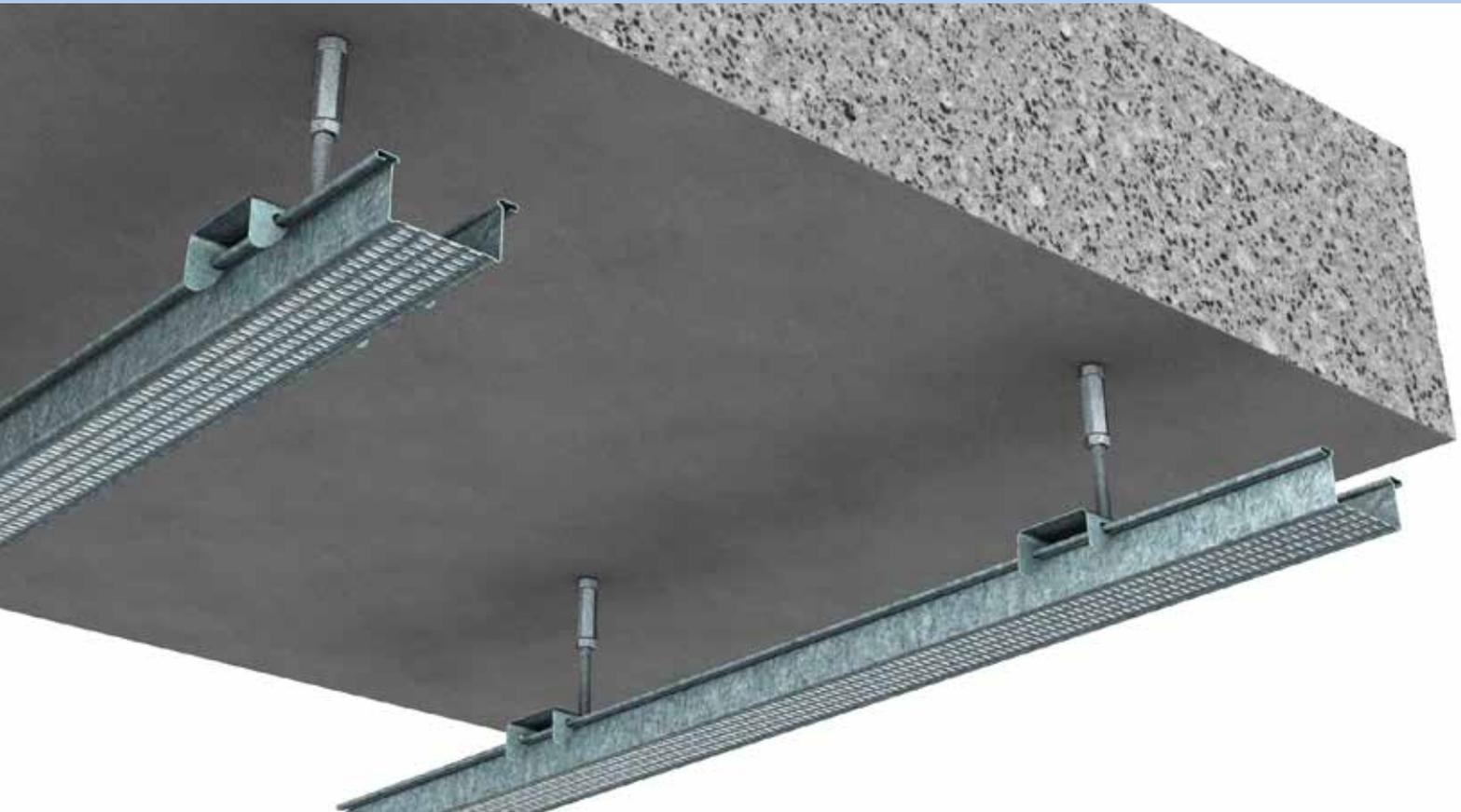


RONDO
CERT-R-FIX[®]



FASTENERS FOR SAFETY
CRITICAL, CRACKED
CONCRETE & SEISMIC
APPLICATIONS

RONDO[®]

STANDARDS AND BUILDING CODES

Rondo Building Services uses the following Standards in its procurement, manufacturing, testing, design and marketing policies for compliance with the respective Building Codes of Australia and New Zealand:

Design Standards:

AS/NZS1170 Part 0	Structural design actions -General Principles
AS/NZS1170 Part 1	Structural design actions -Permanent imposed and other actions
AS/NZS1170 Part 2	Structural design actions -Wind actions
AS1170 Part 4	Structural design actions -Earthquake actions in Australia
NZS1170 Part 5	Structural design actions -Earthquake actions in New Zealand
AS/NZS4600 AS5216	Cold-formed steel structures Design of post-installed and cast-in fastenings for use in concrete

Steel is purchased to the following standard:

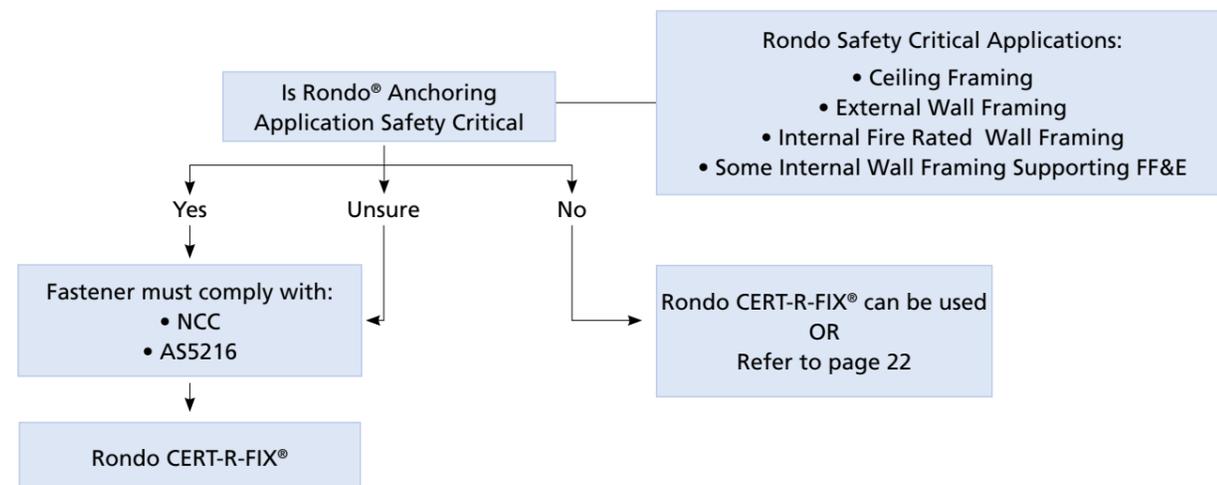
Quality Assurance: ISO 9001	Quality Management Systems
Environmental Performance ISO 14001	Environmental Management Systems
NCC	Building code of Australia volumes 1 and 2

MEANS OF COMPLIANCE WITH AS5216

European Technical Assessment (ETA) In accordance with European Assessment Document (EAD) 330232.

Note: Single point fastening such as suspended ceiling fasteners can only be verified in accordance with EAD 330232

Rondo CERT-R-FIX® fasteners are certified under ETA-15/0514 in accordance with EAD 330232-00-0601



If using un-cracked concrete design capacities:

- Concrete to be assessed for condition in accordance with AS5216 CL 3.3
- Rondo recommends assuming cracked concrete condition as the fastener locations throughout the slab will likely occur in both tension and compression zones

RONDO CERT-R-FIX®

INTRODUCTION

Our new range of fasteners complement our existing wall and ceiling systems and are suitable for Safety Critical, Cracked Concrete, Seismic and Fire Rated Applications.

SUITABLE FOR

- Safety critical applications
- Cracked concrete
- Seismic applications
- Fired rated applications

SPECIAL FEATURES

- Fully code compliant range of fasteners complements our wall & ceiling systems
- Offers a single point fastener 40mm embedment solution backed with an ETA
- 6mm ETA certified fasteners are faster to install than 8mm fasteners – speeding up installation time and reducing labour costs
- 40mm embedment depth means that the concrete slab doesn't need to be x-rayed in most applications
- 10mm fastener complements our head and base brackets, suitable for Steel Stud, MAXIjamb® and DUPLEX Stud® profiles
- Allows you to source fasteners and framing from the one supplier
- Backed by our product guarantee and technical design support

CONTENTS:

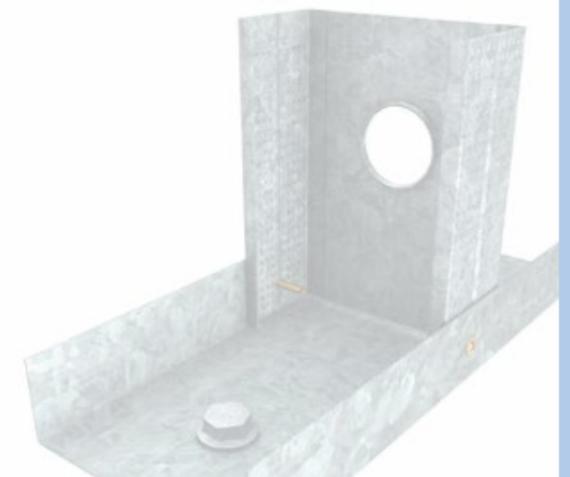
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RONDO CERT-R-FIX® FASTENERS

PART NO	DESCRIPTION	AS5216 COMPLIANT	CRACKED CONCRETE APPROVAL (OPTION 1)	SEISMIC APPROVAL C1	FIRE RATED
CH06	M6 x 43mm Fastener	YES	YES	YES	YES
CH06	M6 x 60mm Fastener	YES	YES	YES	YES
CH06	M6 x 80mm Fastener	YES	YES	YES	YES
CH10	M10 x 60mm Fastener	YES	YES	YES	YES
CT06	M6 x 40mm Fastener with 6mm Male Thread	YES	YES	YES	YES

IMPORTANT NOTES:

Rondo recommends its products and systems are installed by a qualified tradesperson and according to the relevant codes and standards. Rondo recommends that before acting on any advice or opinion in this manual, you should seek professional advice in light of your own architectural and building requirements.



RONDO CERT-R-FIX® COMPONENTS

CERT-R-FIX products are available to purchase as individual fastener components or as a completely assembled Rondo bracket via special order.

INDIVIDUAL PARTS

CH06 (43mm)	CERT-R-FIX® M6 x 43mm Fastener with Hex Head (TSM6 x 43 SW13)
CH06 (60mm)	CERT-R-FIX® M6 x 60mm Fastener with Hex Head (TSM6 x 60 SW13)
CH06 (80mm)	CERT-R-FIX® M6 x 80mm Fastener with Hex Head (TSM6 x 80 SW13)
CH10	CERT-R-FIX® M10 x 60mm Fastener with Hex Head (TSM10 x 60 SW15)
CT06	CERT-R-FIX® M6 x 40mm Fastener with 6mm Male Thread (TSM6x40 M6x11 SW10)
CC06	CERT-R-FIX® M6 x Hex M6 Female Rod Coupler
123	ø5.3mm Zinc Plated Soft Steel Rod - M6 threaded full length (65mm, 85mm, 100mm, 120mm, 150mm and 180mm)
826	M6 Nut

INDIVIDUAL PARTS



ASSEMBLED BRACKETS

A239C	DFC for 129/308/309A Furring Channel to Concrete/Masonry with CT06 (40mm), CC06, 826 & 123
A124C	DFC for 125/127/128 Top Cross Rail to Concrete/Masonry - with CT06 (40mm), CC06, 826 & 123
STSCL	Acoustic Isolation DFC for 129/308/309A Furring Channel with CT06 (40mm), CC06, 826 & 123

ASSEMBLED BRACKETS

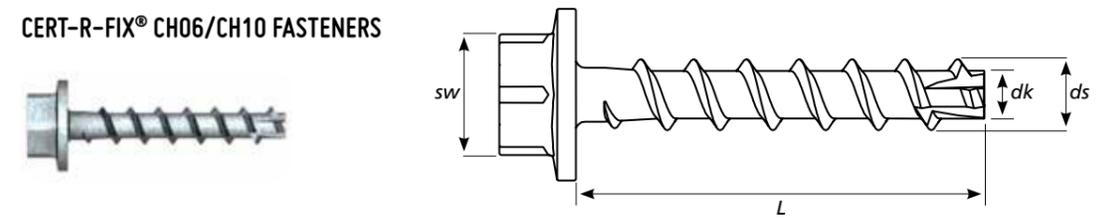


DELIVERY, STORAGE & HANDLING

- All materials shall be delivered in their original, unopened packages and stored for as short a time as possible, in an enclosed shelter providing protection from exposure to the elements and damage by/to other trades. Damaged, deteriorated or obviously faulty material is not to be installed and shall be removed from the premises.
- Materials should be handled in such a manner as to prevent racking distortion or physical damage.

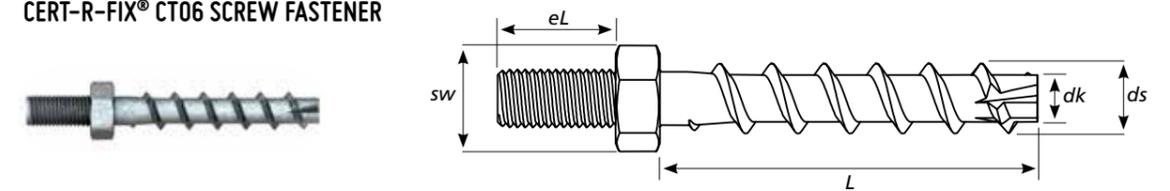
PRODUCT DATA SPECIFICATIONS

CERT-R-FIX® CH06/CH10 FASTENERS



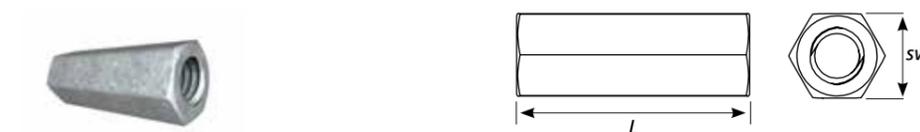
PART NO	FASTENER DIAMETER (mm)	SCREW LENGTH (L) (mm)	CORE DIAMETER (dk) (mm)	THREAD OUTER DIAMETER (ds) (mm)	SOCKET SIZE (sw) (mm)
CH06	6	43	5.1	7.5	13
CH06	6	60	5.1	7.5	13
CH06	6	80	5.1	7.5	13
CH10	10	60	9.1	12.6	15

CERT-R-FIX® CT06 SCREW FASTENER



PART NO	EXTERNAL THREAD DIAMETER (mm)	EXTERNAL THREAD LENGTH (eL) (mm)	FASTENER DIAMETER (mm)	SCREW LENGTH (L) (mm)	CORE DIAMETER (dk) (mm)	THREAD OUTER DIAMETER (ds) (mm)	SOCKET SIZE (sw) (mm)
CT06	6	12.5	6	40	5.1	7.5	10

CERT-R-FIX® CC06 COUPLER



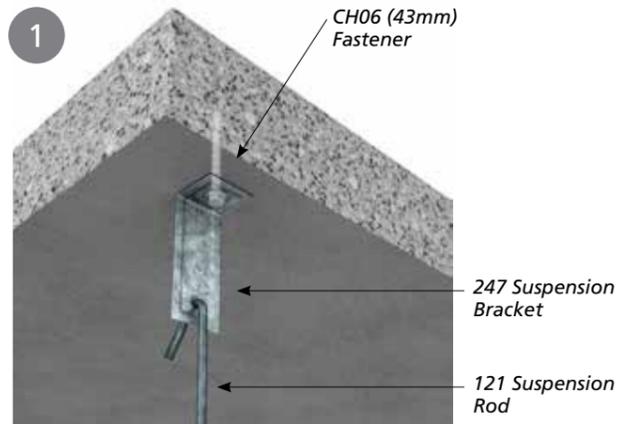
PART NO	INTERNAL THREAD DIAMETER (mm)	COUPLER LENGTH (L) (mm)	SOCKET SIZE (sw) (mm)
CC06	6	25	13

TYPICAL APPLICATION DETAILS: CEILING (DIRECT FIX)

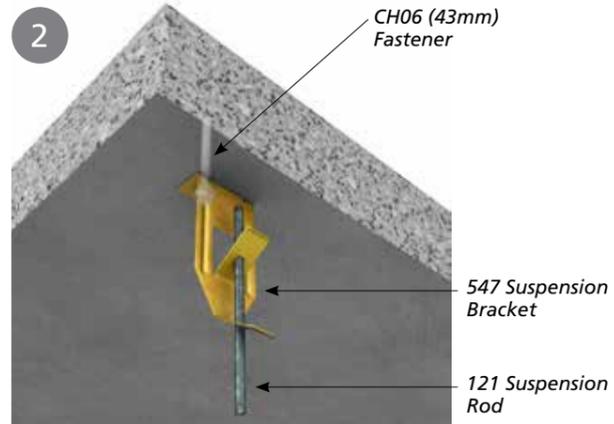
CERT-R-FIX® CH06 FASTENER (M6 X 43mm) and CH06 FASTENER (M6 X 60mm)

The following details showcase the many uses of the Rondo CERT-R-FIX® range and are intended as a reference for possible installation scenarios.

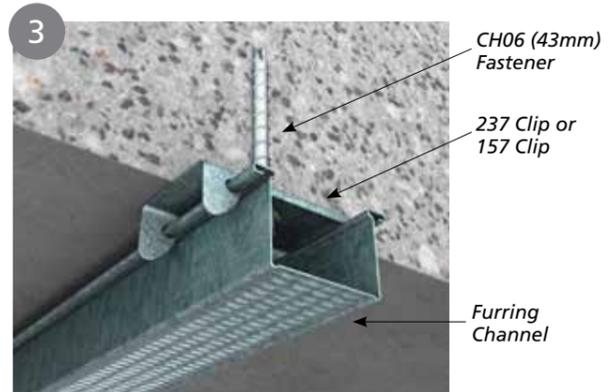
Please refer to the Rondo professional design manual or contact a Rondo representative for specific installation requirements and capabilities relevant to your project.



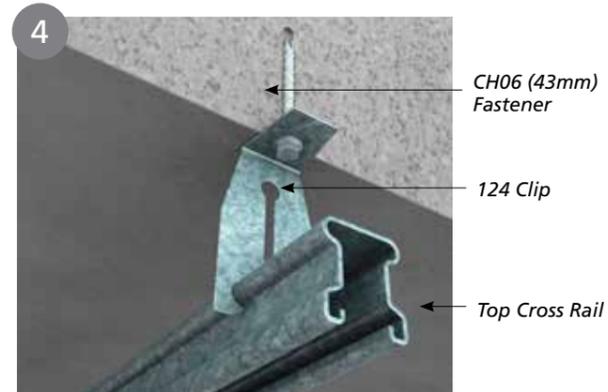
■ INSTALLATION OF 247 SUSPENSION BRACKET



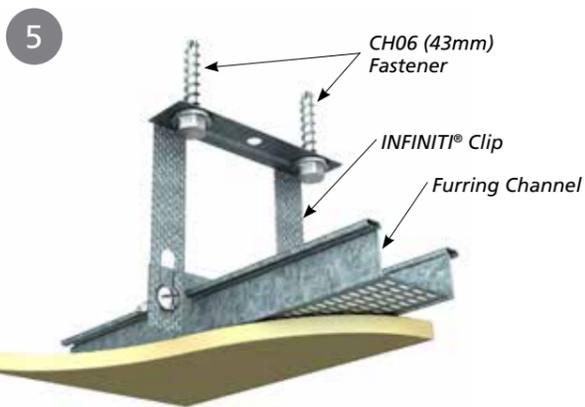
■ INSTALLATION OF 547 SUSPENSION BRACKET



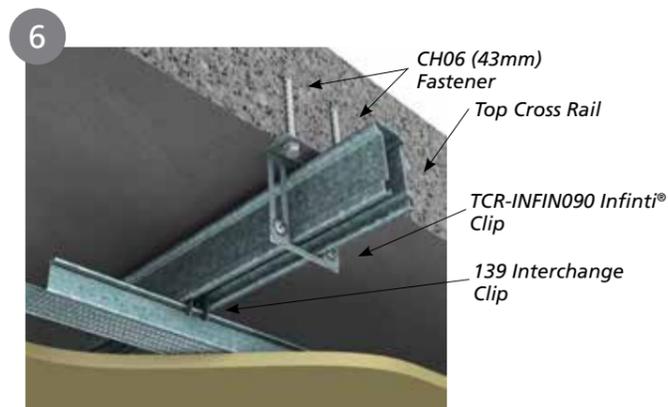
■ INSTALLATION OF 237 CLIP OR 157 CLIP



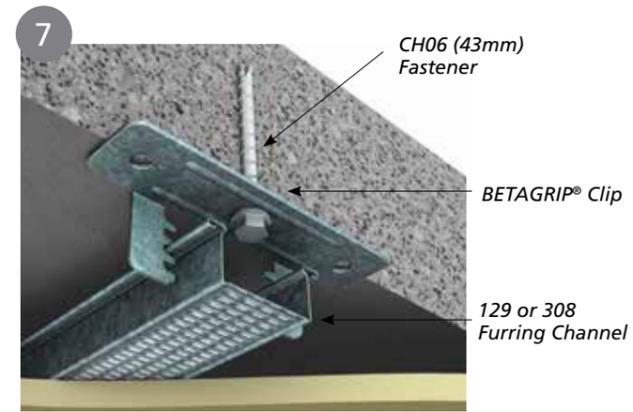
■ INSTALLATION OF 124 CLIP



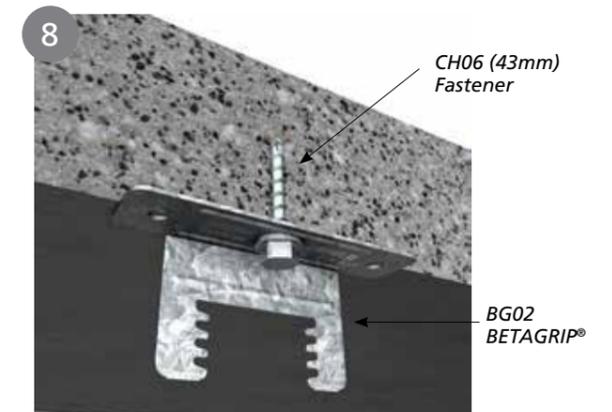
■ INFINITI® CLIP TO FURRING CHANNEL



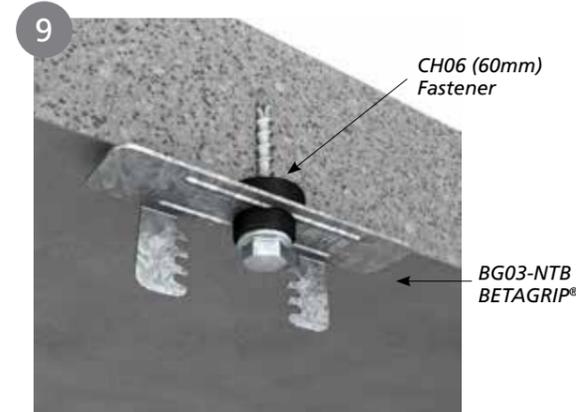
■ INFINITI® CLIP TO TOP CROSS RAIL



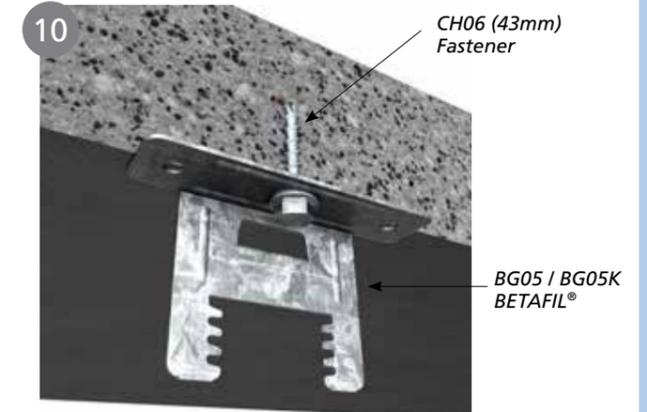
■ INSTALLATION OF BETAGRIP® BG01



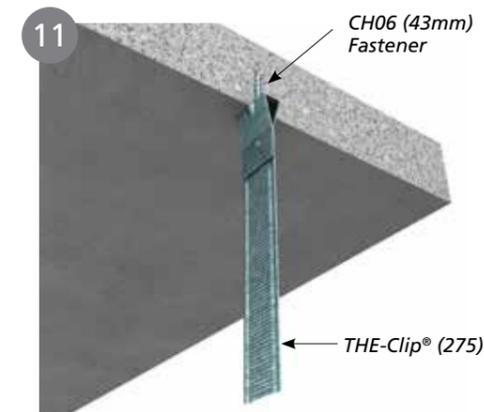
■ INSTALLATION OF BETAGRIP® BG02



■ INSTALLATION OF BETAGRIP® 3 BG03-NTB



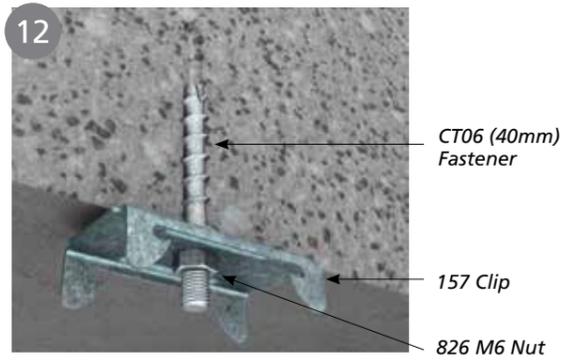
■ INSTALLATION OF BETAFIL® BG05 / BG05K



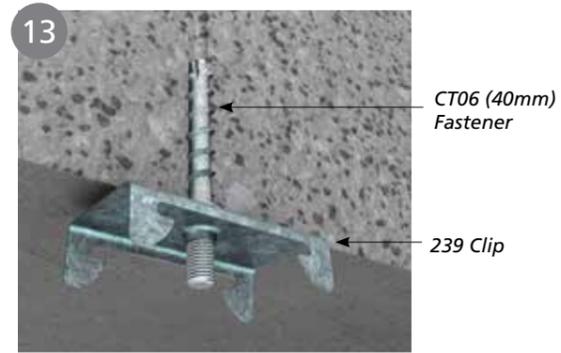
■ INSTALLATION OF THE-CLIP® (275)

TYPICAL APPLICATION DETAILS: CEILING (CLOSE - ADJUSTABLE)

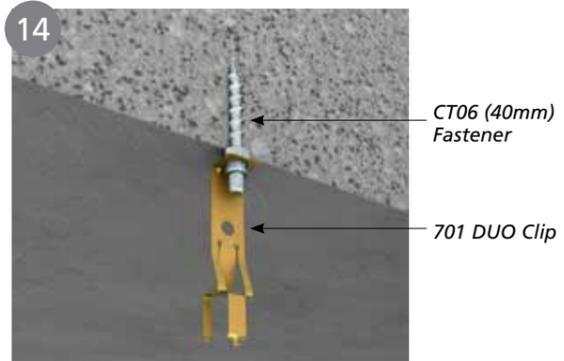
CERT-R-FIX® CT06 FASTENER (M6 X 40mm)



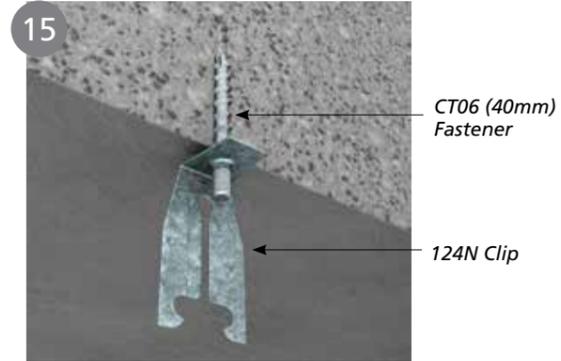
■ INSTALLATION OF 157 CLIP



■ INSTALLATION OF 239 CLIP



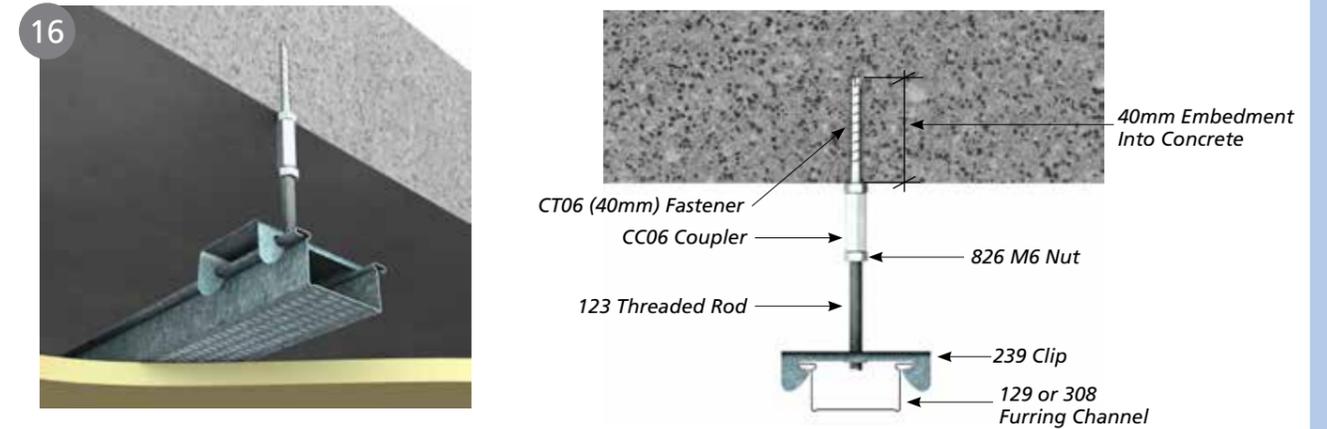
■ INSTALLATION OF 701 DUO CLIP



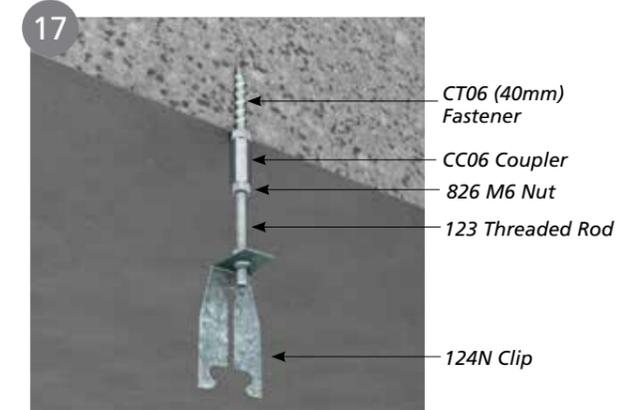
■ INSTALLATION OF 124N CLIP

TYPICAL APPLICATION DETAILS: CEILING (ADJUSTABLE)

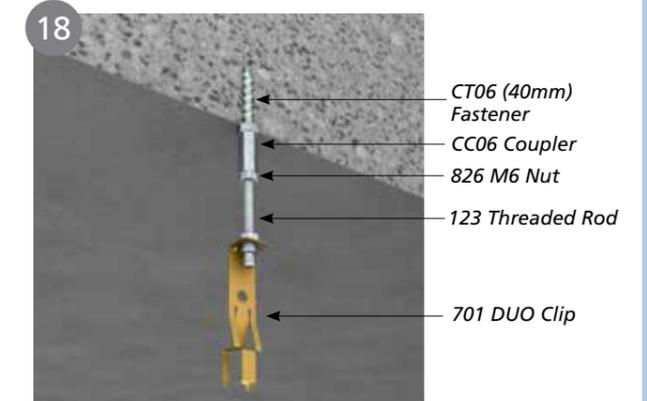
CERT-R-FIX® CT06 FASTENER (M6 X 40mm), CC06 COUPLER (M6 X 25mm) & 123 THREADED ROD (65mm, 85mm, 100mm, 120mm, 150mm and 180mm)



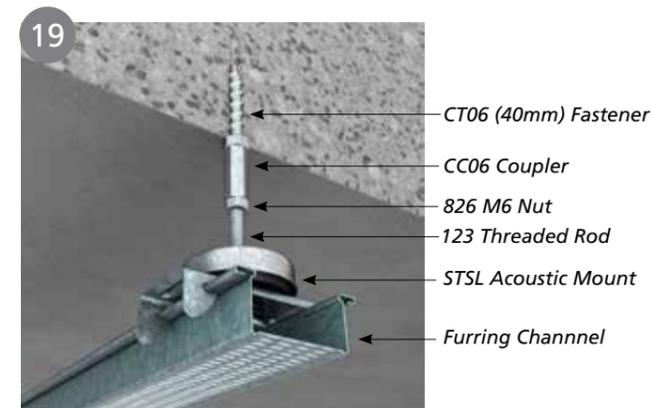
■ DIRECT FIX APPLICATION USING 239 CLIP UP TO 180mm SUSPENSION DROP



■ A124C CLIP ASSEMBLY UP TO 180mm SUSPENSION DROP



■ 701 DUO CLIP UP TO 180mm SUSPENSION

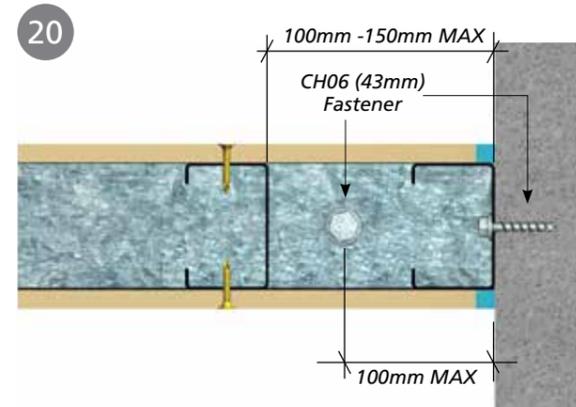


■ STSLC ACOUSTIC MOUNT UP TO 180mm SUSPENSION

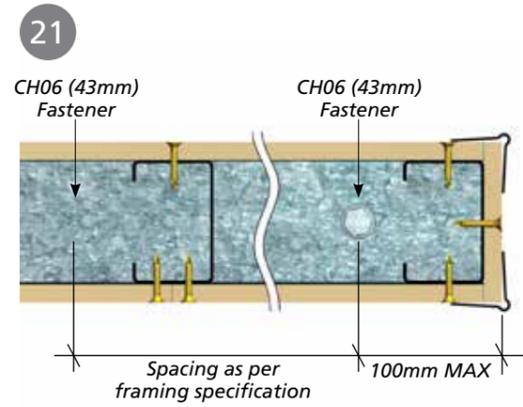
A239C and A124C can be ordered as individual parts or as a fully assembled part that includes CT06, CC06, 826 & 123. Lead times and minimum order quantities apply.

TYPICAL APPLICATION DETAILS: WALLS (INTERNAL)

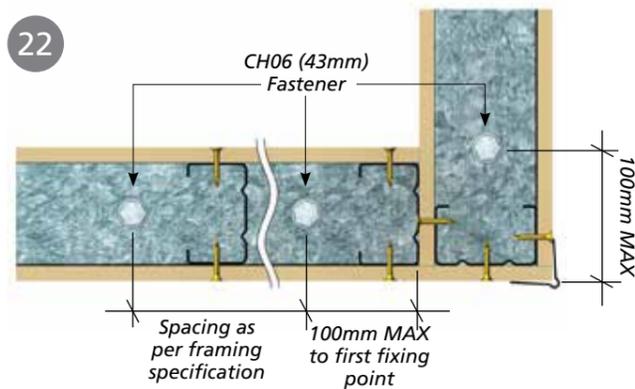
CERT-R-FIX® CH06 FASTENER (M6 X 43mm)



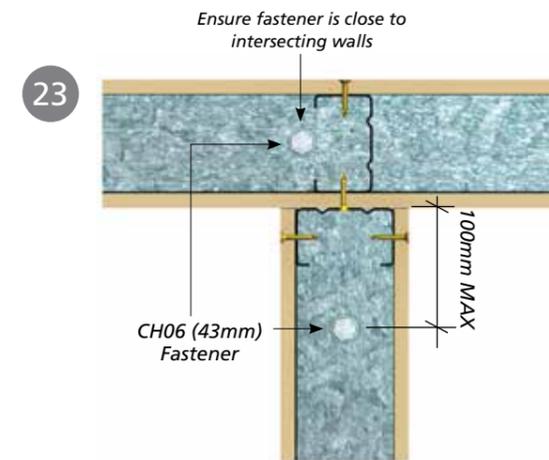
■ WALL INTERSECTION MASONRY / CONCRETE



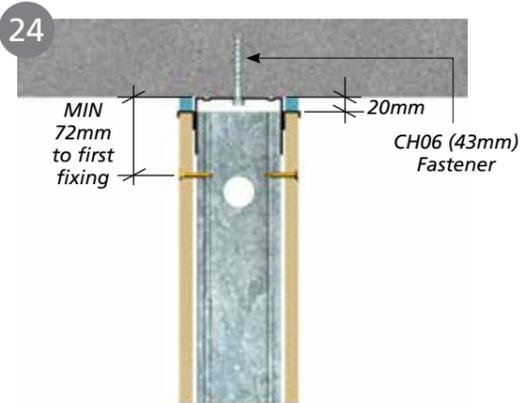
■ WALL END



■ WALL CORNER, ONE LAYER BOARD



■ WALL INTERSECTION, ONE LAYER BOARD



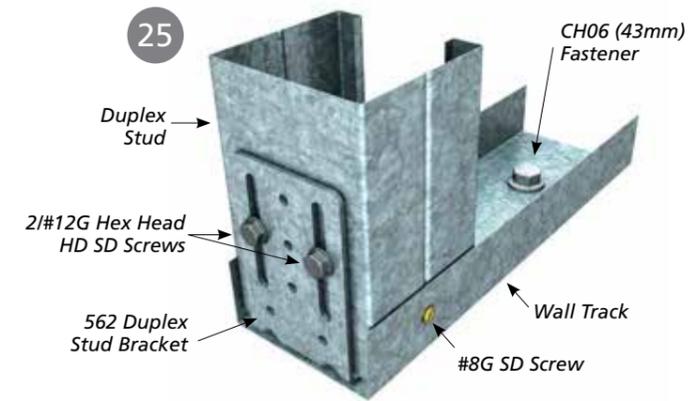
■ DEFLECTION HEAD TRACK FASTENER

NOTES:

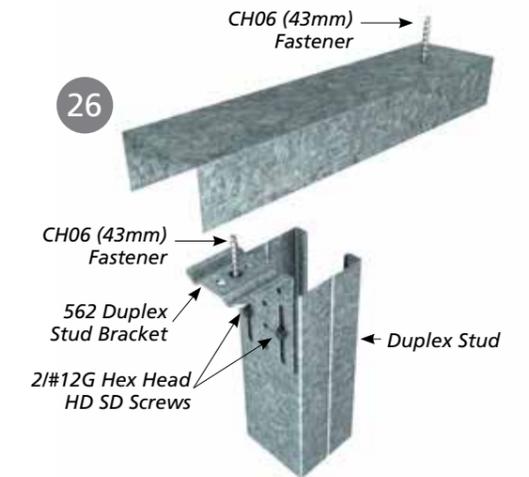
1. Details shown are for non-fire rated construction only. Fire rated wall details are to be confirmed with the board manufacturer
2. Details shown are for internal non-load bearing walls only
3. Details shown may not be suitable for inter-storey drift beyond H/500 at serviceability limit state. Refer to Rondo when this limit is exceeded

TYPICAL APPLICATION DETAILS: WALLS (INTERNAL) (continued)

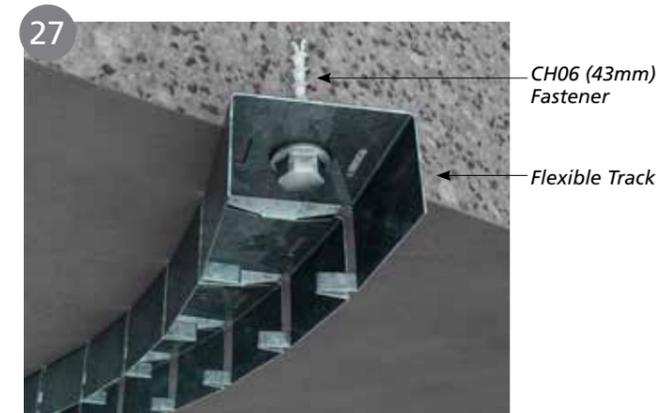
CERT-R-FIX® CH06 FASTENER (M6 X 43mm)



■ DUPLEX STUD AND DUPLEX BRACKET INSTALLATION



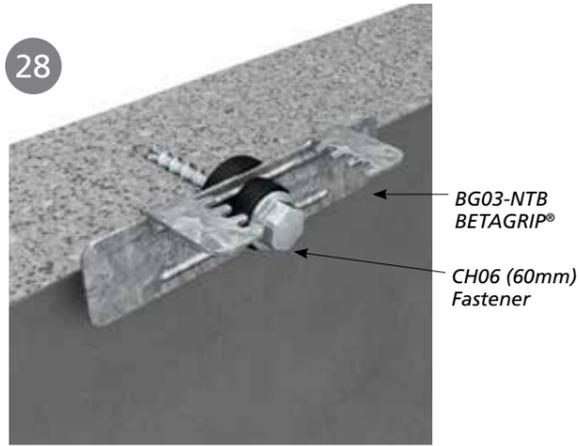
■ DUPLEX STUD AND DUPLEX BRACKET INSTALLATION



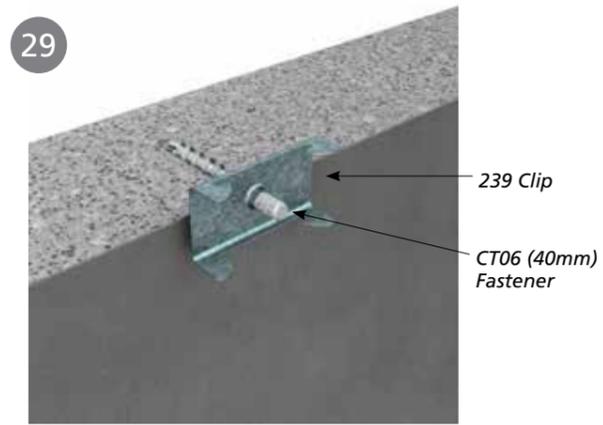
■ FLEXIBLE TRACK INSTALLATION

TYPICAL APPLICATION DETAILS: WALLS (INTERNAL FURRING)

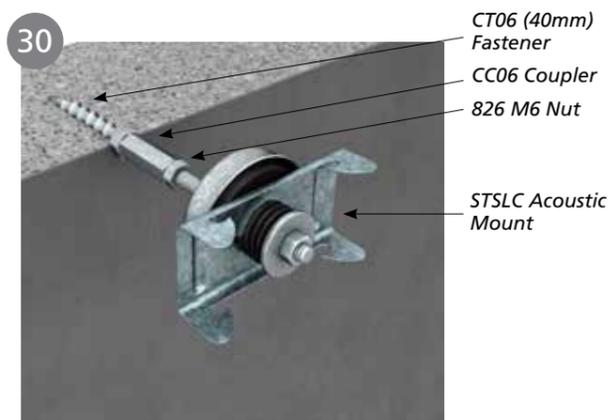
CERT-R-FIX® FASTENER RANGE



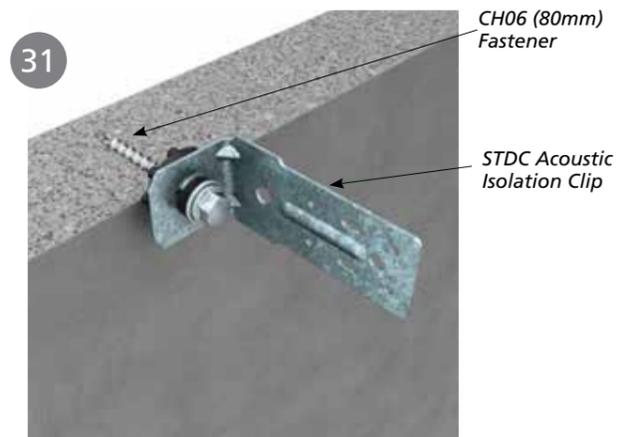
■ BETAGRIP® 3 BG03-NTB SYSTEM IMAGE USING CH06 (60mm)



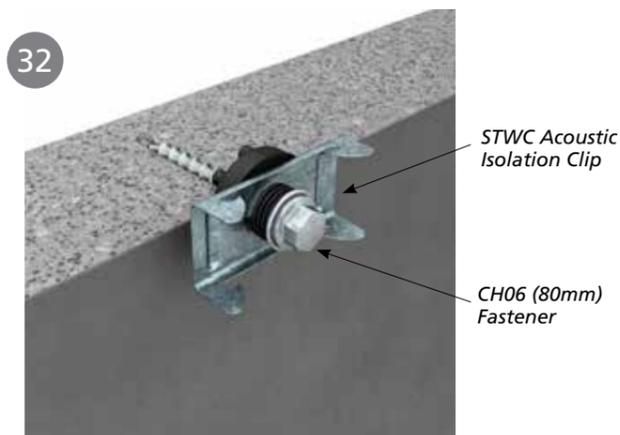
■ 239 WALL SYSTEM IMAGE USING CT06 (40mm) FASTENER



■ STSLC SYSTEM IMAGE USING CT06, CC06, 826 AND 123



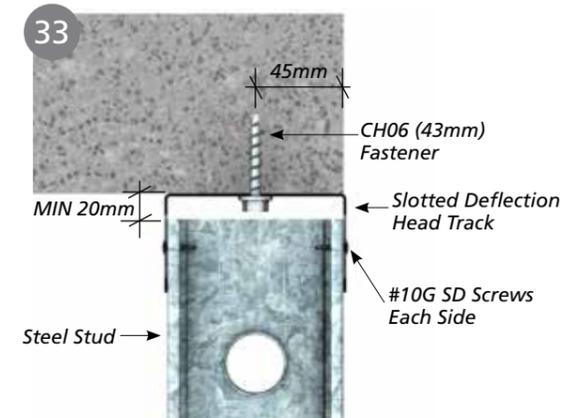
■ STDC WALL SYSTEM IMAGE USING CH06 (80mm)



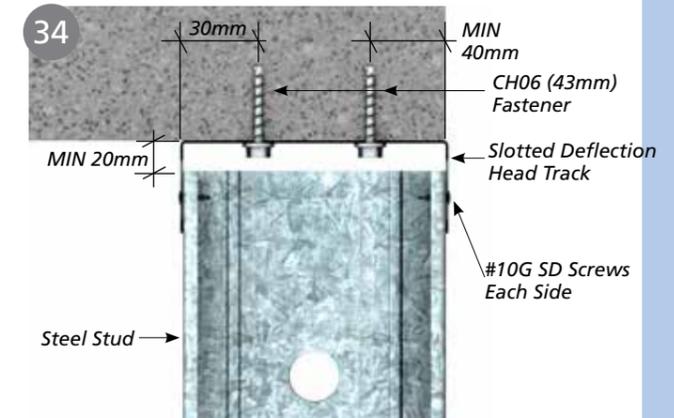
■ STWC WALL SYSTEM IMAGE USING CH06 (80mm)

TYPICAL APPLICATION DETAILS: WALLS (EXTERNAL)

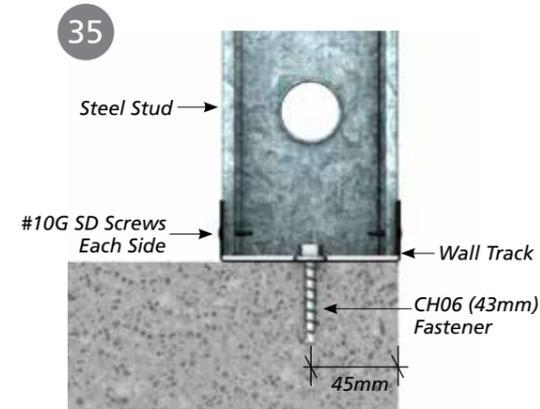
CERT-R-FIX® CH06 FASTENER (M6 X 43mm) or CH10 FASTENER (M10 X 60mm)



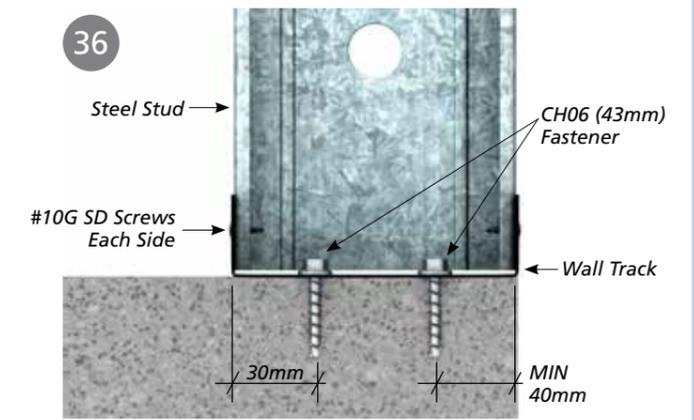
■ STANDARD INSTALLATION OF 92mm SLOTTED HEAD TRACK



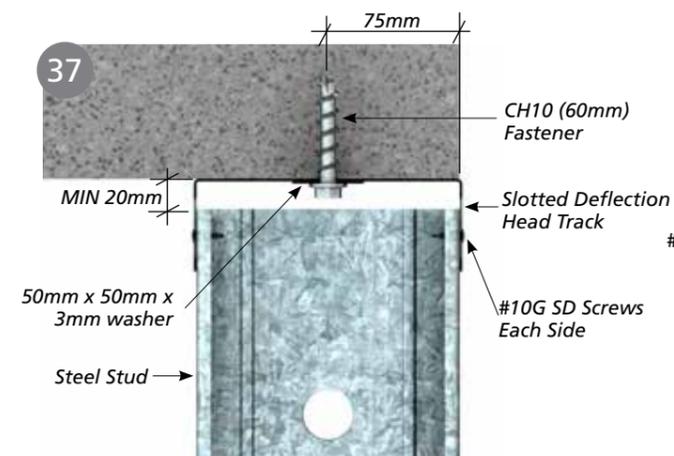
■ STANDARD INSTALLATION OF 150mm SLOTTED HEAD TRACK



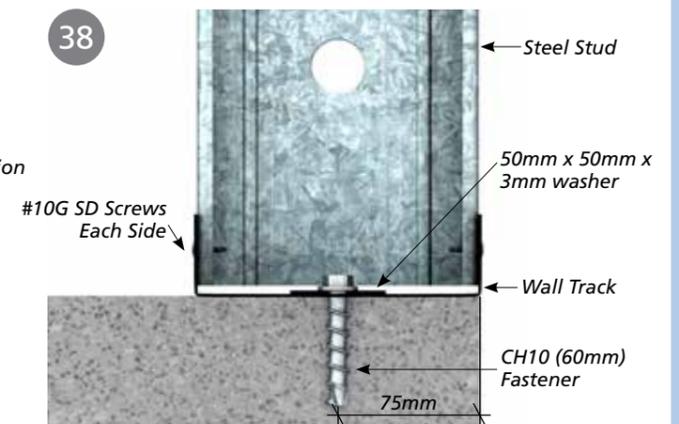
■ STANDARD INSTALLATION OF 92mm WALL TRACK



■ STANDARD INSTALLATION OF 150mm WALL TRACK

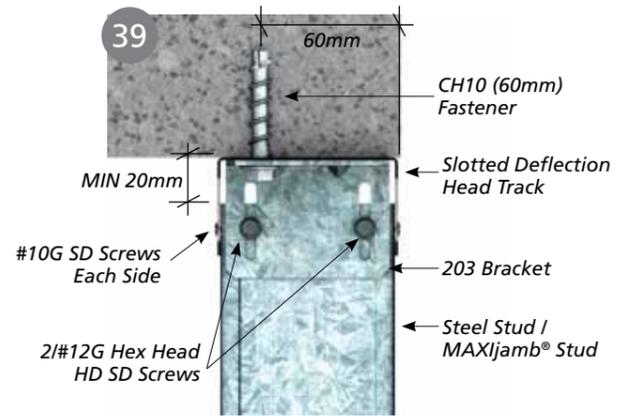


■ ALTERNATIVE INSTALLATION OF 150mm SLOTTED HEAD TRACK

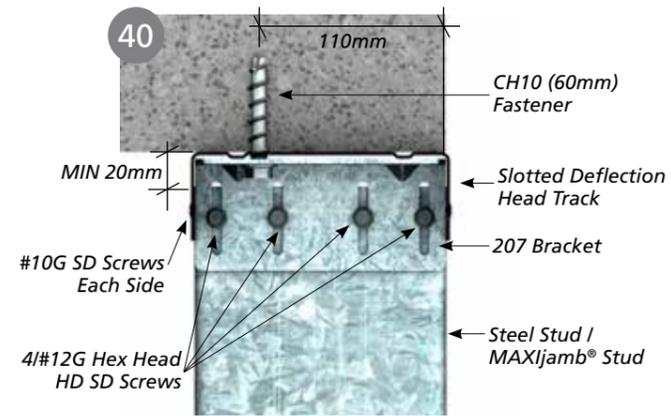


■ ALTERNATIVE INSTALLATION OF 150mm WALL TRACK

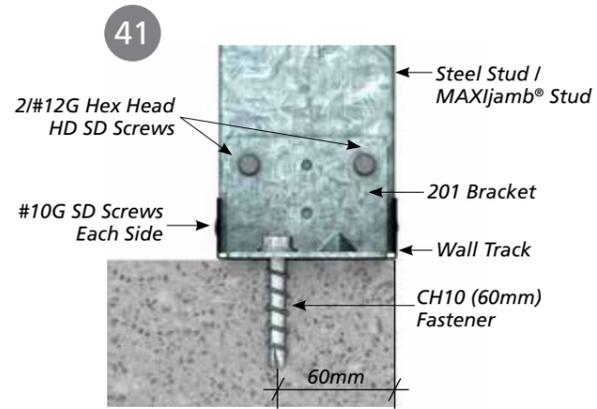
TYPICAL APPLICATION DETAILS: WALLS (EXTERNAL) (continued)
 CERT-R-FIX® CH06 FASTENER (M6 X 43mm) or CH10 FASTENER (M10 X 60mm)



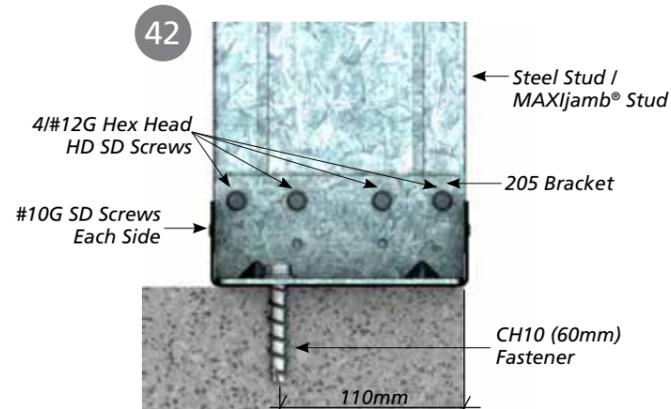
■ INSTALLATION OF 92mm SLOTTED HEAD TRACK WITH BRACKET



■ INSTALLATION OF 150mm SLOTTED HEAD TRACK WITH BRACKET

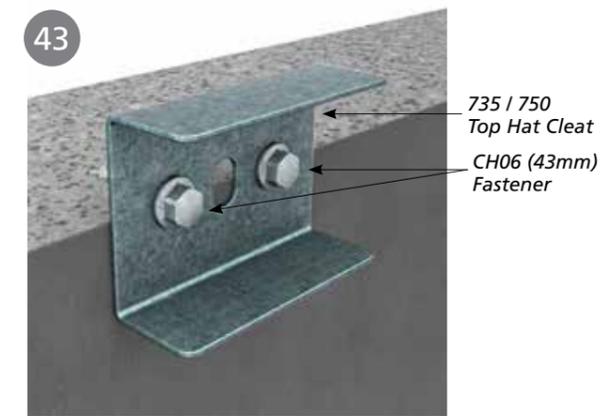


■ INSTALLATION OF 92mm WALL TRACK WITH BRACKET

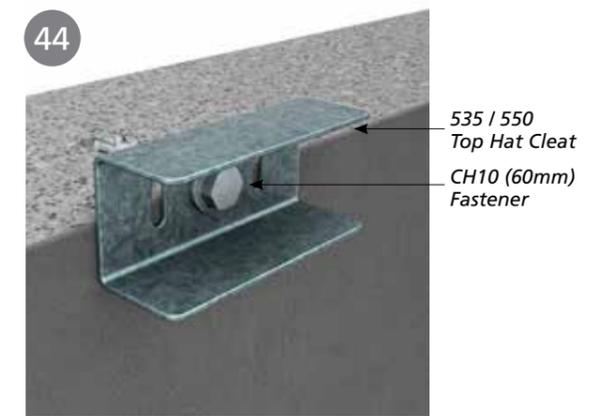


■ INSTALLATION OF 150mm WALL TRACK WITH BRACKET

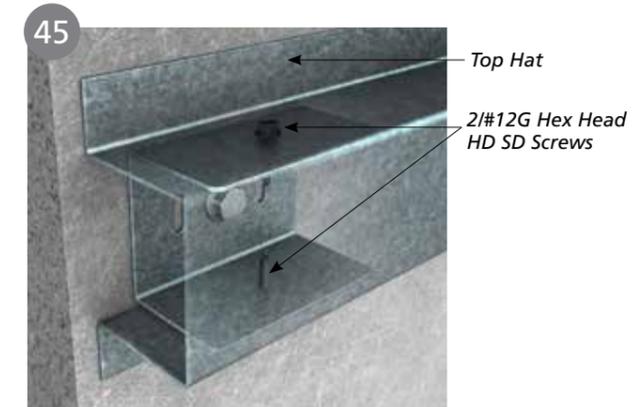
TYPICAL APPLICATION DETAILS: TOP HATS
 CERT-R-FIX® CH06 FASTENER (M6 X 43mm) or CH10 FASTENER (M10 X 60mm)



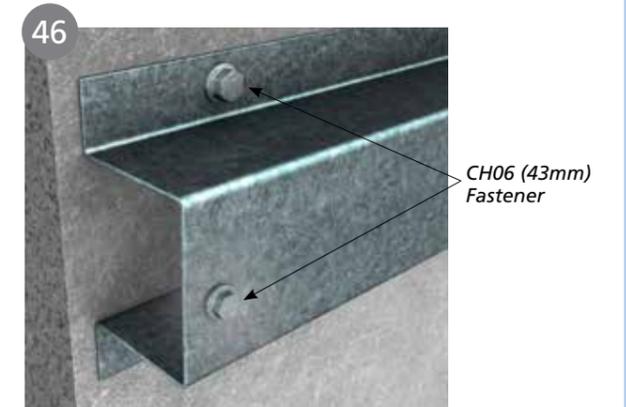
■ TOP HAT CLEAT WITH 2 X CH06 SYSTEM IMAGE



■ TOP HAT CLEAT WITH 1 X CH10 SYSTEM IMAGE



■ INSTALLATION OF TOP HAT TO CONCRETE



■ INSTALLATION OF TOP HAT DIRECT FIX WITH 2 X CH06

NOTES:

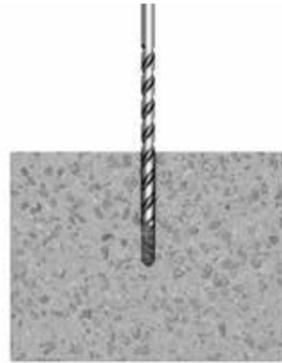
1. Fastener options shown on figure 43 and 44 can be used on Rondo Top Hat Cleats 535, 550, 735 and 750.

INSTALLATION DETAILS

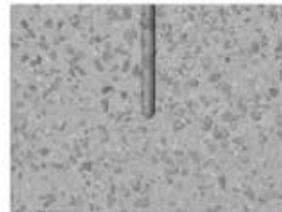
Typical Application Details

STEP 1 Drill a hole using a hammer drill bit* to a minimum embedment depth of 45mm for CH06 & CT06, and to a minimum depth of 65mm for CH10, using the correct diameter drill bit to match.

**Alternatively for CH10 installation, a Hollow Drill Bit can be used (e.g. Heller Set-Safe DE Hollow Drill Bits) which vacuums out the dust. Proceed to Step 3 if this applies.*

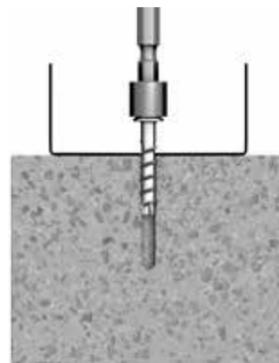


STEP 2 Clean the hole, ensuring you remove any dust or materials using appropriate engineering controls.

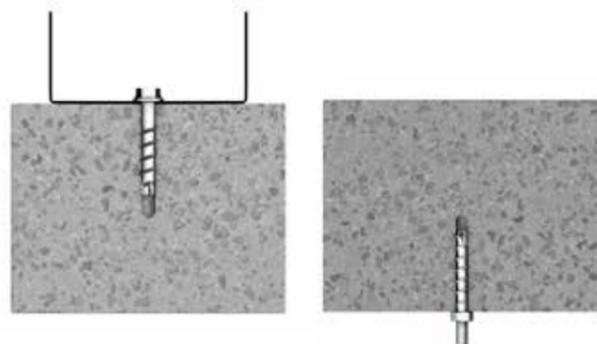


STEP 3 Attach the CERT-R-FIX® fastener to the correct size socket and ensure the fastener is perpendicular to the concrete. Apply pressure against the fastener and rotate to engage the first thread. Continue to tighten the fastener until the flanged head is firmly seated against fixture. Use the maximum torque guide and do not over-torque the fastener.

MAXIMUM TORQUE GUIDE		
PART NO	MAXIMUM TOOL TORQUE CAPACITY	MAXIMUM INSTALL TORQUE
CH06	160Nm	10Nm
CH10	400Nm	40Nm
CT06	160Nm	10Nm



STEP 4 Look and check that the fastener has been secured properly. Installation is complete.



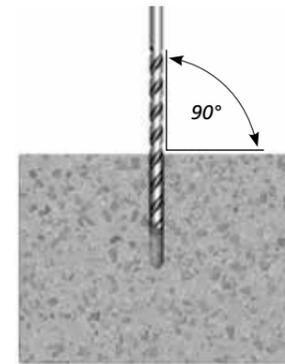
NOTES:
 1. The fastener may be untightened a maximum of 10mm
 2. Head must be undamaged and in contact with the fixture
 3. Use appropriate engineering controls and PPE as outlined by Safe Work Australia

INSTALLATION DETAILS

Troubleshoot Guide

HAS THE HOLE BEEN DRILLED STRAIGHT AT A 90° ANGLE TO THE CONCRETE?

If the hole has not been drilled perpendicular to the concrete (with a maximum deviation of 5°), installing the CERT-R-FIX® fastener at an angle can cause undue bending moments and possible breakage.



ARE YOU USING THE CORRECT SIZE DRILL BIT?

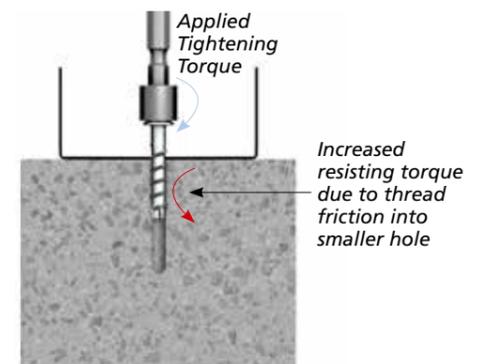
The correct size drill bit is imperative for the CERT-R-FIX® fastener to be able to cut its thread into the concrete to obtain its full published capacities and certifications.

DRILL BIT REQUIREMENTS

PART NO	DRILL BIT DIAMETER
CH06	6mm
CH10	10mm
CT06	6mm

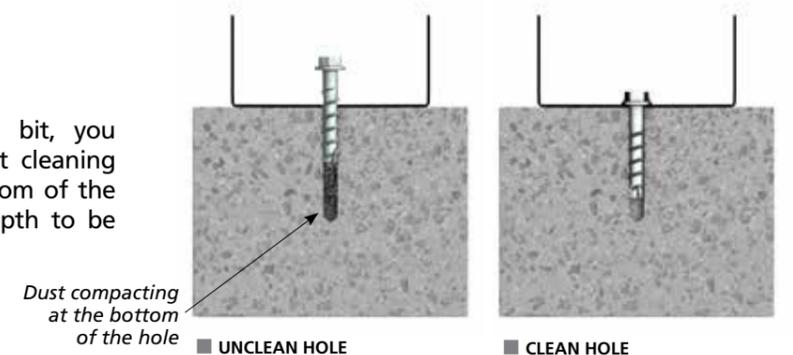
HOW OLD IS YOUR DRILL BIT?

Drill bits that have been worn out can create holes that are too small for the CERT-R-FIX® fastener may cause undue stresses which can become evident either during installation or post installation.



IS YOUR DRILL HOLE CLEANED?

Unless you are using a hollow drill bit, you will need to clean your drill hole. Not cleaning the hole can build up dust at the bottom of the hole effectively reducing your hole depth to be under the minimum requirements.



INSTALLATION DETAILS (continued)

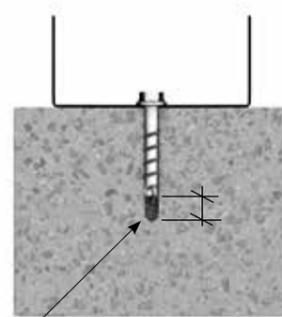
Troubleshoot Guide

ARE YOU DRILLING THE REQUIRED HOLE DEPTH?

CERT-R-FIX® fasteners require a drilled hole slightly deeper than the length of the nominal embedment depth. The deeper drill holes ensures any residual dust do not interfere with the fastener installation.

DRILL HOLE DEPTH REQUIREMENTS

PART NO	MINIMUM DRILLED HOLE
CH06	45mm
CH10	65mm
CT06	45mm



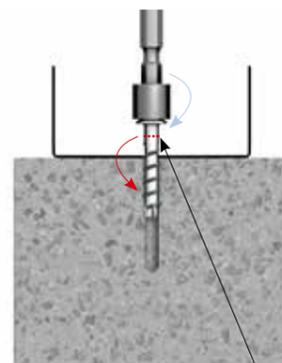
Required hole is to be slightly longer than embedment depth to catch residual dust

ARE YOU INSTALLING WITH AN IMPACT GUN? WHAT IS ITS TORQUE OUTPUT?

Have you checked the CERT-R-FIX® fastener maximum tool torque guide for the impact screw gun? Are you within its limits? Using an impact screw gun with too much torque can put undue stress to the fastener while it is cutting its thread into the concrete.

MAXIMUM TOOL TORQUE GUIDE

PART NO	MAXIMUM TOOL TORQUE CAPACITY
CH06	160Nm
CH10	400Nm
CT06	160Nm



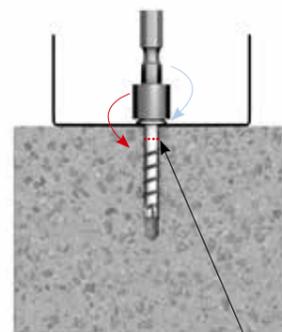
Possible fracture when extra force is put on the fastener

IS THE RONDO CERT-R-FIX® BEING OVER TIGHTENED AGAINST THE FIXTURE?

Over-tightening the CERT-R-FIX® fastener against the fixture can cause a clamping force that puts undue stress on the CERT-R-FIX® fastener. The CERT-R-FIX® fastener should stop being installed once it is firmly against the fixture, as the load capacity is achieved from cutting a thread into the concrete and not from a nominated torque value.

INSTALLATION TORQUE GUIDE

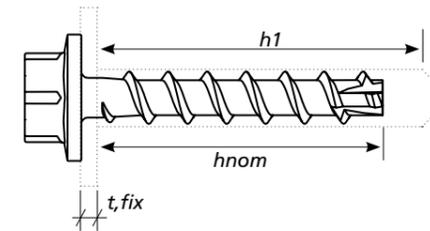
PART NO	MAXIMUM INSTALL TORQUE
CH06	10Nm
CH10	40Nm
CT06	10Nm



Fracture may occur

TECHNICAL AND LOAD DATA

CERT-R-FIX® CH06 FASTENER (M6 X 43mm)



INSTALLATION PARAMETERS

EMBEDMENT DEPTH (hnom) (mm)	DEPTH OF DRILL HOLE (h1) (mm)	FIXTURE THICKNESS (t,fix) (mm)	AS5216 COMPLIANT	CRACKED CONCRETE APPROVAL	SEISMIC APPROVAL C1	FIRE RATED	ZINC COATING
40 MIN	≥ 45	3 MAX	YES, REFER TO ETA 15-0514				MIN 5 MICRONS

CEILING FASTENERS (TABLE 1)

CHARACTERISTIC VALUES FOR TENSION (kN)
SAFETY CRITICAL APPLICATIONS - OPTION 1, CRACKED CONCRETE

STATIC / QUASI-STATIC (NRk,p)	SEISMIC C1 (NRk, p, eq)	FIRE 60MIN, 90MIN (NRk, p, fi)	FIRE 120MIN (NRk, p, fi)
2.44	2.0	0.5	0.4

TRACK / BRACKET FASTENERS (TABLE 2)

DESIGN LOAD RESISTANCE (kN)

MINIMUM EDGE DISTANCE (mm)	STATIC / QUASI-STATIC		SEISMIC C1		FIRE (R30 - 90)		FIRE (R120)	
	SHEAR (VRd)	TENSION (NRd)	SHEAR (VRd)	TENSION (NRd)	SHEAR (VRd)	TENSION (NRd)	SHEAR (VRd)	TENSION (NRd)
40	2.33	1.33	2.33	1.33	-	-	-	-
≥60	4.08	1.63	3.76	1.33	-	-	-	-
≥70	4.85	1.63	3.76	1.33	0.5	0.5	0.4	0.4

NOTES:

Values in Table 1 assume:

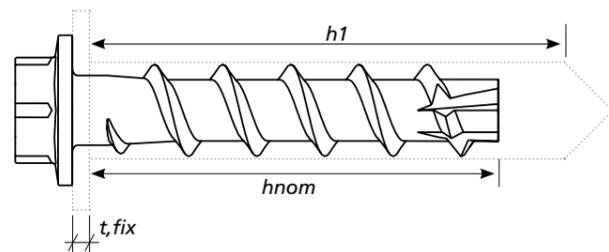
1. Assumed concrete Condition for values: Minimum concrete strength - 30MPa, Cracked Concrete, 100mm BMT
2. Values are characteristic values, not design values
3. Safety critical applications
4. Single point fasteners (option 1)
5. Assumed Edge distance ≥62mm
6. No annular gap between fixing and fixture
7. For fire attack from more than one side, minimum edge distance to be ≥300mm

Values in Table 2 assume:

1. Safety or non-safety critical applications
2. Assumed concrete Condition for values: Minimum concrete strength - 30MPa, Cracked Concrete, 100mm BMT
3. Single anchors ie. Anchor spacing influence has not been considered
4. Edge reinforcement factor ψ_{re} , $V = 1.0$
5. Some design loads may increase if concrete splitting reinforcement is used.
6. No annular gap between fixing and fixture
7. Assumed worst case scenario with shear force acting towards edge
8. The Fire Design loads include the safety factor for fire exposure resistance of $\gamma_{Ms,fire} = 1.0$ and the partial safety factor for action $\gamma_{Ms,fire} = 1.0$
9. Combined tension and shear loading in accordance with EN 1992-4:2018 and AS 5216:2018 has not been included in these tables

TECHNICAL AND LOAD DATA

CERT-R-FIX® CH10 FASTENER (M10 X 60mm)



INSTALLATION PARAMETERS							
EMBEDMENT DEPTH (hnom) (mm)	DEPTH OF DRILL HOLE (h1) (mm)	FIXTURE THICKNESS (t,fix) (mm)	AS5216 COMPLIANT	CRACKED CONCRETE APPROVAL	SEISMIC APPROVAL C1	FIRE RATED	ZINC COATING
55 MIN	≥ 65	5 MAX	YES, REFER TO ETA 15-0514				MIN 5 MICRONS

CEILING FASTENERS (TABLE 1)

CHARACTERISTIC VALUES FOR TENSION (kN) SAFETY CRITICAL APPLICATIONS - OPTION 1, CRACKED CONCRETE			
STATIC / QUASI-STATIC (NRk,p)	SEISMIC C1 (NRk, p, eq)	FIRE 60MIN, 90MIN (NRk, p, fi)	FIRE 120MIN (NRk, p, fi)
10.98	9.0	2.1	1.7

TRACK BRACKET FASTENERS (TABLE 2)

DESIGN LOAD RESISTANCE (kN)								
MINIMUM EDGE DISTANCE (mm)	STATIC / QUASI-STATIC		SEISMIC C1		FIRE (R30 - 90)		FIRE (R120)	
	SHEAR (VRd)	TENSION (NRd)	SHEAR (VRd)	TENSION (NRd)	SHEAR (VRd)	TENSION (NRd)	SHEAR (VRd)	TENSION (NRd)
50	3.57	6.53	3.57	5.55	-	-	-	-
≥60	4.56	7.32	4.56	6	-	-	-	-
≥90	7.92	7.32	6.74	6	2.1	2.1	1.7	1.7

NOTES:

Values in Table 1 assume:

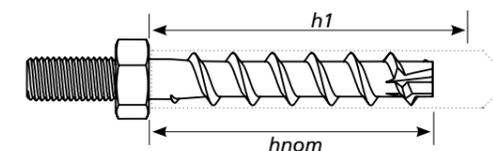
1. Assumed concrete Condition for values: Minimum concrete strength - 30MPa, Cracked Concrete, 100mm BMT
2. Values are characteristic values, not design values
3. Safety critical applications
4. Single point fasteners (option 1)
5. Assumed Edge distance; >60mm for static and Seismic values, >86mm for fire values
6. No annular gap between fixing and fixture
7. For fire attack from more than one side, minimum edge distance to be ≥300mm

Values in Table 2 assume:

1. Safety or non-safety critical applications
2. Assumed concrete Condition for values: Minimum concrete strength - 30MPa, Cracked Concrete, 100mm BMT
3. Single anchors ie. Anchor spacing influence has not been considered
4. Edge reinforcement factor ψ_{re} , $V = 1.0$
5. Some design loads may increase if concrete splitting reinforcement is used.
6. No annular gap between fixing and fixture
7. Assumed worst case scenario with shear force acting towards edge
8. The Fire Design loads include the safety factor for fire exposure resistance of $\gamma_{Ms,fire} = 1.0$ and the partial safety factor for action $\gamma_{Ms,fire} = 1.0$
9. Combined tension and shear loading in accordance with EN 1992-4:2018 and AS 5216:2018 has not been included in these tables

TECHNICAL AND LOAD DATA

CERT-R-FIX® CT06 FASTENER (M6 X 40mm)



INSTALLATION PARAMETERS							
EMBEDMENT DEPTH (hnom) (mm)	DEPTH OF DRILL HOLE (h1) (mm)	FIXTURE THICKNESS (t,fix) (mm)	AS5216 COMPLIANT	CRACKED CONCRETE APPROVAL	SEISMIC APPROVAL C1	FIRE RATED	ZINC COATING
40 MIN	≥ 45	0	YES, REFER TO ETA 15-0514				MIN 5 MICRONS

CEILING FASTENERS (TABLE 1)

CHARACTERISTIC VALUES FOR TENSION (kN) SAFETY CRITICAL APPLICATIONS - OPTION 1, CRACKED CONCRETE			
STATIC / QUASI-STATIC (NRk,p)	SEISMIC C1 (NRk, p, eq)	FIRE 60MIN, 90MIN (NRk, p, fi)	FIRE 120MIN (NRk, p, fi)
2.44	2.0	0.5	0.4

TRACK BRACKET FASTENERS (TABLE 2)

DESIGN LOAD RESISTANCE (kN)								
MINIMUM EDGE DISTANCE (mm)	STATIC / QUASI-STATIC		SEISMIC C1		FIRE (R30 - 90)		FIRE (R120)	
	SHEAR (VRd)	TENSION (NRd)	SHEAR (VRd)	TENSION (NRd)	SHEAR (VRd)	TENSION (NRd)	SHEAR (VRd)	TENSION (NRd)
45	2.33	1.33	2.33	1.33	-	-	-	-
≥60	4.08	1.63	3.76	1.33	-	-	-	-
≥70	4.85	1.63	3.76	1.33	0.5	0.5	0.4	0.4

NOTES:

Values in Table 1 assume:

1. Assumed concrete Condition for values: Minimum concrete strength - 30MPa, Cracked Concrete, 100mm BMT
2. Values are characteristic values, not design values
3. Safety critical applications
4. Single point fasteners (option 1)
5. Assumed Edge distance ≥62mm
6. No annular gap between fixing and fixture
7. For fire attack from more than one side, minimum edge distance to be ≥300mm

Values in Table 2 assume:

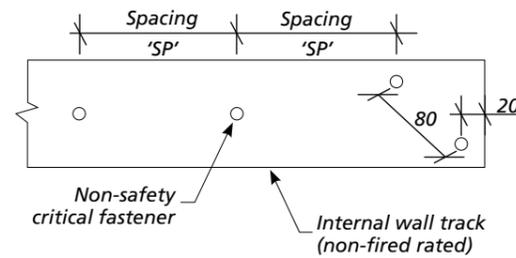
1. Safety or non-safety critical applications
2. Assumed concrete Condition for values: Minimum concrete strength - 30MPa, Cracked Concrete, 100mm BMT
3. Single anchors ie. Anchor spacing influence has not been considered
4. Edge reinforcement factor ψ_{re} , $V = 1.0$
5. Some design loads may increase if concrete splitting reinforcement is used.
6. No annular gap between fixing and fixture
7. Assumed worst case scenario with shear force acting towards edge
8. The Fire Design loads include the safety factor for fire exposure resistance of $\gamma_{Ms,fire} = 1.0$ and the partial safety factor for action $\gamma_{Ms,fire} = 1.0$
9. Combined tension and shear loading in accordance with EN 1992-4:2018 and AS 5216:2018 has not been included in these tables

NON-SAFETY CRITICAL APPLICATIONS

For non-safety critical applications not covered by AS 5216:2018 the designer should seek technical advice from the fastener supplier in relation to the suitability of the selected fastener.

While the Rondo CERT-R-FIX® range of fasteners are suitable, there are many alternative non-safety critical fasteners available in the market.

The following guide may be applied to the use of non-safety critical fasteners for fixing of head and base tracks of internal non-load bearing and non-fire rated partitions.



■ TYPICAL TRACK PLAN DETAIL (SCALE - N.T.S)

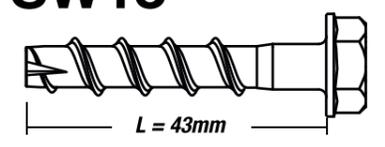
Maximum Non-safety Critical Fastener Spacing 'SP' (mm)						
Ultimate Design Pressure (kPa)	0.375	0.500	0.750	1.000	1.250	1.500
2700	520	390	260	190	150	130
3200	440	330	220	160	130	110
3700	380	280	190	140	110	N/A
4200	330	250	160	120	100	N/A
4700	300	220	150	110	N/A	N/A
5200	270	200	130	100	N/A	N/A
5700	240	180	120	N/A	N/A	N/A
6200	220	170	110	N/A	N/A	N/A
6700	210	160	100	N/A	N/A	N/A
7200	190	150	N/A	N/A	N/A	N/A
7700	180	140	N/A	N/A	N/A	N/A
8200	170	130	N/A	N/A	N/A	N/A
8700	160	120	N/A	N/A	N/A	N/A
9200	150	110	N/A	N/A	N/A	N/A

TABLE NOTES:

1. Minimum design shear and tensile capacity of non-safety critical fastener = 0.4kN
2. Combined shear and tension interaction has been checked to $(N^*/\phi N) + (V^*/\phi V) \leq 1.2$

PRODUCT PACKAGING

RONDO® CERT-R-FIX®
High Performance
TSM6x43 SW13

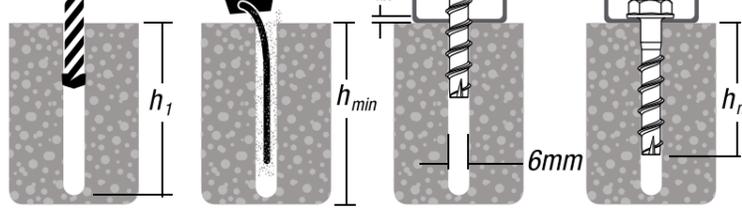
Part No. **CH060043** **100** 

Box quantity  $\phi 6mm$

Diameter of drill bit 

Max. Tool 160 Nm 

13mm Socket 



	$h_1 \geq$ [mm]	$h_{min} \geq$ [mm]	$t_{fix} \leq$ [mm]	h_{nom} [mm]	T_{inst}^1 [Nm]	T_{inst}^2 [Nm]
h_{nom1}	45	100	3	40	10 	160* 

Drill hole depth required for fastener Minimum concrete member depth Allowable thickness of bracket / track fixture Nominal embedment depth Installation torque Impact drivers maximum allowable torque during installation

RONDO[®]

we're behind the best buildings