Fire Crunch

Alternative Australian
Certified Building Solutions

TECHNICAL MANUAL

Installation : Fire Rate FRL Systems

firecrunch.com.au

CSIRO

Fire Crunch Alternative Australian Certified Building Solutions

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Fire Crunch Alternative Australian Certified Building Solutions

FireCrunch
FireCrunch is a newly developed and extensively tested modern building board used in construction. It is made from a mixture of non organic minerals, bonders and fibre mesh composites. FireCrunch contains no formaldehyde, no asbestos and no toxic chemicals.
FireCrunch has full Australian NON ASBESTOS test certification by Clearsafe NSW a NATA accredited testing laboratory to Australian Standards AS4964. See Certification this web site

KEY FEATURES
The fine, densely bonded, mineral fibre structure of FireCrunch ensures excellent machining and working properties using normal woodworking equipment or hand tools. In addition, the smooth face surface provides an ideal base for paint finishing with most industrial and domestic coatings. The back surface of FireCrunch is characterised by a coarse, wire screen texture which makes it ideal for rendering and tiling (although tile fixings can be applied to either side).
FireCrunch is available in a range of accurately dimensioned sheet sizes and in thicknesses of 6mm, 8mm and 10mm boards are available with square edge and tapered (recessed) edge for plaster set on long sides.
20mm flooring and decking substrate interior / exterior use is available in SE and TG sizes 2700 x 600.
In 2700 x 600 and 2700 X 900 Whilst all FireCrunch in any thickness is (CSIRO certified) Non Combustible (Ask for test certificate) Only 10mm and above is "system tested" (CSIRO) in FRL from 30/30/30 to 90/90/90 and DTA solutions for FRL 120/120/120 and above.

PRODUCT APPLICATIONS
FireCrunch has a very wide range of uses for residential, commercial and industrial buildings, schools, hospitals, Government & social housing, utility buildings etc. The board has additional applications in fire safety, electrical switchboard backing blocks, electrical wiring channels and internal electrical risers in multi-story and commercial buildings.
(See web site www.firecrunch.com.au for the full plans and instructional installations for building classification BCA classes 1 to 10.) Internal applications: internal walls, ceilings, floor sub base, tile backer, counter tops, kitchen furniture, built in wardrobes, hot areas. Wet area applications: bathrooms, shower recess, kitchen - suitable for any wet areas or humidity prone areas. FireCrunch is mould resistant and once sealed correctly, will not degrade in standing water or flood conditions it remains inert and can simply be dried, replaster set and repainted. Exterior applications: weatherboarding, soffits, lining or decking (meets AS/NZS 3959 BAL Fire Zone Regulation). Can be painted, papered, tiled, rendered or veneered.

ENVIRONMENTAL PROPERTIES
During the manufacturing process, in carbonation, FireCrunch draws back 90% of the CO2 used to produce it and makes it a virtually carbon neutral product. FireCrunch is 100% recyclable.
FireCrunch (10mm) has been tested to ensure the highest fire protection offered and all in one board without compromising on quality or price. FireCrunch provides solutions in single and double stud fire separation wall
systems without the use of complex expensive shaft liner methods. The primary FRL tests in 30/30/30 to 90/90/90 tests have been have been fire tested in systems, assessed and certified by the CSIRO. see Accreditation web site.tt
Acoustic third party tests certified to Rw62 etc etc....show Rw62 plus ctr and above A two stud partywall alternative is also available from FireCrunch.
The very high Fire Resistance Level (FRL) for FireCrunch means it can be used in all BAL areas including FZ in Bush Fire Areas under AS/NZS 1530.8.2.
Load Bearing Timber Frame FRL 60/60/60 Steel Frame FRL 90/90/90

CSIRO TESTED

CSIRO

FIRE PROTECTION

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Rw62 plus ctr and above A double stud partywall alternative is also available from FireCrunch.

The very high Fire Resistance Level (FRL) for FireCrunch means it can be used in all BAL areas including FZ in Bush Fire Areas under AS/NZS 1530.8.2.

Load Bearing Timber Frame **FRL 60/60/60** Steel Frame **FRL 90/90/90**

AUSTRALIAN CERTIFICATION

ModakBoard is certified and complies with the Building Code of Australia (BCA):

1. BCA Volume One 2014: C1.8 Lightweight Construction, C1.10 Fire hazard properties and C1.12 non-combustible components, including state variations for NSW.
2. BCA Volume Two 2014: Part 3.5.3.3, Fibre Cement Planks and Weatherboard Cladding.
3. BCA Volume Two 2014: Part 3.5.3.4, Fibre Cements Sheet Wall Cladding.
4. BCA Volume Two 2014: Part 3.5.3.5, Eaves and Soffit Linings.
5. BCA Volume Two 2014: Part 3.7.1, Fire separation for FRL, including state variations for SA.
6. BCA Volume Two 2014: Part 3.7.4, Bushfire areas to Part 3.7.4.0 and 3.7.4.1, including state variations NSW, QLD, SA and TAS.
7. BCA Volume Two 2014: Part 3.8.6, Sound Insulation, including state and territory for NT.

For more information on FireCrunch certification go to the company website: **firecrunch.com.au**

FIRE PROPERTIES

FireCrunch is totally fire resistant. It will not burn in a fire.

CSIRO

FireCrunch complies with the Building Code of Australia (BCA) Material Group Number Classification and Deemed to Satisfy Provisions, as determined by AS/NZS 3837, AS/NZS 1530.3 & AS/NZS 3959 AS/NZS1530.4/2005 FRL TO 90/90/90 (fire tested and scientific assessment by CSIRO)
The FireCrunch building product has been fire tested by the CSIRO to the Certification level standards of AS/NZS 3837 (Group 1 - Non Combustible material).

FireCrunch (min. 10mm thickenss) is certified for Bushfire Attack Levels (BAL) low, 12.5,19, 29, 40 and FZ (Flame Zone over 50Kw m2 irradiation, 1200ºc) regulation areas and meets the AS 3959 requirements, when used to protect timber - framing, under AS/NZ 3837 grounp 1 materials. AS/ NZS 1530.8.1 AND 1530.8.2

AUSTRALIAN TESTS

CSIRO carried out Non Combustible material tests on FireCrunch for AS/NZS 3837:1998 (and AS/NZS 1530.3) in 2009 (Report number FNK6016).

AS/NZS 3837:1998

Method of test for heat and smoke release rates for materials and calorimeter (Cone calorimeter test) - Walls & Ceilings.

AS/NZS 1530.4/2005

CSIRO FIRE REPORT 24/08/2015 NO 2674 REPORT NO FSV 1708 Compliance ISO/IEC/17025
CSIRO FIRE REPORT 21ST SEPT 2015 NO 2707 REPORT NO FSV 1711 Compliance ISO/IEC/17025.

Methods for fire tests on building materials, components and structures,Part 4: Fire-resistance test of elements of construction covering fire resistance .

AS/NZS 1530.8.2

Bushfire Attack Levels (BAL) from BAL 12.5 to BAL 40 and Flame Zone (FZ) - over 50Kw m2 irradiation, 1200ºC
SIMULATED REAL TIME LIVE BUSH FIRE TEST CSIRO FEBRUARY 2012 MOGO NSW J LEONARD
CSIRO PROJECT LEADER REPORT TEST DATE 15/02/2012 REF EP12179/FILE FE 2508 REPORT DATE JULY 2012

Specimen (10mm) FireCrunch MBE
All FireCrunch CSIRO fire tests under AS/NZS 1530.4-2005 were exposed in the 1200 deg c furnace in "mandatory vertical orientation".
Failure to orient the sheets vertical and to the exact fixing process with support elements specified as shown in the FireCrunch fire manuals will void the CSIRO certification.

Test	Results
Ignition	No combustion at 1100ºC
Flame propagation	No flame out at 1100ºC
Heat release	Nominal
Smoke release	1.5MJ/m^2

AUSTRALIAN AND NEW ZEALAND STANDARDS

AS/NZS 1530.4/20O5 CSIRO FIRE TEST REPORTS

24/08/2015 NO 2674 REPORT NO FSV 1708 Compliance ISO/IEC/17025
21/09/2015 NO 2707 REPORT NO FSV 1711 Compliance ISO/IEC/17025

AS/NZS 3837 - Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter (Cone calorimeter test) - Walls & Ceilings (AS/NZS 3837) complies with Group 1 specification A 2.4 BCA)

Properties are determined as follows:

(a) Rate of heat release, by measurement of the oxygen consumption, as determined by the oxygen concentration and the flow rate in the exhaust product stream.
(b) Effective heat of combustion from a concomitant measurement of specimen mass loss rate, in combination with the heat release rate.
(c) Smoke release, by obscuration of light by the combustion product stream.
(d) Ignitability, as a measurement of time from initial exposure to time of sustained flaming.

AS/NZS 1530.8 - Methods for fire tests exclusively for materials and elements of construction in bushfire-prone areas, namely: AS 1530.8.1 - *Tests on elements of construction for buildings exposed to simulated bushfire attack*; Part 8.1 - *Radiant heat and small flaming source*, which covers BAL12.5 to BAL40 and BAL FZ ; AS 1530.8.2 - *Tests on elements of construction for buildings exposed to simulated bushfire attack*. Part 8.2: Large flaming sources, which covers BAL-FZ.

ISO 9239.1 - Reaction to fire tests for floor coverings (Floor radiant panel test)

The main outcome from the test is a material's critical radiant flux. The critical radiant flux is an indication of the amount of heat flux that needs to be applied to a material, to cause a small flame to ignite the material. The higher the material's critical radiant flux, the better performing a material is.

AS 3959-2009 - Construction of buildings in bush-fire prone areas

The objective of this Standard is to prescribe particular construction details for buildings to reduce the risk of ignition from a bush fire.

Properties are determined as follows:

(a) potential for ignition caused by burning embers, radiant heat or flame generated by a bush fire; and
(b) intensity of the bush fire attack on the building.

BUSH FIRE ATTACK LEVELS (BAL) AND CORRESPONDING SECTIONS FOR SPECIFIC CONSTRUCTION REQUIREMENTS

Bush fire Attack Level (BAL)	Description of predicted bush fire attack and levels of exposure
BAL-LOW	There is insufficient risk to warrant specific construction requirements
BAL-12.5	Ember attack
BAL-19	Increasing levels of ember attack and burning debris ignited by wind borne embers together with increasing heat flux
BAL-29	Increasing levels of ember attack and burning debris ignited by wind borne embers together with increasing heat flux
BAL-40	Increasing levels of ember attack and burning debris ignited by wind borne embers together with increasing heat flux with the increased likelihood of exposure to flames
BAL-FZ	Direct exposure to flames from fire front in addition to heat flux and ember attack

INTERNATIONAL STANDARDS

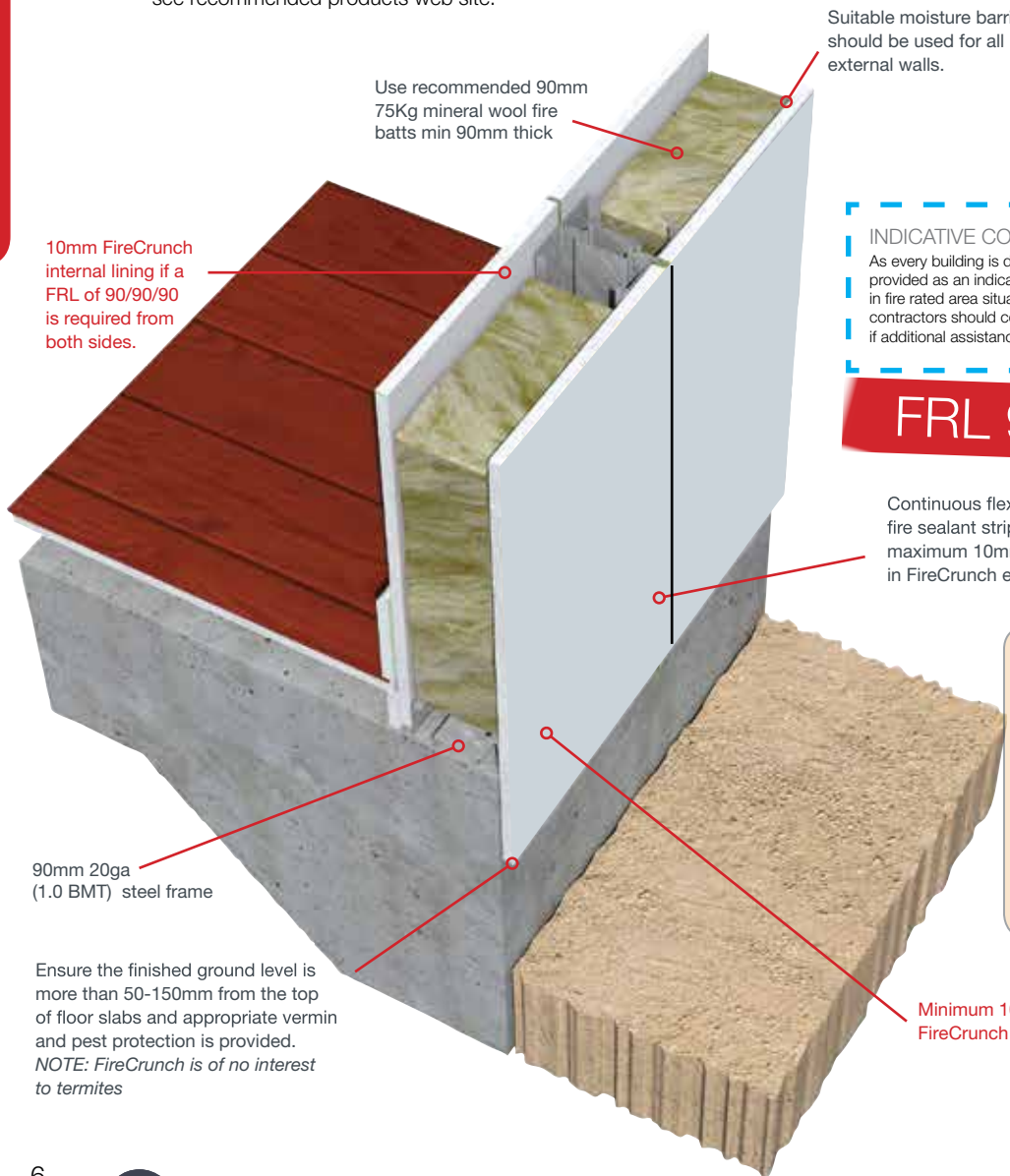
FireCrunch has a class A fire rating internationally.

- European Standards UNI EN ISO 1182 (non-combustible)
- European Standards UNI EN ISO 1716 (heat resistance)
- European Standards UNI EN ISO 13501-1 (smoke and flame)
- United States & Canada US ASTM E136 (non-combustible)
- British Standard 476 part 4 1970 (non-combustible)

FIRE RATED WALL - LOAD BEARING
COLD FORMED SECTION - STEEL FRAME CONSTRUCTION

FIXING NOTES

- Steel framed walls, floors and ceilings are to be constructed strictly in accordance with AS/NZS 4600 (Cold Formed Steel Structures), the Building Code of Australia and all relevant Standards.
- Fasten to the studs, joists and rafters min. 12mm from the edge and 50mm from the corner of boards and staggered at a maximum of 200mm centres.
- Fasteners should be recommended corrosion proof,ribbed head bugle screws and finish with the head just below the surface of the FireCrunch boards.
- The boards are strong but care should be taken not to damage the core or face.
- All external wall must be surface sealed with approved sealer primers see recc products web site
  before, or immediately after installation. Cavity of 90mm and 20ga) min (1.0 BMT) galvanised steel frame filled with 90mm min 75kg mineral or rockwool fire batts
  see recommended products web site.
- Movement or control joints should be provided where the FireCrunch abuts dissimilar materials, where the construction changes within the plane of the wall, and at not more than 6 metre centres.
- External joints are to be filled with an expandable fire sealant strip. Tested and approved product information is available on our support website (AS/NZS 1530.4 APPROVED)
- For FRL 90/90/90 steel stud walls are to have a minimum cavity of 90mm, minimum 20ga (min 1.0 BMT) galvanised steel and external walls are to be filled with min. 75kg mineral fibre batts .(AS PER FRL REQUIRED SEE DETAILED NOTES THIS SITE)



INDICATIVE CONSTRUCTION DIAGRAM

As every building is different the following diagram is provided as an indicative guide to the use of FireCrunch in fire rated area situations. Architects, designers and contractors should consult FireCrunch Australia if additional assistance is required.

FRL 90/90/90

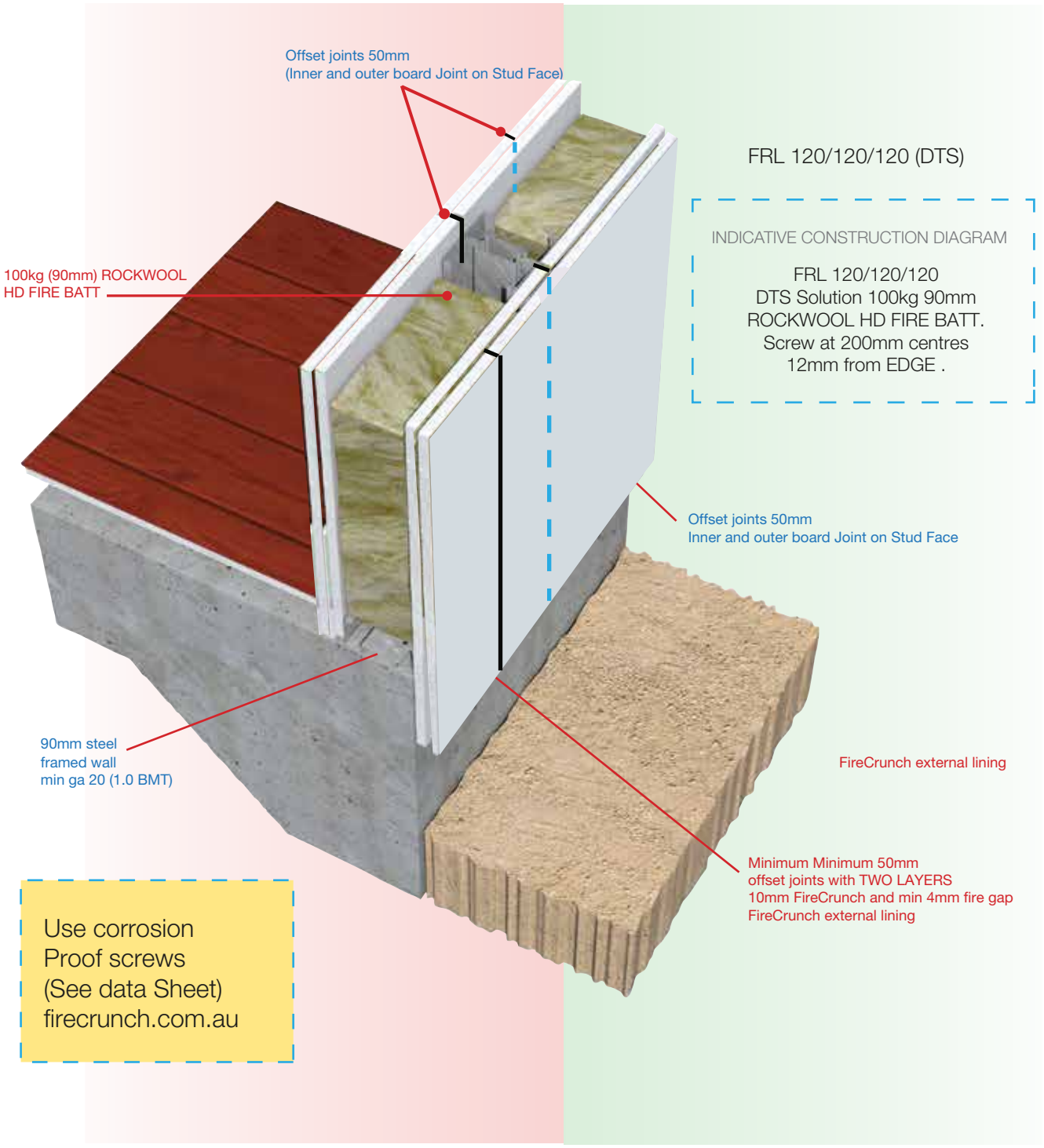
RECOMMENDED PRODUCTS

Products recommended for use with FireCrunch are continually being added as we test the compatibility of application products and systems.

The latest products that have been tested and approved for use on the FireCrunch product can be viewed on the FireCrunch Support site under **Recommended Products**.

www.Firecrunch.com.au

FIRE RATED FIRE SEPERATION WALL FRL 120/120/120
COLD FRAMED SECTION - STEEL FRAME CONSTRUCTION



FIRE RATED WALL
STEEL FRAME CONSTRUCTION

GENERAL INSTALLATION - INTERNAL & EXTERNAL FIRE WALLS

FireCrunch has fire rated tests certificates and asessments from the CSIRO up to FRL 90/90/90 and provides DTS solutions using two layers of 10mm FireCrunch each side for FRL 120/120/120 and over **** refer to FireCrunch over FRL 120/120/120

FRL 90/90/90 steel frame, load bearing 90mm cavity or
FRL 90/90/60 steel frame, load bearing 90mm cavity or
FRL 60/60/60 steel frame, load bearing 90mm cavity
FRL 30/30/30 steel frame, load bearing 90mm cavity

NON LOAD bearing
FRL.....180/180 refer FireCrunch
FRL .....120/120 refer FireCrunch
FRL 90/90
FRL.....60/60
FRL.....30/30

To achieve the fire rating in these formats FireCrunch must be installed in accordance with this installation manual.

FRAME CONSTRUCTION SPECIFICATION

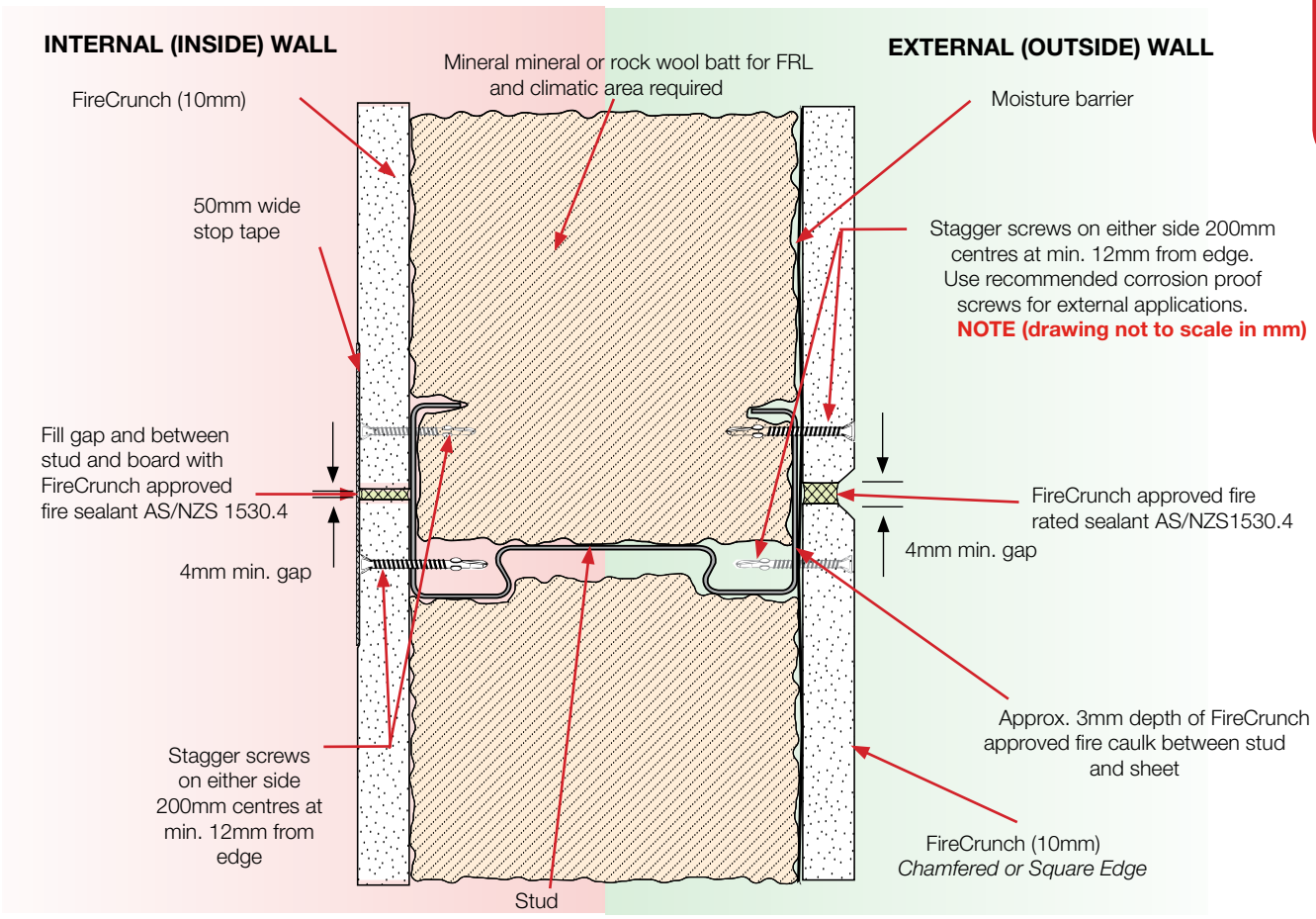
See FireCrunch CSIRO fire test certificates for details under "certificates of testing " Web Site : www.firecrunch.com.au

- One layer of 10mm FireCrunch on studs, fixed vertically, to galvanised steel stud wall framing, with noggings.
- Board must be screw fixed to steel framing
- Stud adhesive should not be used.
- Studs should be at 450mm maximum centres.
- All joints must be backed by studs.
- Screw at 200 centres at edges and on studs and nogs. Stagger edge fixing on studs.
- Approved AS/NZS 1530.4 fire rated sealant must be used on all joints.

FRL (FireCrunch side)	STUD	CAVITY INFILL* (DTS SOLUTION)
2 layers 10mm (offset joints) 120/120/120****	min. 90mm 1.0 BMT	100mm thick 100kg COMPRESSED Rockwool Fire batts
90/90/90	min. 90mm 1.0 BMT	90mm thick 75kg mineral or Rockwool Fire batts
60/60/60	min. 90mm 1.0 BMT	90mm thick 32kg Fibre Glass batts

** use recommended product only*

INTERNAL/EXTERNAL FIRE WALLS - FIRE RATED CONTROL JOINTS



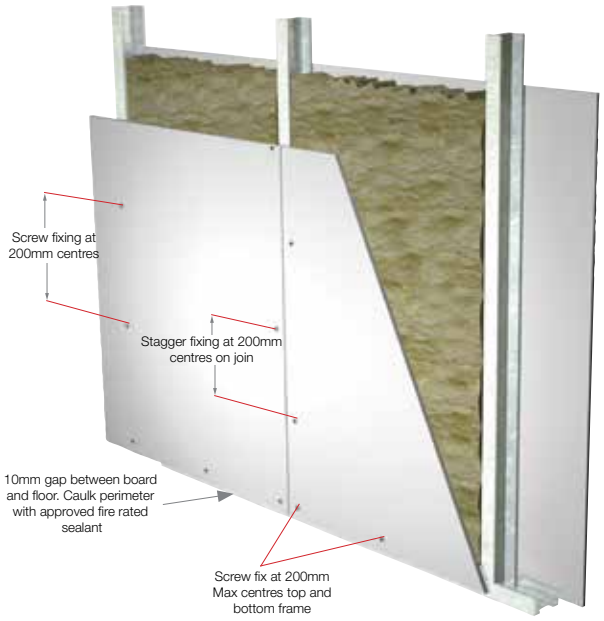
FIRE RATED WALL - INTERNAL
COLD FORMED SECTION - STEEL FRAME CONSTRUCTION

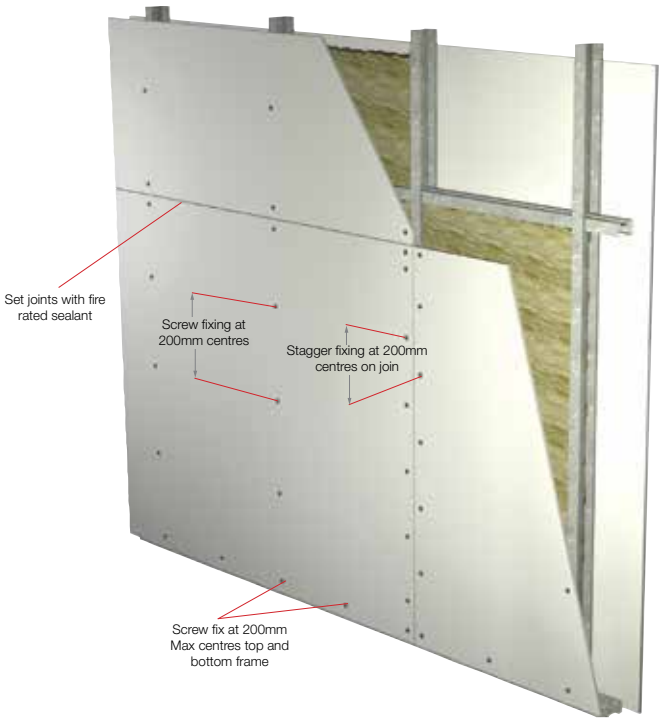
INTERNAL FIRE WALLS - INSTALLATION **NON LOAD BEARING FRL -/120/120**

this FRL .../120/120 is a DTS alternative solution / Certifiers should be consulted first

Board Thickness	Stud Depth	Cavity Fill	FRL Non Load Bearing
10mm	Minimum 90mm	75kg ROCKWOOL BATT	-/120/120

SCREWS Use only Countersunk Ribbed Head screws.





10 gauge, 16 TPI, 25mm, CSK rib, X Drive#1, DP

NOTE: VERTICAL CLADDING MUST BE USED IN "LOAD BEARING" FIRE WALLS DO NOT USE HORIZONTAL CLADDING

SINGLE LAYER VERTICAL INSTALLATION

Install FireCrunch sheets in a vertical arrangement if using tapered/recessed edge board.
ALL STEEL FRAME STUDS AT MAX 200 CENTRES

Fastener Position	Fastener Spacing
Centre of board	200mm max. centres
Recessed edges	200mm max. centres staggered
Butt joints	200mm max. centres
Corners & openings	200mm max. centres

FireCrunch approved fire rated sealant must be used on all joints as per the instructions on page 7

NOTE: HORIZONTAL CLADDING CAN ONLY BE USED IN "NON LOAD BEARING" WALLS.

SINGLE LAYER HORIZONTAL INSTALLATION

Fastener Position	Fastener Spacing
Centre of board	200mm max. centres
Recessed edges	Fix at each stud
Butt joints	200mm max. centres
Corners & openings	200mm max. centres

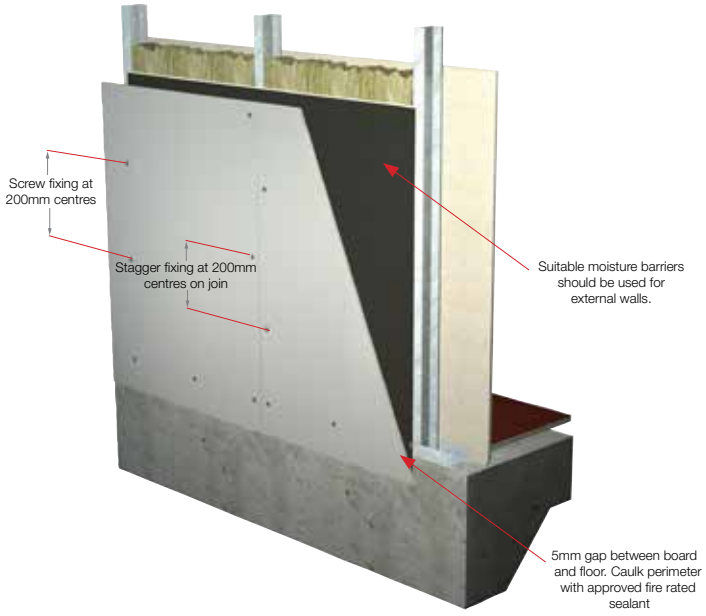
FIRE RATED WALL - EXTERNAL
COLD FORMED SECTION - STEEL FRAME CONSTRUCTION

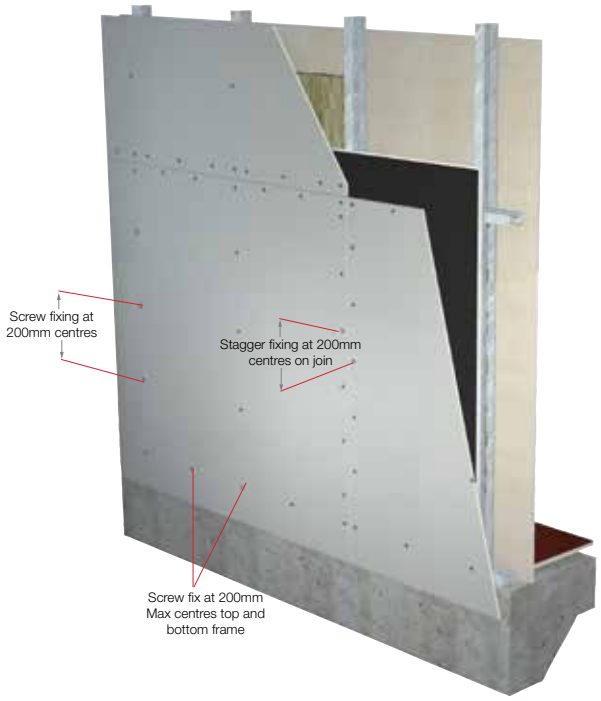
EXTERNAL FIRE WALLS - INSTALLATION

LOAD BEARING FRL 90/90/90

Board Thickness	Stud Depth	Cavity Fill	FRL Load Bearing
10mm	90mm (1.0 BMT)	90mm min. Mineral 75kg Batt	90/90/90

SCREWS Use only recommended corrosion proof countersunk ribbed head screws.





For screwing FireCrunch to steel framing use recommended stainless steel or corrosion proof countersunk ribbed head screws.

Maximum depth between surface of screw head and surface of FireCrunch should not be more than 1.5mm.

Minimum fastening distance from edge of board should be 12mm.

NOTE: VERTICAL CLADDING MUST BE USED IN "LOAD BEARING" FIRE WALLS DO NOT USE HORIZONTAL CLADDING

SINGLE LAYER VERTICAL INSTALLATION

Install FireCrunch sheets in a vertical arrangement if using tapered/recessed or chamfered edge board.

Fastener Position	Fastener Spacing
Centre of board	200mm max. centres
Recessed edges	200mm max. centres staggered
Butt joints	200mm max. centres
Corners & openings	200mm max. centres
Top & Bottom Frame	200mm max. centres

NOTE: HORIZONTAL CLADDING WITH BACK BLOCKING ON ALL HORIZONTAL JOINTS CAN ONLY BE USED IN "NON LOAD BEARING" FIRE WALLS.

SINGLE LAYER HORIZONTAL INSTALLATION

Install FireCrunch sheets in a horizontal arrangement if using square/straight edge board.

Fastener Position	Fastener Spacing
Centre of board	200mm max. centres
Recessed edges	Fix at each stud
Butt joints	200mm max. centres
Corners & openings	200mm max. centres
Top & Bottom Frame	200mm max. centres

FireCrunch approved fire rated sealant must be used on all joints as per the instructions on page 7

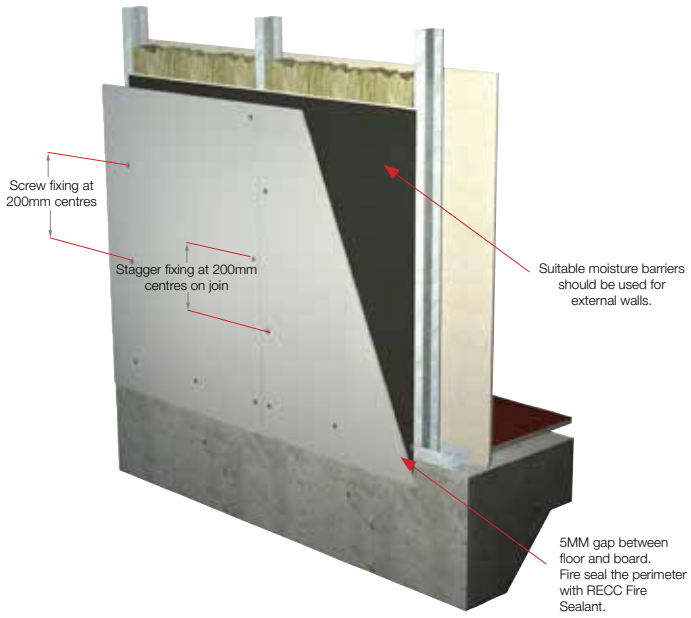
FIRE RATED WALL - EXTERNAL
COLD FORMED SECTION - STEEL FRAME CONSTRUCTION

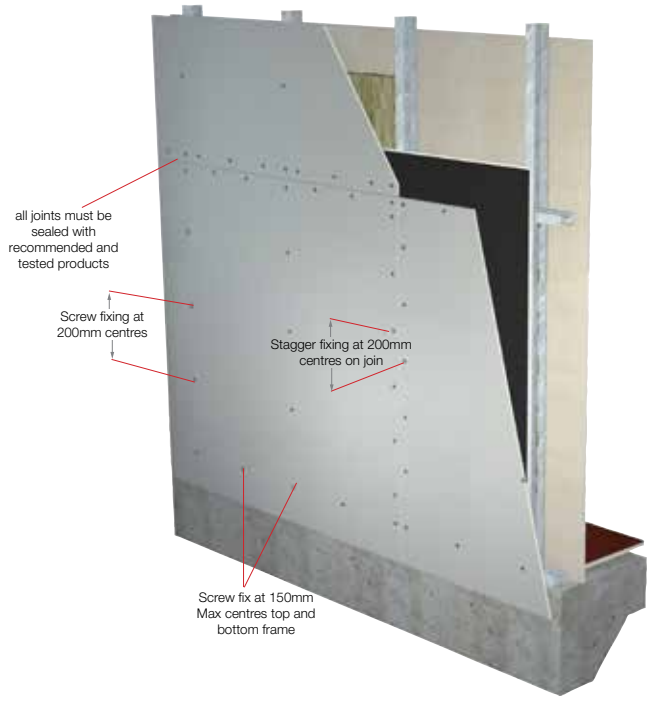
EXTERNAL FIRE WALLS - INSTALLATION

LOAD BEARING FRL 60/60/60

Board Thickness	Stud Depth	Cavity Fill	FRL Load Bearing
10mm	90mm (1.0 BMT)	75mm min. 90MM 32KG GLASS WOOL BATT	60/60/60

SCREWS Use only recommended corrosion proof countersunk ribbed head screws.





For screwing FireCrunch to steel framing use recommended stainless steel or corrosion proof countersunk ribbed head screws.

Maximum depth between surface of screw head and surface of FireCrunch should not be more than 1.5mm.

Minimum fastening distance from edge of board should be 12mm.

SINGLE LAYER VERTICAL INSTALLATION

Install FireCrunch sheets in a vertical arrangement if using tapered/recessed or chamfered edge board.

Fastener Position	Fastener Spacing
Centre of board	200mm max. centres
Recessed edges	200mm max. centres staggered
Butt joints	200mm max. centres
Corners & openings	200mm max. centres
Top & Bottom Frame	200mm max. centres

SINGLE LAYER HORIZONTAL INSTALLATION

Install FireCrunch sheets in a horizontal arrangement and back block all horizontal joints and fire seal .

Fastener Position	Fastener Spacing
Centre of board	200mm max. centres
Recessed edges	Fix at each stud
Butt joints	200mm max. centres
Corners & openings	20mm max. centres
Top & Bottom Frame	200mm max. centres

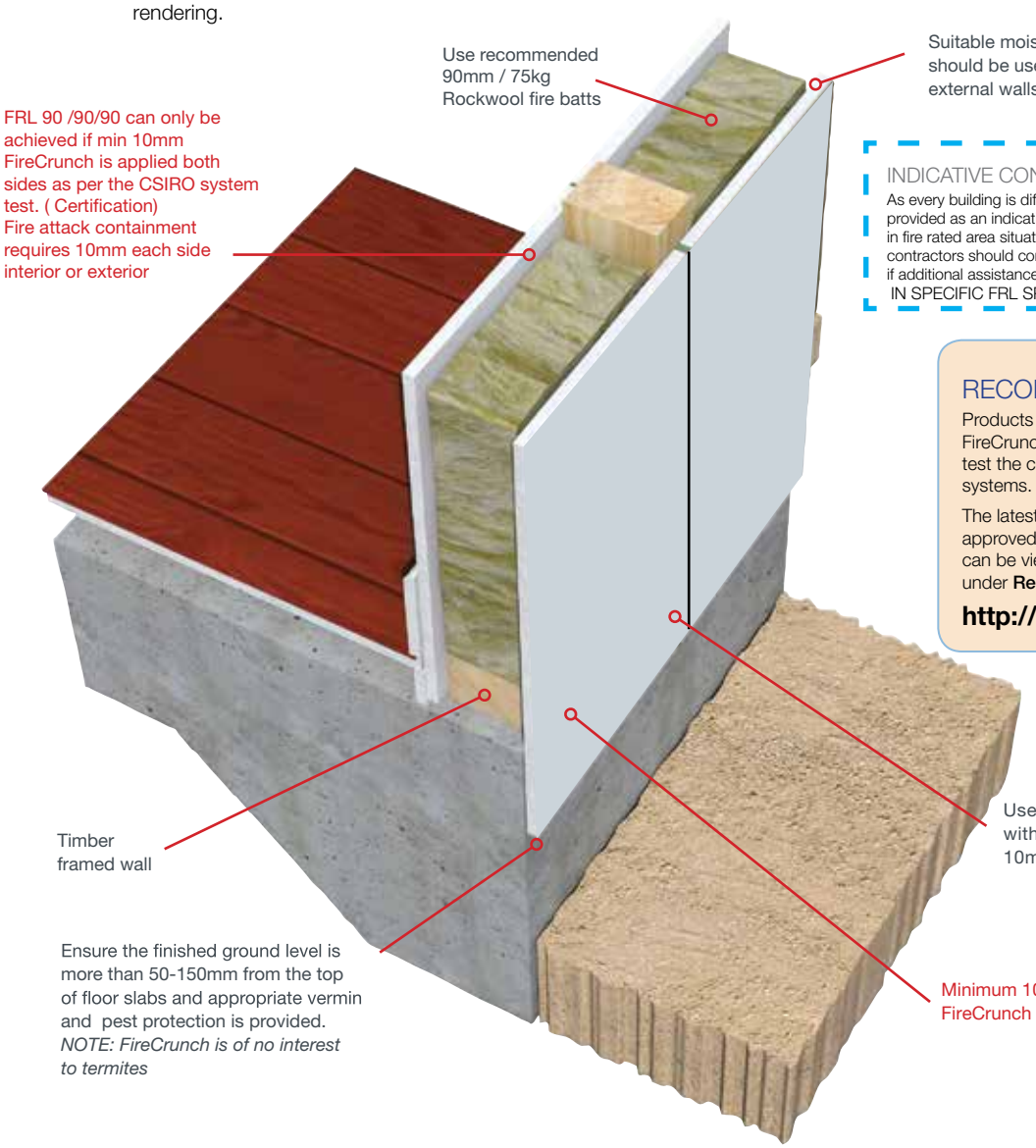
FireCrunch approved fire rated sealant must be used on all joints as per the instructions on page 7

FIRE RATED WALL - LOAD BEARING TIMBER FRAME CONSTRUCTION

FRL 60/60/60

FIXING NOTES: (DTS / Solution NCC / BCA)

- Timber framed walls, floors and ceilings are to be constructed strictly in accordance with AS/NZS 1684 (Timber structures), the Building Code of Australia and all relevant Standards.
- Fasten to the studs, joists min. 12mm from the edge and 50mm from the corner of boards and staggered at a maximum of 200mm centres .
- Fasteners should finish with the head just below the surface of the FireCrunch.
- The boards are strong but care should be taken not to damage the core or face.
- Exterior cladding must be properly weather sealed at the ends, edges and joints and drainage provided for any moisture that may develop. prior to or very soon after installation to avoid prolonged exposure to rain. board must allowed to completely dry out before painting or rendering.
- Movement or control joints should be provided where the FireCrunch abuts dissimilar materials, where the construction changes within the plane of the wall, and at not more than 6 metre centres.
- External joints are to be filled with a recommended expandable fire sealant. Tested and approved product information is available on our support website
- Timber stud walls are to have a minimum cavity of 90mm.
- All walls are to have a cavity depth to accommodate a 90mm thick rock wool fire batt of minimum 75Kg density for TIMBER FRAMING
  Radiata Pine/ M10 or similar softwoods to FRL.....60/60 or FRL 60/60/60
  ALL STUDS TO MAX 450MM CENTRES OR LESS



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As every building is different the following diagram is provided as an indicative guide to the use of FireCrunch in fire rated area situations. Architects, designers and contractors should consult FireCrunch Australia if additional assistance is required.
IN SPECIFIC FRL SPECS

RECOMMENDED PRODUCTS

Products recommended for use with FireCrunch are continually being added as we test the compatibility of application products and systems.

The latest products that have been tested and approved for use on the FireCrunch product can be viewed on the FireCrunch Support site under **Recommended Products**.

http://www.firecrunch.com.au

FIRE RATED WALL
TIMBER FRAME CONSTRUCTION

GENERAL INSTALLATION - INTERNAL & EXTERNAL FIRE WALLS

FireCrunch has been rated at: **FRL 60/60/60 for timber framed load bearing.**

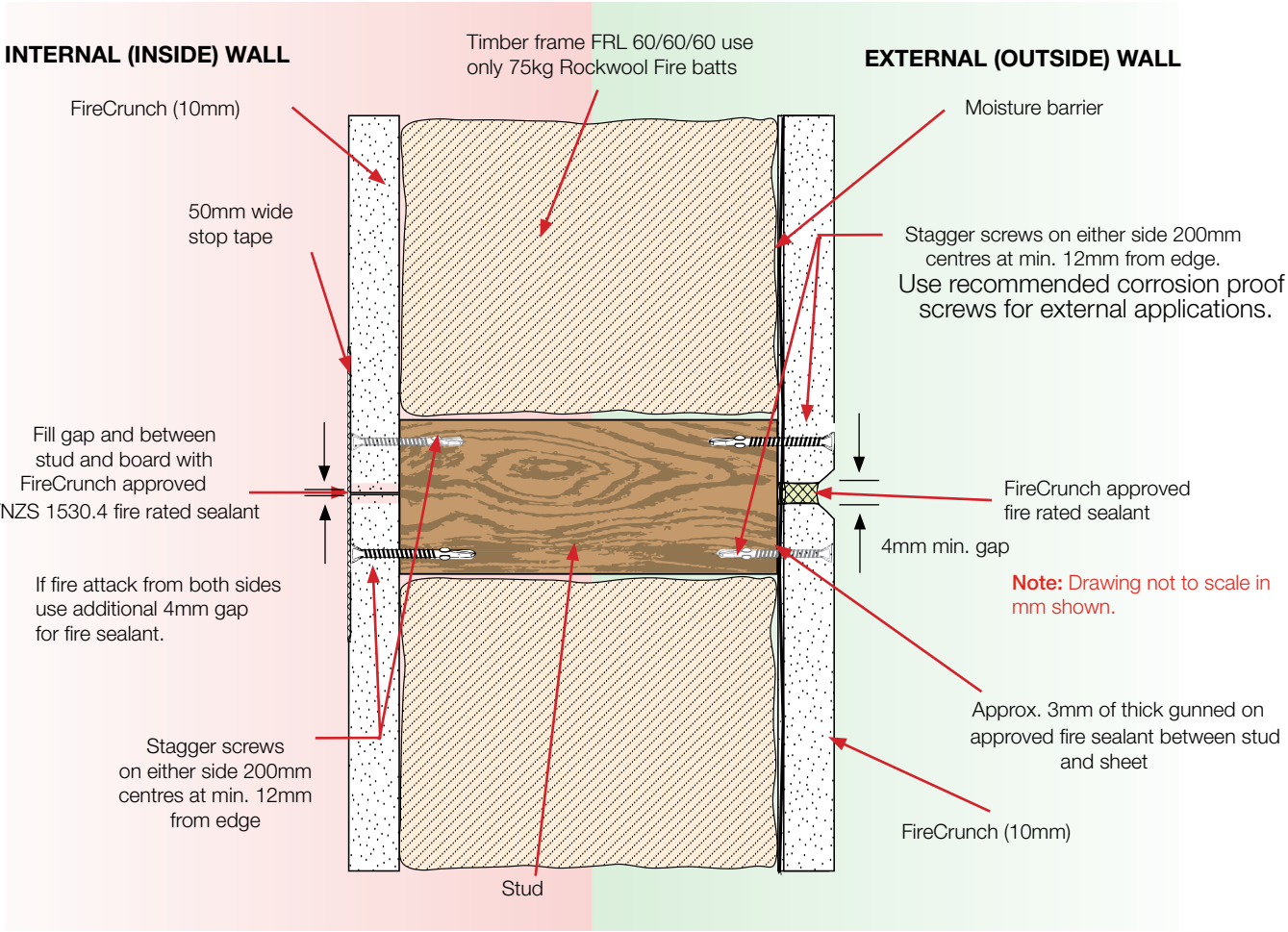
To achieve the fire rating in these formats FireCrunch must be installed in accordance with this installation manual.

- One layer of 10mm FireCrunch on studs, fixed vertically, to timber stud wall framing, with noggings.
- Board must be SCREW FIXED to timber framing DO NOT NAIL,NAILING WILL VOID THE WARRANTY.
- Stud adhesive should not be used.
- Studs should be at 450mm maximum centres.
- All joints must be backed by studs.
- Screw at 200 centres at edges and on studs and nogs. Stagger edge fixing on studs.
- Approved fire rated sealant must be used on all joints.

FRL (FireCrunch side)	STUD	CAVITY INFILL*
60/60/60	min. 90mm	90MM .. 75 kg Rockwool fire batt

** use recommended product only*

INTERNAL/EXTERNAL FIRE WALLS - FIRE RATED CONTROL JOINTS



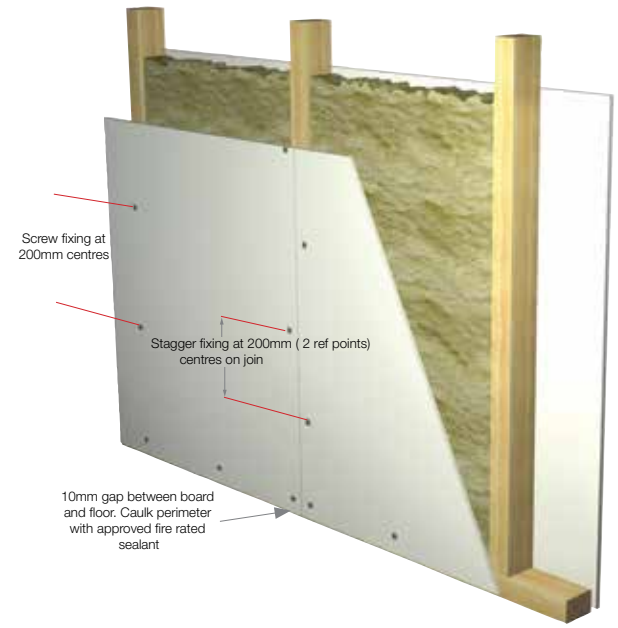
FIRE RATED WALL - INTERNAL TIMBER FRAME CONSTRUCTION

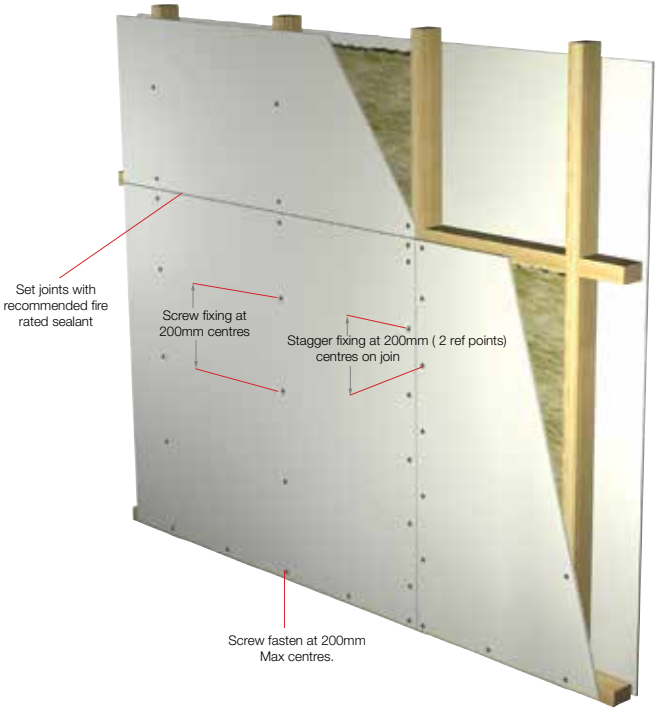
NON LOAD BEARING FRL -/60/60

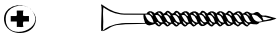
INTERNAL FIRE WALLS - INSTALLATION

Board Thickness	Stud Depth	Cavity Fill	FRL Non Load Bearing
10mm	min. 90mm	90mm.75 Kg Rock Wool Fire batts	-/60/60

SCREWS Use only Countersunk Ribbed Head Class 2 / 3 screws.
NOTE: Do not nail FireCrunch or warranty will be voided.







For screwing FireCrunch panels to wood framing, we recommend using 8-10 Countersunk Ribbed Head Class 2 / 3 screws (depending on timber hardness).

Maximum depth between surface of screw head and surface of FireCrunch should not more than 1.5mm.

SINGLE LAYER VERTICAL INSTALLATION

USE VERTICAL OR HORIZONTAL IN NON LOAD BEARING CONDITIONS FOR FIRE WALLS.

Fastener Position	Fastener Spacing
Centre of board	200mm max. centres
Recessed edges	200mm max. centres staggered
Butt joints	200mm max. centres
Corners & openings	200mm max. centres
Top & Bottom Frame	200mm max. centres

SINGLE LAYER HORIZONTAL INSTALLATION

NOTE: USE VERTICAL OR HORIZONTAL CLADDING IN NON LOAD BEARING CONDITIONS. FOR FIRE WALLS BACK BLOCK ALL HORIZONTALL CLADDING AND USE RECC FIRE SEALANT

Fastener Position	Fastener Spacing
Centre of board	200mm max. centres
Recessed edges	Fix at each stud
Butt joints	200mm max. centres
Corners & openings	200mm max. centres
Top & Bottom Frame	200mm max. centres

FireCrunch approved fire rated sealant must be used on all joints as per the instructions on page 12

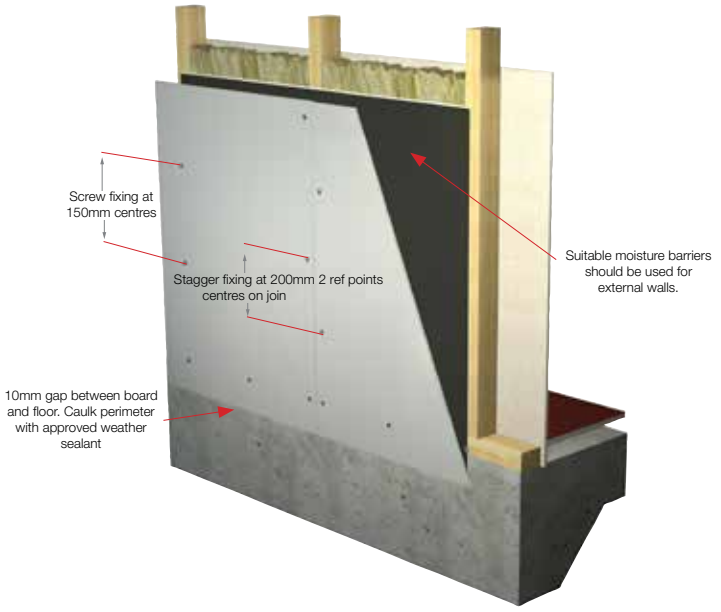
FIRE RATED WALL - EXTERNAL TIMBER FRAME CONSTRUCTION

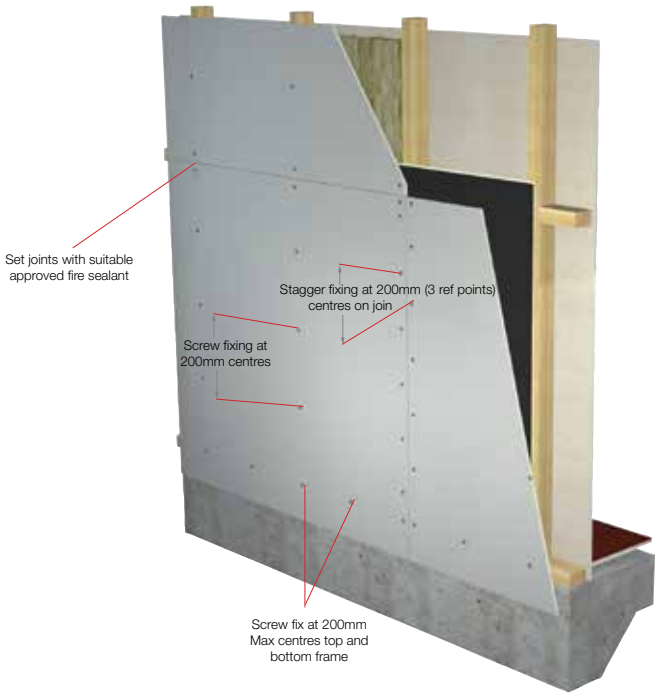
EXTERNAL FIRE WALLS - INSTALLATION

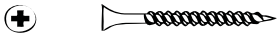
LOAD BEARING FRL 60/60/60

Board Thickness	Stud Depth	Cavity Fill	FRL Load Bearing
10mm	min. 90mm	75Kg 90mm thick Rockwool Fire Batt	60/60/60

SCREWS Use only Countersunk Ribbed Head Corrosion Resistant Class 2 / 3 screws







For screwing FireCrunch panels to wood framing, we recommend using 8-10 Countersunk Ribbed Head Class 2 / 3 screws (depending on timber hardness).

Maximum depth between surface of screw head and surface of FireCrunch should not be more than 1.5mm.

Minimum fastening distance from edge of board should be 12mm.

SINGLE LAYER VERTICAL INSTALLATION

Install FireCrunch sheets in a vertical arrangement.

NOTE USE ONLY VERTICALLY FIXED BOARDS IN LOAD BEARING' FIRE WALL CONDITIONS

Fastener Position	Fastener Spacing
Centre of board	200mm max. centres
Recessed edges	200mm max. centres staggered
Butt joints	200mm max. centres
Corners & openings	200mm max. centres
Top & Bottom Frame	200mm max. centres

SINGLE LAYER HORIZONTAL INSTALLATION

Install FireCrunch sheets in a horizontal arrangement.

NOTE: USE HORIZONTAL CLADDING ONLY IN NON LOAD BEARING FIRE WALL CONDITIONS AND BACK BLOCK AND FIRE SEAL ALL HORIZONTAL JOINTS WITH RECC FIRE SEALANT

Fastener Position	Fastener Spacing
Centre of board	200mm max. centres
Recessed edges	Fix at each stud
Butt joints	200mm max. centres
Corners & openings	200mm max. centres
Top & Bottom Frame	200mm max. centres

FireCrunch approved fire rated sealant must be used on all joints as per the instructions on page 12

FIRE RATED DOUBLE STUD PARTY WALL SYSTEM DTS SOLUTION TIMBER FRAME CONSTRUCTION

FireCrunch can be used in many situations where adjoining walls are required to be fire and acoustic rated.

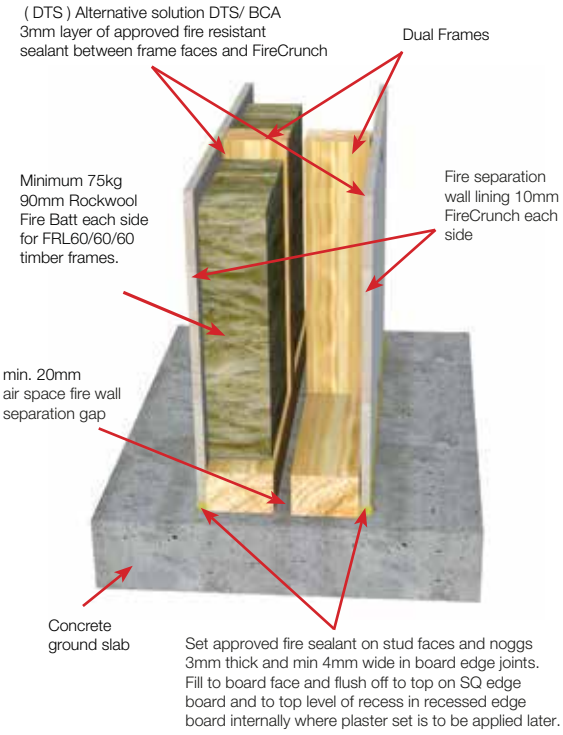
The FireCrunch Deemed to Satisfy solution for fire separation walls are illustrated below.

On a timber frame, one layer of 10mm FireCrunch,each side backed with a 75 Kg 90mm thick Rockwool Fire Batt, or equivalent (based on suppliers specifications), and suitably jointed with approved fire mastic, will provide a minimum Fire Resistance Level (FRL) of FRL 60/60/60 for fire attack equally from both sides and an acoustic minimum of Rw 62 plus ctr,net Rw 52.

NOTE: Use only vertically set panels for "load bearing" Fire walls

Use corrosion proof fasteners as per DATA sheets web site FireCrunch .net.au

Fire separation walls between apartments meet BCA definition of 'discontinuous construction'. UNDER BCA (DTS)



Assembly	System	Nom Width	FRL	Insulation	R_w	R_w+C_{tr}
Steel Frame						
	• 1 x 10mm FireCrunch • 3mm approved fire sealant between frame and board • Steel Stud (min. 90mm) with insulation • Min. 20mm fire wall separation air gap	Min. 220mm	Load Bearing min. 90/90/90 both sides	Steel frame (75Kg) 90mm thick mineral or Rockwool Fire batt	65†	55^
Timber Frame						
	• 1 x 10mm FireCrunch • 3mm approved fire sealant between frame and board • Timber Stud (min.90mm) with insulation • Min. 20mm fire wall separation air gap	Min. 220mm	Load Bearing min. 60/60/60 both sides	Timber frame 75Kg 90mm thick Rockwool fire batt	67†	55^

FireCrunch approved fire rated sealant must be used on all joints as per the instructions on pages 7 & 12

** Based on suppliers specifications*
† Predicted values. To be used as guidance information to assist in the selection of a suitable assembly.
^ Test opinion NRCTTBM #200933924 timber framing 2012 .

FIRE RATED DOUBLE STUD PARTY WALL SYSTEM DTS SOLUTION STEEL FRAME ONLY FRL 90/90/90

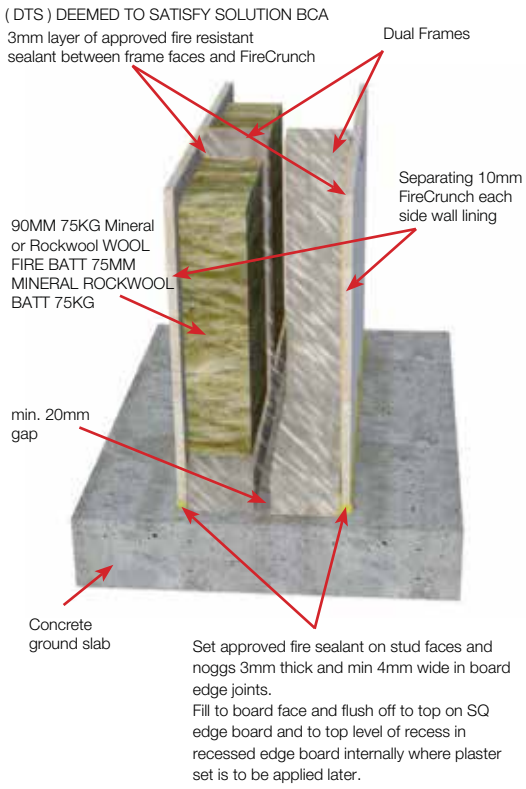
FireCrunch can be used in many situations where adjoining walls are required to be fire and acoustic rated.
The FireCrunch Deemed to Satisfy solution for fire separation walls are illustrated below.

On a steel frame, one layer of 10mm FireCrunch, backed with a HD MINERAL OR ROCKWOOL FIRE BATT 75KG, or equivalent (based on suppliers specifications), and suitably jointed with approved AS/1530.4 fire sealant, will provide a minimum Fire Resistance Level (FRL) of 90/90/90 the FRL is 90/90/90 both sides.

If you do not require a structural Load Bearing rating, the installation stated above will provide a minimum FRL of -/120/120 on steel framing and -/60/60 on timber framing DTS SOLUTION

Use corrosion proof screws as per DATA sheets web site firecrunch.com.au

Fire separation walls between apartments meet BCA definition of 'discontinuous construction'. UNDER BCA (DTS)



Assembly	System	Nom Width	FRL	Insulation	R_w	R_w+C_{tr}
Steel Frame						
	• 1 x 10mm FireCrunch each side. • 3mm approved fire sealant between frame and board • Steel Stud (min. 90mm) with insulation • Min. 20mm air gap • Steel Stud (min. 90mm) with insulation • 3mm approved fire caulk between frame and board • 1 x 10mm FireCrunch	Min. 220mm	Load Bearing min. 90/90/90 both sides	Steel frame (75Kg) 90mm thick mineral or Rockwool fire batt	65†	55^

instructions on pages 7 & 12

** Based on suppliers specifications*
† Predicted values. To be used as guidance information to assist in the selection of a suitable assembly.
^ Test opinion NRCTTBM #200933924

FIRE RATED CEILINGS AND FLOORS†

20mm FireCrunch SE or TG

By using 20mm FireCrunch SE or 20mm FireCrunch Tongue and Groove panels for flooring, the FRL rating from the top will be 120/120/120

Double layer 10mm (with offset joints for Higher FRL DTS Solution FRL 120/120 /120 (1.15mm BMT steel channel)

FLOORING: 20mm FireCrunch SE or 20mm FireCrunch Tongue and Groove panels for flooring. *****

FRAME: Steel or Deep Timber Joists - Min. 140mm. Max. joist Centres 450mm

CEILING: 10mm FireCrunch SE or TE

FireCrunch Solution	No Insulation				
1 Layer 20mm FireCrunch flooring plus Ceiling constructed with:	**FRL** (from above)	**FRL** (from below)	**RISF**	**Rw+Ctr** (from above)	**Rw+Ctr** (from below)
2 layers 10mm FireCrunch	120/120/120	90/90/90	60	61+	55

NOTE: If using SE board ensure all joints are back blocked and fire sealed . TG board does not require back blocking. Apply fire sealant to groove section before finally fixing tongue section in each board. Screw fix only, nailing will void the warranty

FLOORING: 20mm FireCrunch SE or 20mm FireCrunch Tongue and Groove panels for flooring.

FRAME: Steel or Deep Timber Joists - Min. 140mm. with min. 1.15 BMT A-clips and furring channel for two layers of 10mm FireCrunch

CEILING: 10mm FireCrunch SE or TE

FireCrunch Solution	Use 1min 75Kg Rockwool fire batts and relevant thickess of panels as recc by manufacturer for the final depth of interfloor space				
1 Layer 20mm FireCrunch flooring plus Ceiling constructed with:	**Rw+Ctr** (from below)	**FRL** (from above)	**FRL** (from below)	**RISF**	**Rw+Ctr** (above)
2 layers 10mm FireCrunch	55	120/120/120	90/90/90	90	61+

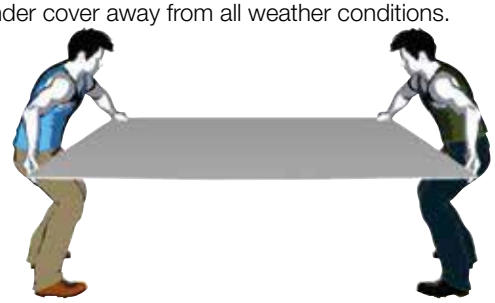
NOTE: If using SE board ensure all joints are back blocked and fire sealed . TG board does not require back blocking. Apply fire sealant to groove section before finally fixing tongue section in each board. Screw fix only, nailing will void the warranty

FireCrunch Ceiling and Flooring Manuals should be followed to ensure correct installation. For FRL ratings the FireCrunch Fire manual must also be followed and used in combination with the Flooring and/or Ceiling manual. Approved fire sealant must be used on all joints to manufacturers specifications.

† Deemed to satisfy solutions (DTS) NCC/ BCA

STORAGE & HANDLING

Store flat, under cover on a horizontal pallet or on supports spaced at 450mm centres. Must be kept under cover away from all weather conditions.



Always handle with at least one person at each end of the board. With hands apart, lift the board and tilt to prevent sagging.

OCCUPATIONAL HEALTH AND SAFETY

The work involved in sawing, drilling, sanding or otherwise treating FireCrunch sheets should minimise dust generation and be carried out in a well-ventilated area. Use a replaceable filter or disposable half respirator to avoid respiratory problems and wear long sleeved shirts and trousers to prevent skin irritation. Industrial safety glasses or non-fogging goggles should also be worn.

WHAT TOOLS DO I NEED?

No special tools are required to use FireCrunch. It can be sawn, drilled, screwed and planed just like timber. It is recommended stud adhesives, are used when fixing the sheets in the wet areas of steel and timber framed buildings.
DO NOT NAIL FireCrunch

CUTTING & MACHINING

FireCrunch is easy to work and machine with normal woodworking tools and equipment. Cut sheets with a fine tooth handsaw or power saw. Edges may be trimmed with a smoothing plane, power plane or sandpaper.

Panels 6mm thick and under can be scored with a cutting knife and snapped along the straight edge in the same way as you would with gypsum board.

Where holes are required clean cutter bits or twist drills are satisfactory.

Woodworking shapers, spindle moulders and high speed routers may be used to shape or mould the edges of FireCrunch. Tungsten carbide tipped cutters are preferred for long production runs.

GENERAL FIXING & INSTALLATION

Always follow the latest installation manuals available on the FireCrunch website. Recommended and tested products on the FireCrunch website must be applied following the manufacturers guides.

RECOMMENDED BOARD THICKNESS USE

Thickness	Recommended Use	Edges
3mm	Heat backing, curving	Square
6mm	Ceilings, walls	Square, Feather
10mm	Walls (internal and external), ceilings	Square, Taper, Chamfer
20mm	External walls, floors, decks	Square, Tongue & Groove
8mm	Ceilings, walls Square	Taper/Recessed

INTERIOR/EXTERIOR LINING

Position fasteners a minimum of 50mm from corners and min. 12mm from edges. All facing surfaces must be finished with suitable and approved finishes.

Stud adhesives should only be used for board positioning, not fastening. Installed boards must be screw fastened.

Board must be weather sealed prior to, or imediately after installation in external applications.

STEEL FRAMING

General wall installation to conventional 20ga metal frame construction in most locations: Use minimum No. 8-18 x 8.5mm HD x 25mm long ribbed bugle **corrosion proof screws** spaced 200mm on centre at panel edges and intermediate framing members spaced up to 200mm on centre (depending on use).

TIMBER FRAMING

General wall installation to conventional wood frame construction in most locations: countersunk ribbed head screws spaced 200mm on centre at panel edges and 200mm intermediate framing members spaced up to 200mm on centre (depending on use).

JOINT TREATMENT

FireCrunch SE panels can be fastened at abutting board edges and optionally covered by PVC or metal joiners, battens or with a compatible caulk. See FireCrunch.net.au for alternatives. (Insert expansion joints 6m max)

FASTENING

For screwing FireCrunch panels to steel framing, use only corrosion proof Countersunk Ribbed Head screws. **All screws must be corrosion proof (stainless steel recommended for external use).**
For screwing FireCrunch panels to wood framing, we recommend using **corrosion proof** 8-10 Countersunk Ribbed Head Class 2 / 3 screws (depending on timber hardness).
Maximum depth between surface of screw head and surface of FireCrunch should be more than 1.5mm on 10 and 20mm board, and flush on board under 6mm should be glued.

Recommended Screw Sizes

Thickness	Screw Length	Thickness	Screw Length
		6mm	12mm
10mm	30mm	20mm	45-50mm

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