Fire Crunch Australian Certified Building Solutions

FIRECRUNCH (FCA)
CEILING INSTALLATION MANUAL

FRL 60/60/60 to 90/90/90

NATA Labs Australia Fire Tested Systems **AS1530**.4 and more

NOTE: FCA ref, is FireCrunch Australia

call today 1300 933 102
sales@firecrunch.com.au

firecrunch.com.au

FIRE TESTED BY NATA / CSIRO & OTHERS

NATA CERTIFIED
NO METAL CORROSIVE CHLORIDE
MgSO4
Sulphate Board

FireCrunch

FireCrunch offers a new era in **eco-friendly and 95% Carbon Neutral building products and building materials.**
FireCrunch is a composite of steel processing derivatives bonded with integral magnesia mix composite materials and processed volcanic scoria. Finely carbonated with a specified level of magnesium Sulphate IP which eliminates any metal corrosion found in regular MgO boards which all have a metal corrosive chloride bonder (Mgchl2) .FCA also uses HD fibre mesh composite sheetings which providesits enhanced strength. FireCrunch has no asbestos, chloride, formaldehyde or any toxic derivatives,,toxic chemicals of VOC that can cause harm to health. FireCrunch is One board with many applications. See SDS web site. See NATA certificates of Content compliance, web site under certification firecrunch.com.au/certification

KEY FEATURES

The fine, densely bonded, mineral fibre structure (1.15g /cm3) of ensures excellent machining and working proper ties using normal woodworking equipment or hand tools. In addition, the smooth face surface provides an ideal base once primed and sealed with recommended products for paint finishing (class 4 to 5 top rate commercial) with all 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 when reversed, although both sides respond equally . FireCrunch is available in a range of accurately dimensioned sheet sizes and in thicknesses but requires 10mm for ceilings over 300mm batten centres.

AUSTRALIAN BCA Standards CERTIFICATION

- BCA Volume Two 2014: Part 3.5.3.4, Fibre cement sheeting
- BCA Volume One 2014: C1.8 Lightweight Construction, C1.10 Fire hazard properties and C1.12 non-combustible components, including state variations for NSW AS/1530.1 National BCA
- BCA Volume Two : Part 3.5.3.3, Fibre Cement Planks and Weatherboard Cladding.
- BCA Volume Two : Part 3.5.3.4, Fibre Cements Sheet Wall Cladding.
- BCA Volume Two : Part 3.5.3.5, Eaves and Soffit Linings.
- BCA Volume Two : Part 3.7.1, Fire separation for FRL, including state variations for SA.
- BCA Volume Two : Part 3.7.4, Bushfire areas to Part 3.7.4.0 and 3.7.4.1, including state variations .

FIRE PROPERTIES
FireCrunch is totally fire resistant. It will not burn in a FIRE STORM.
FireCrunch boards also meet the requirements of the following Methods for fire tests on building materials:
• AS/1530.4 - Fire resistance test to building material – relative standard.
• AS/1530.4 - Components and structures (FRL 60/60/60, FRL 90/90/90- FRL-120/120) .
• AS/1530.1 - Non Combustibility test for materials.
• AS/3837: - Simultaneous determination of ignitability , flame propagation, heat release and smoke release..
• AS/1530.4 - Fire-resistance test of elements of construction.
• AS/1530.8.1- Tests on elements of construction buildings exposed to bushfire attack - Radiant heat and small flaming sources.
• AS/1530.8.2- Tests on elements of construction for buildings exposed to simulated bushfire attack - Large flaming sources.
Complies under AS.1530.4 REGISTERED FIRE ENGINEERS TEST ASSESSMENT REPORT (NCC).
• AND BLUE MOUNTAINS CITY Council NSW CHIEF SURVEYORS ASSESSED APPROVAL 2019/20

FireCrunch is applicable in BAL low, 12.5,19, 29, 40 or FZ (Fire Zone - over 50Kw m2 irradiation, 1200°C) regulation areas and meets the AS/3959 /(2019) Mods requirements, when used to protect timber framing. WEB SITE CERTIFICATIONS.

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. 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 - sealed correctly, FireCrunch is suitable for any wet areas or humidity prone areas. FireCrunch is mould resistant and will not degrade in standing water or flood conditions it remains inert and can simply be
dried, re plaster set and repainted. Exterior applications: wall boards, soffits, lining or decking assessed for AS/ 3959 BAL Fire Zone Regulation). Must be fully weather sealed. Can be painted, papered, tiled, rendered or veneered.

Fire Crunch AUSTRALIAN CERTIFIED BUILDING SOLUTIONS

ENVIRONMENTAL PROPERTIES

During the manufacturing process, in carbonation, FireCrunch draws back 90% of the Co2 created in mfg and makes it a virtually carbon neutral product. FireCrunch is a 45% recycled waste product 100% recyclable. See the FireCrunch website for more environmental properties.

STORAGE & HANDLING

Store flat, under cover on a horizontal pallet or on supports spaced at not more than 450mm centres. Must be kept under cover away from all weather conditions before use. 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 an extractor on power bench saws with replaceable filter or disposable half respirator to avoid respiratory problems and wear long sleeved shirts . 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 using timber tools.

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. 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 RECOMMENDED BOARD THICKNESS USE

Board Thickness	Recommended Use	Edges
12mm	INT/ EXT Fire proof weather board	Ship Lap
10mm	Walls (internal and external), Ceilings	Square, Recessed
16mm	External Walls, Floors, Decks, Roofing	Tongue & Groove
19mm	External Walls, Floors, Decks, Roofing	Tongue & Groove

INTERIOR/EXTERIOR LINING

Position fasteners a minimum of 50mm from corners and min. 12mm from edges. All facing surfaces must be pre-sealed with **AquaCrunch** VAPOUR PERMEABLE Primer sealer (see recc products web site) and uncoated and finished with **Dulux** paints for fine finish . Stud adhesives should only be used for board positioning, not fastening. Installed boards must be screw fastened.

TIMBER FRAMING General wall installation to conventional wood or steel frame construction. Use self countersink ribbed head screws spaced 200mm on centre at panel edges and intermediate framing battens members spaced up to 300mm centres for field of sheets.

STEEL FRAMING General wall installation to conventional Min 20 GA Bluescope steel or similar metal frame construction. Use minimum no. 8-18 x 8.5mm suitable length long, ribbed head bugle corrosion proof screws spaced 200mm centres at panel edges and intermediate framing battens spaced up to 300mm (ceilings) centres (depending on use).

JOINT TREATMENT FireCrunch TE recessed edge boards can be fastened at a butting board edges but must be centred on the backing battons at max 300 centres.
(IMPORTANT) Do not fire seal the plaster set butt joints on internal cladding work.
Gun 3 beads of fire sealant down the backing batten face, use Bostik Fire ban or any AS/1530.4 approved fire sealant.
Do not gun fire sealant between the boards on internal plaster set walls.

SCREWING

All screws must be corrosion proof in all areas, opportunity stainsteel or galvanised.
For screwing FireCrunch boards to steel framing , we recommend using self countersinking ribbed head screws.
For screwing FireCrunch boards to timber or steel framing. We recommend using 8-10 self countersinking ribbed head screws Class 2 / 3 needle point screws. (Depending on timber hardness). (Use self countersinking corrosion proof winged screws for STEEL framing .Maximum depth between surface of screw head and surface of FireCrunch should not be more than 2 /3mm (10,12 ,16 and 19mm board).

Recommended screw sizes

Board Thickness	Screw Length	Board Thickness	Screw Length
10mm/TE	20- 30mm	16mm TG	45-50mm
12mm/TS	20- 30mm	19mm TG	45-50mm

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FIXING NOTES

- TIMBER or STEEL framed ceilings are to be constructed strictly in accordance with the Building Code of Australia and all relevant Standards.

- FireCrunch sheets are to be fixed with the long side at right angles to the 300mm ceiling battens min 0.75 BMT or timber **do not use 0.55mm thick battens.**

- If stud adhesive used, apply 25mm diameter patches of recommended adhesive at a maximum of 200mm centres and a minimum of 200mm from all fasteners.
  Adhesive must not be used instead of screw fasteners, unless specified.

- Firmly hold the boards against the joists while fasteners are positioned and, where possible, start from the centre and work to the ends and edges.

- Fasten 12mm/15mm from the edge and min. 50mm from corners of ceiling at a maximum of 200mm and at a maximum of 300mm centres in the field of sheets.

- Back-blocking is a mandatory fixing requirement where specified in AS/2589 2007. Failure to install back-blocking where required will void the FCA warranty and lead to rectification claims for defective joints. (Use recessed edge board TE 10mm and battons at 300 centres with 1200mm width board to avoid this.

  NOTE: FIRE SEALANT ONLY APPLIED ON THE BATTON BACKING FACE OF BUTT JOINTS NOT BETWEEN BUTT OR RECESSED EDGE JOINTS ON "INTERNAL" PLASTER SET JOINT SHEETS.

- Butting sheet edges between battons is NOT surported by FireCrunch warranties.

  firecrunch.com.au sales@firecrunch.com.au call today 1300 933 102

  The fine, densely bonded, mineral fibre structure (1.15g /cm3) 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 (class 4 to 5 top rate commercial) with specified primer sealer AquaCrunch/Klass. The back surface of FireCrunch is characterised by a coarse, wire screen texture which makes it ideal for rendering and tiling. FireCrunch is available in a range of accurately dimensioned sheet sizes and in thicknesses but requires 10mm for ceilings.

- BCA Volume One : C1.8 Lightweight Construction, C1.10 Fire hazard properties and C1.12 non-combustible components, including state variations for NSW AS/1530.1 and AS1530.4 National BCA.
- BCA Volume Two : Part 3.5.3.3, Fibre Cement Planks and Weatherboard Cladding.

SEALER + UNDERCOAT + PAINTING OR RENDERING :
FireCrunch is a fire and finish board which delivers a minimum class 4 finish. For paint application, (INTERNAL / EXTERNAL) (WARRANTY) first ensure surface is dust free and clean, seal with :

1st step :   **AquaCrunch VAPOUR PERMEABLE sealer (interior and exteriors)** ,

2nd :   you must then apply
                  Dulux Precision MAX ADHESION undercoat, then apply

3rd STEP :   **Dulux** paints or texture top coats.

AquaCrunch sealer primer is obtainable on order from FireCrunch Australia. A Top Class 4 /5 commercial finish is then obtained.
https://www.firecrunch.com.au/recommended-products/

DO NOT ALLOW FIRECRUNCH Boards to get WET or Hydrate over 10% BEFORE Sealing with AquaCrunch Sealant.

Fire Crunch AUSTRALIAN CERTIFIED BUILDING SOLUTIONS

FIRECRUNCH (FCA) CEILING INSTALLATION MANUAL

What type of fastener should I use?

For STEEL FRAMES

We recommend using Self Countersunking Ribbed Head Bugles screws.

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

TIMBER FRAMES

We recommend using 8-10 Countersunk Bugle Head Class 2 / 3 Needle point screws (depending on timber hardness).Maximum depth between surface of screw head and surface of FireCrunch should not more than 3.0mm.
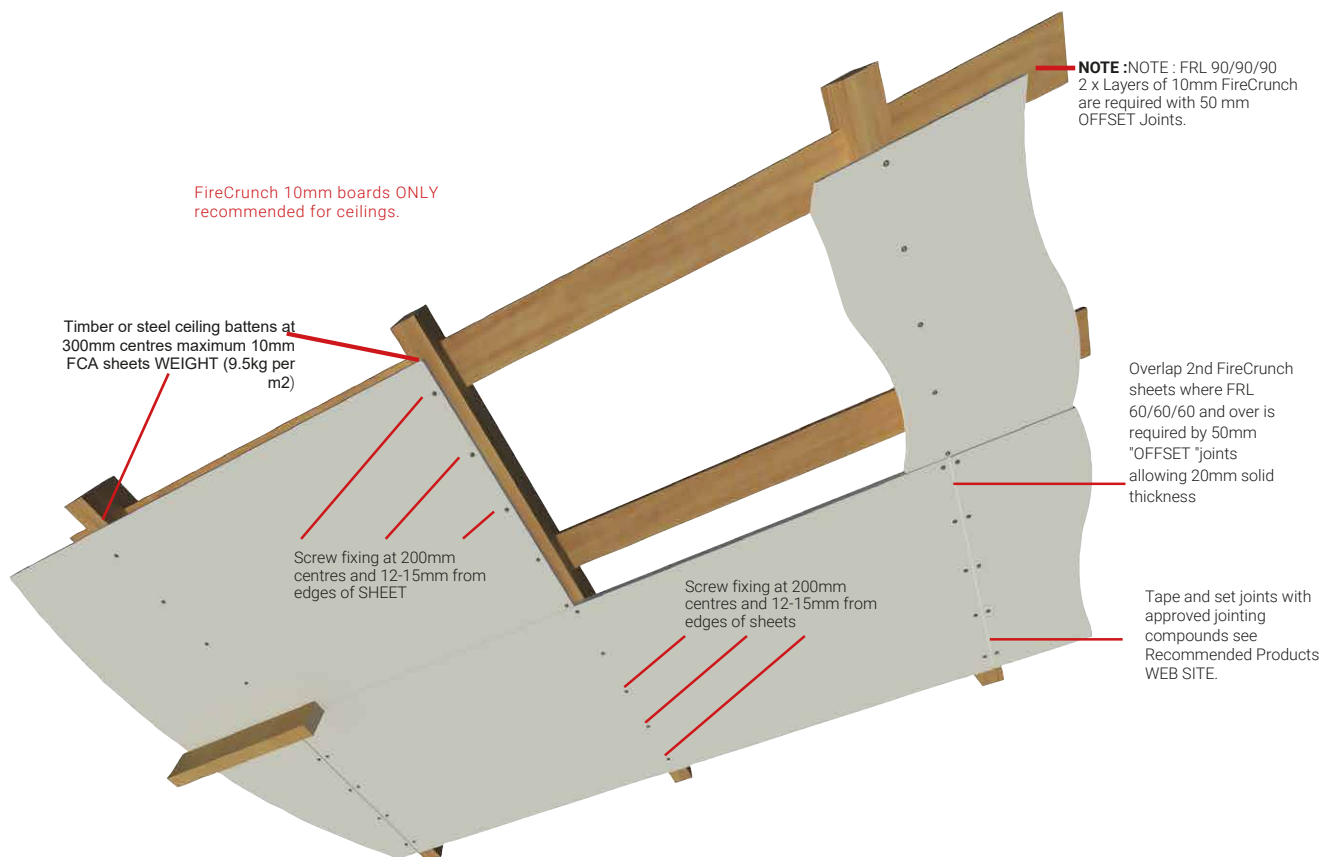
INDICATIVE CONSTRUCTION DIAGRAM
As every building is different the following diagram is provided as an indicative guide to the use of FireCrunch in fire rated dry area situations. Architects, designers and contractors should consult FireCrunch if additional assistance is required.

QUICK NOTES

SCREWS Steel Frame Countersunk Ribbed Head screws timber Frame 8-10 Countersunk Bugle Head Class 2 / 3 Needle Point screws
• Fix at every batten and along sheet centre line
• Butt Joints: Fix at 200mm centres BACK Blocking
Back-blocking is a mandatory fixing requirement where specified in AS/2589.1.2007 in non backed butt joints.

NOTE :NOTE : FRL 90/90/90 2 x Layers of 10mm FireCrunch are required with 50 mm OFFSET Joints.

FireCrunch 10mm boards ONLY recommended for ceilings.

Timber or steel ceiling battens at 300mm centres maximum 10mm FCA sheets WEIGHT (9.5kg per m2)

Overlap 2nd FireCrunch sheets where FRL 60/60/60 and over is required by 50mm "OFFSET "joints allowing 20mm solid thickness

Screw fixing at 200mm centres and 12-15mm from edges of SHEET

Screw fixing at 200mm centres and 12-15mm from edges of sheets

Tape and set joints with approved jointing compounds see Recommended Products WEB SITE.

Fire Crunch AUSTRALIAN CERTIFIED BUILDING SOLUTIONS

FIRE RATED CEILINGS AND FLOORS

STEEL JOISTING
FRL90/90/90 *** = 2 X Layer 10mm FCA UNDERSIDE plus**
1 x Layer 19mm TG ,Top side of joists PLUS ...
Offset joints on underside ceiling (50mm to 75mm) with 10mm sheets and 100mm depth Mineral wool batt min 64Kg Minimum steel C section jointing 250x 75mm 2.4BMT min 450mm floor joisting centres.
***** **NOTE:** The 1st figure ,load bearing ,must be assessed by the projects structural engineer based on the minimum BMT gauge test specifications

TIMBER JOISTING
FRL TO 90/90/90
Min 250mm/ to 300 mm Depth Laminated (LVL) Timber Joists OR Radiata Pine MGP 10 and min 90mmx 45mm 0.75 BMT steel top hats or similar batten separators between joist and 2 x 10mm FireCrunch ceiling boards. PLUS 19mm X-Fire TG19 flooring sheets on top of joists min 450mm joisting centres. Use 100mm min 75/ 80kg Rockwool or Mineral wool batts, for LVL and MGP10.

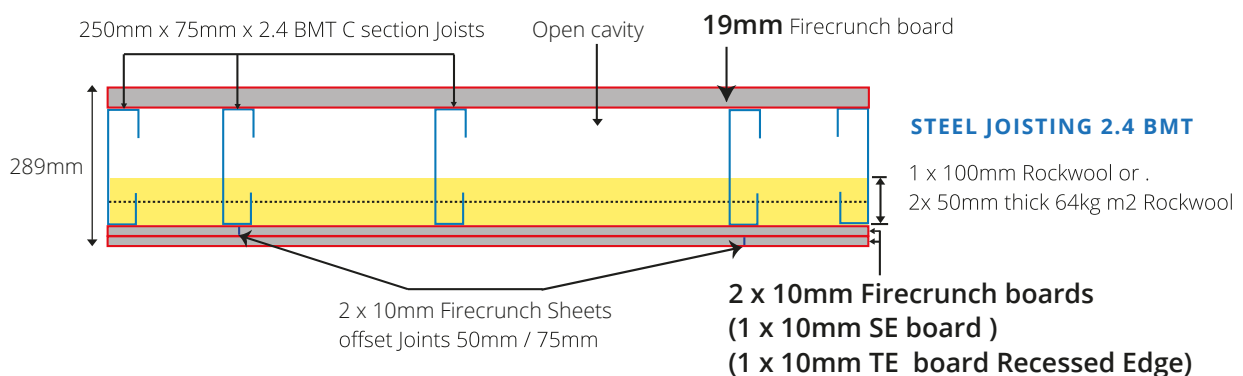## CEILINGS APPLICATION: FLOORING UNDERSIDE OF JOISTS OR CEILING BATTENS
Apply 1 layer of 10mm FireCrunch SQ EDGE board SE10 and at bottom the underside sheet use 1 layer of 10mm TE10
(recessed plaster set edge), as the under finish board, offset joints (min 75mm) FireCrunch board to maintain 20mm solid depth SCREW FIX at 200mm centres,15mm from edges and 50mm from corners.. Insert required 64Kg TO 75Kg (100mm) depth Rockwool or Mineral wool fire batt to 250mm/300mm joist depth cavity.

FireCrunch Solution	No Insulation				
1 Layer 19mm FireCrunch TG flooring plus ceiling constructed with:	**FRL** (from above)	**FRL** (from below)	**RISF**	**Rw+Ctr** (from above)	**Rw+Ctr** (from below)
2 layers 10mm FireCrunch offset joints 75mm SE10 and TE10 type edges below	**90/90/90**	**90/90/90**	90mins	62+	55

FireCrunch 19mm TG: 2700 x 600mm
by using 19mm FireCrunch Tongue and Groove panels for TOP flooring, the rating from the top will be FRL 90/90/90

250mm x 75mm x 2.4 BMT C section Joists　　Open cavity　　**19mm** Firecrunch board

289mm

STEEL JOISTING 2.4 BMT
1 x 100mm Rockwool or .
2x 50mm thick 64kg m2 Rockwool

2 x 10mm Firecrunch Sheets
offset Joints 50mm / 75mm

2 x 10mm Firecrunch boards
(1 x 10mm SE board)
(1 x 10mm TE board Recessed Edge)

(drawing not to scale)

NOTE: 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.

CEILING FLOOR ILLUSTRATION CONSTRUCTION NOT TO SCALE

Fire Crunch AUSTRALIAN CERTIFIED BUILDING SOLUTIONS

FLOOR CEILING CSIRO FIRE TESTED SYSTEM

AS/1530.4-2015 DTS/ BCA FRL ----/90/90 LOAD BEARING FRL 90/90/90

TO ENGINEERING/ ARCHTECTURAL SPECIFICATIONS

Specification floor ceiling system fire tested Resolute Labs QLD Dec 2017 steel
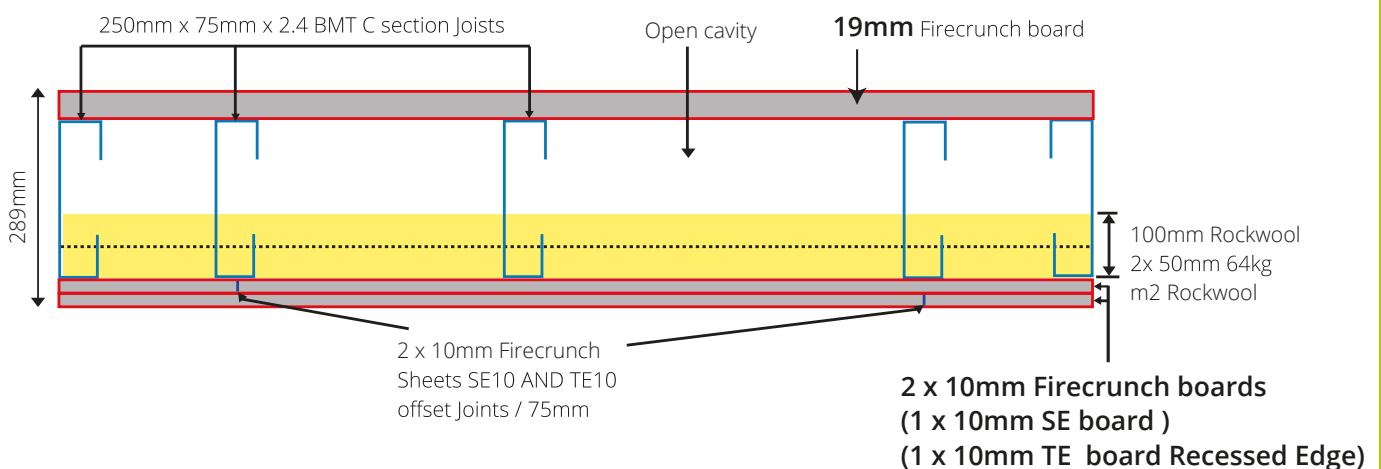C section 250mm x 75mm x 2.4 BMT FRL .../90/90

GENERAL INSTRUCTIONS ASSEMBLIES

- Gun on to underside joist faces 3 x 3mm beads of AS/1530.4 fire sealant and to perimeters of the board installation The single visible underside 10mm board joint will be plaster set. Do not leave more than 1/to 2mm gap between the underside recessed edge ceiling board and do not apply fire sealant to the 1/ 2mm gap between the boards, ONLY TO THE JOIST FACE JOINT POINT.

- Fix the 10mm FCA sheets direct to underside steel C section Purlins, no intermediate battens required for steel joists (offset thru joints OF BOARDS by 50mm/ 75mm TO RETAIN SOLID 20mm THICKNESS).

- TE10 recessed edge board is used for plaster set of the underside ceiling exposed area where flushed joints required. (IMPORTANT) See plaster set instructions : fire manual they are slightly different procedures and compound brand products for FireCrunch MgSO4 boards.
- TOP SIDE of flooring joists 1 x 19mm FCA TG sheet fixed direct to the top (floor area) of steel C section no intermediate battens required (remove rest of words here)
- Insert 100mm thick (0r 2 x50mm) depth Rockwool or Mineral wool fire batt min 64 kg in ceiling floor cavity. Check FCA tech support manual see web site

- Fire seal all perimeters with the AS/1530.4 fire /weather sealant

STEEL Frame CEILING FLOOR
289mm Total Depth

FRL 90/90
FLOORING: 19mm FireCrunch Tongue and Groove panels for flooring. (TOP SIDE).

250mm x 75mm x 2.4 BMT C section Joists

Open cavity

19mm Firecrunch board

289mm

100mm Rockwool
2x 50mm 64kg
m2 Rockwool

2 x 10mm Firecrunch
Sheets SE10 AND TE10
offset Joints / 75mm

**2 x 10mm Firecrunch boards
(1 x 10mm SE board)
(1 x 10mm TE board Recessed Edge)**

Fire Crunch AUSTRALIAN CERTIFIED BUILDING SOLUTIONS