

— build better

[respirabuilt.com.au](http://respirabuilt.com.au)

# bio-based materials

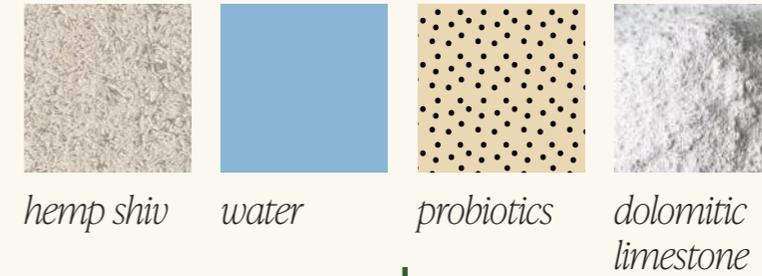
*Respirabuilt is a distributor and installer of low-carbon natural building materials.*

We're reinventing the way the construction industry designs, procures and implements high efficiency, low-carbon, bio-based materials + building systems in their projects.

We support your firm with technical advice and hands-on knowledge.

Building with new bio-based materials is made simple.

*RespiraBlocks are simply regenerative hemp, water, probiotics + dolomitic lime. Sustainable, carbon-negative alternative to traditional products.*



RespiraBlocks use a carbon dense probiotic liquid to achieve a hard set. Other Hemp lime systems rely on a portion of cement to hemp recarbonate the lime binder. RespiraBlocks are the only fully natural Hemp Block in Australia.

PARTNERS:



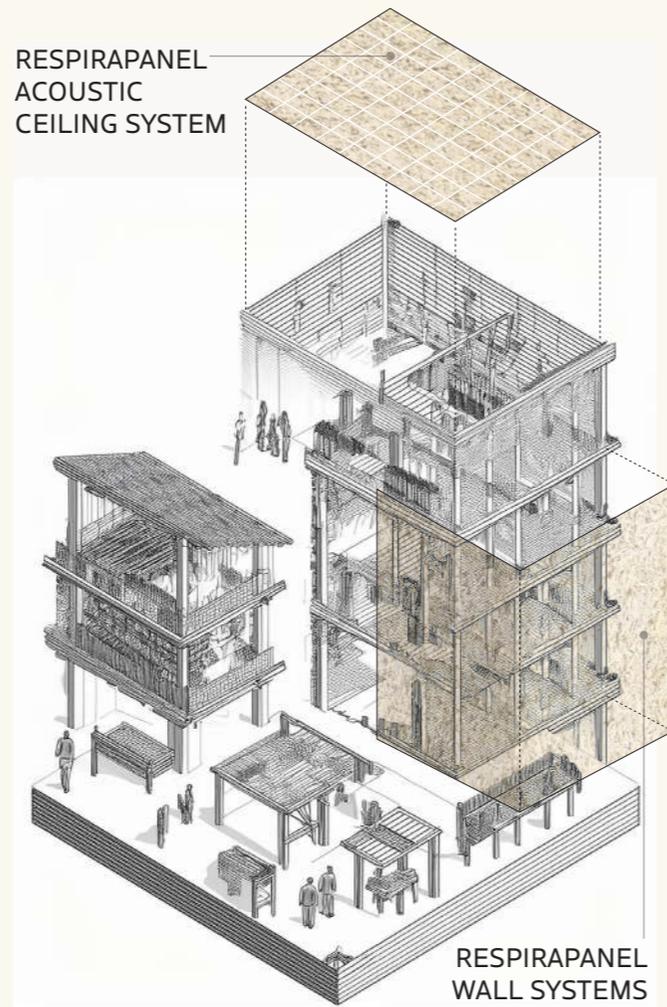
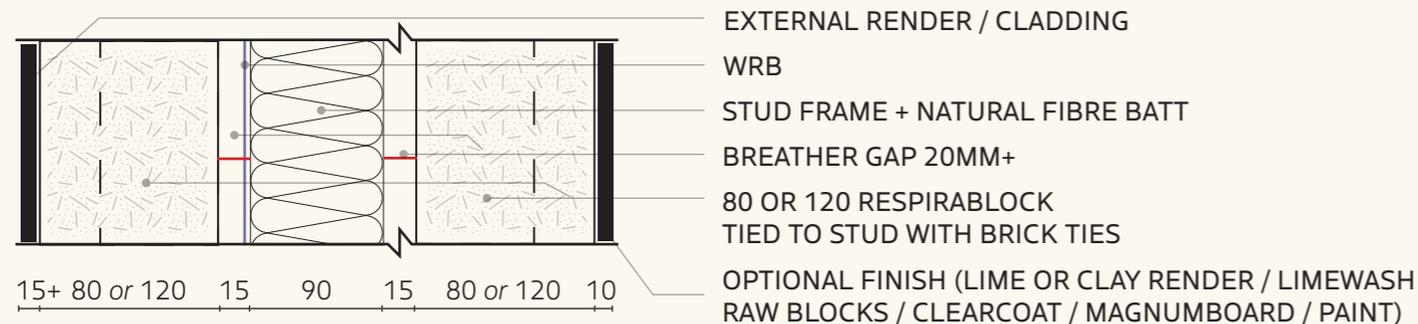


Stepping into a space built with natural materials, you remember what good buildings ought to feel like. A vibrant, life-filled space in which you want to spend time. It's a hard thing to quantify, but it's easy to feel.

In an industry first, our products are purpose-designed to integrate effortlessly with existing Australian construction methods, both in residential and commercial spaces. Install requires no specialised labour and makes Hempcrete products both affordable and quick to install.

This innovation is the path forward to access materials which protect our health, escaping the harmful effects of conventional building materials. With exceptional thermal performance and carbon-negative credentials, our systems makes sustainable living \*conventional\*. We all have goals we want to achieve within the construction industry - we want to provide the path forward to hitting sustainability targets and to create great, long-lasting buildings that showcase good design and sensible construction.

Simple.



**Hempcrete is a Super-Insulator**

Outperforms Hebel and other leading insulators.

**No VOC's - No Sick-Building Syndrome**

Actively works against sicknesses that arise through synthetic building materials (respiratory, inflammation, headaches etc), thought to be caused by indoor pollutants, microorganisms and inadequate ventilation.

**Vapour Open & Breathable**

Moisture and humidity naturally managed. Total comfort. Never muggy and stuffy. Safeguards against humidity spikes common in modern construction.

**Conventional products to install**

Versatile, easy to detail and install materials, designed to work seamlessly with conventional construction methods while eliminating the need for specialised tools or labour.

**Retrofit Applications**

Purpose designed materials to re-clad or insulate existing buildings affordably and effectively.

**Hemp Plant Co2 Absorption x 6**

Hemp plants grows and stores carbon at a rate 6x that of a timber plantation (pine). Lime absorbs Co2 throughout construction.

Total absorption = 40kg / m3 (including carbon footprint of manufacturing)

**Acoustic Performance**

Resolves bouncing sound waves for public, commercial and domestic settings. Great sound absorption provides calm spaces for all typologies.

**Fire rated Solutions**

Specify with a certified and fire tested product to AS1530.3

**Affordable**

Affordable and accessible building materials for a diverse range of projects

*Not just applicable to bespoke resi projects*

Multi-Res & Commercial

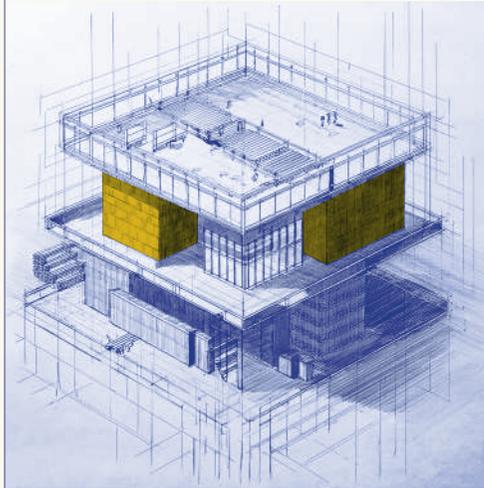
Education & Healthcare

Shop Fitting & Interiors

Domestic & Retrofit

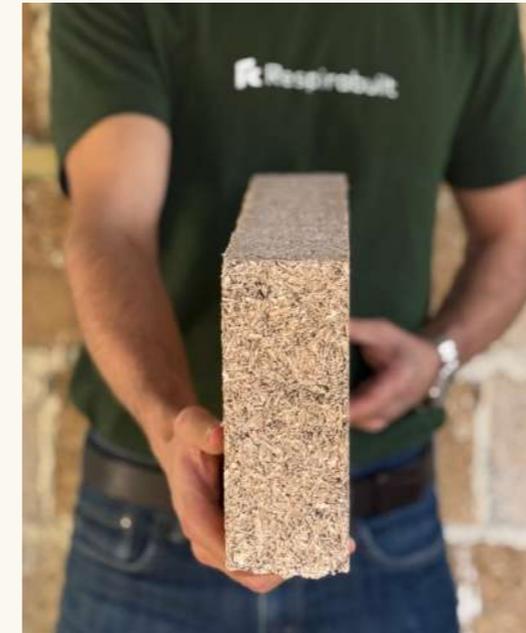
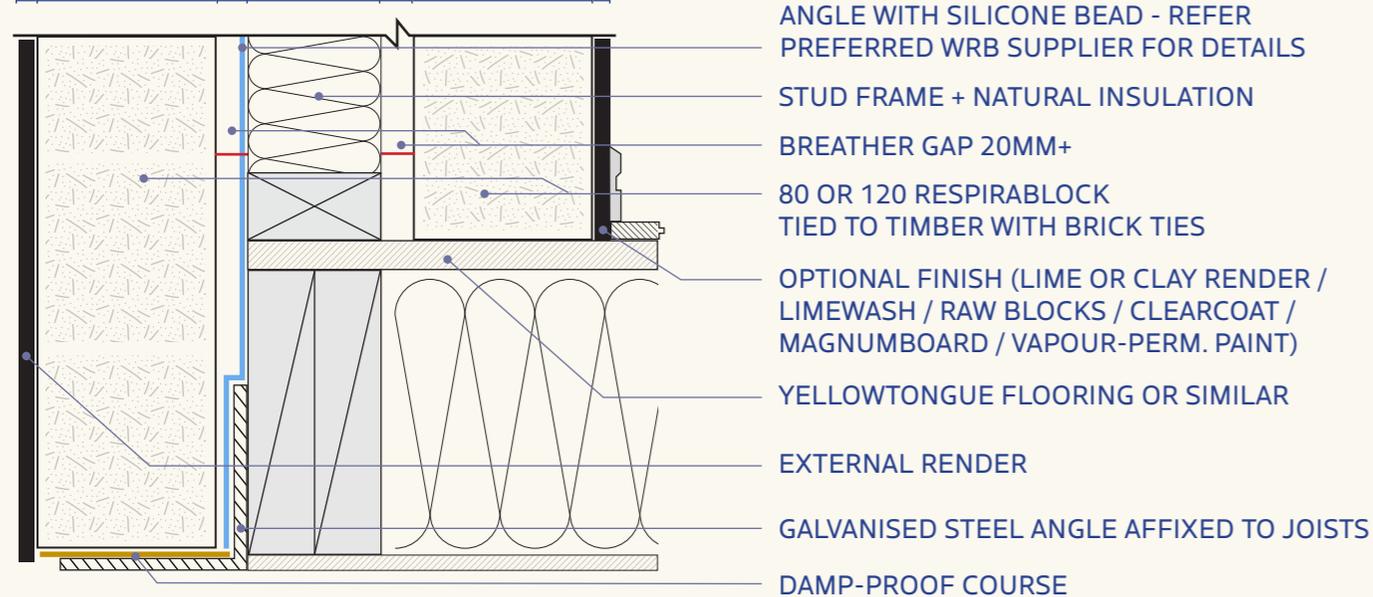
Industrial & Sheds

## Domestic & Retrofit



- Thermal Insulation and Thermal Mass
- Fire Resistant
- Affordable and Accessible
- No VOC's, allergens or pollutants
- Moisture Regulation, Improved Indoor Air Quality

15+ 80 or 120 15 90 15 80 or 120 10



RESPIRABUILT Feature Block - 80mm



Camp Cottages - Tasmania

Rockcote Marrakesh & Lime Plaster Basecoat  
 Architect: Shane Denman Architects  
 Applicator: Southern Cross Solid Plastering  
 Photographer: Andy Macpherson Studio



DIMENSIONS (mm)  
 500 X 200 X 80

R-VALUE  
 1.84

PRICE  
 Contact us for more info

RESPIRABLOCK 80

## Shop Fitting & Interiors



- Strong aesthetic finish
- Modular and pre-fabricated
- Quick / easy site installment and access
- Future-proof with easy deinstall process

*Our RespiraBlocks can also be used in non-traditional ways. For example as plinths or service benches to display items, as reception desks, shelving, chairs.*



*RespiraBlock and lime render finish*



*PERCY PLUNKETT CAFE  
ROCKCOTE Earthen Render Medium  
Designer/Architect: Killing Matt Woods  
Photographer: Dave Wheeler*



*Multi-residential development with Respirablock  
Photographer: Senini*



DIMENSIONS (mm)  
500 X 200 X 120

R-VALUE  
2.67

PRICE  
*Contact us for more info*

**RESPIRABLOCK 120**

## Multi-Res & Commercial

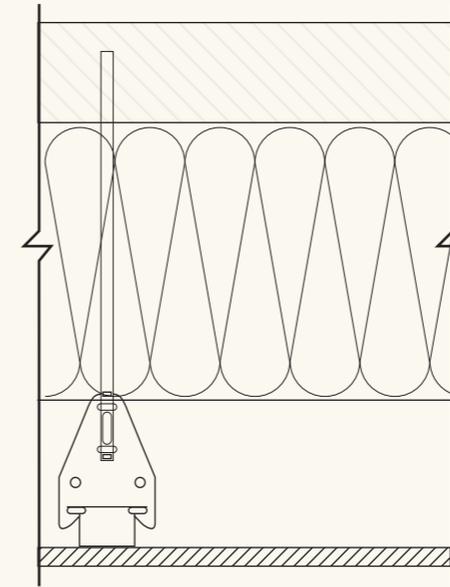


- Carbon sequestration / Carbon negative
- Fire resistance
- Rapid installation, pre-fabricated
- Energy efficiency
- Acoustic and sound dampening

*RespiraPanel can be applied as a finished surface or as a ceiling panel with great acoustic performance in commercial and multi-res spaces - with all the benefits of other hempcrete products. A vapour-open alternative to plaster.*



*Insulated suspended slab for large scale emissions reduction and thermal performance.*



*Drop-down ceiling as per standard detail.  
Inquire for further information.*



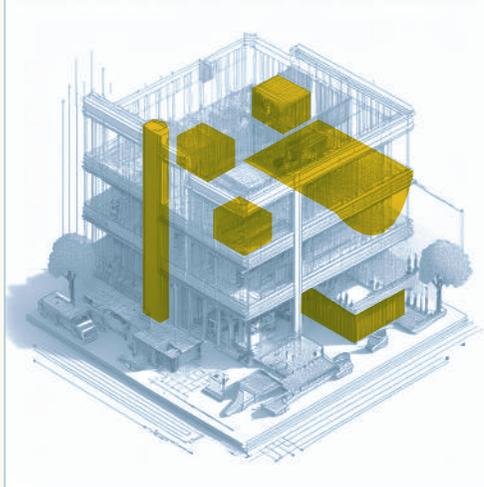
DIMENSIONS (mm)  
600 X 800 x 25mm

R-VALUE  
0.35

PRICE  
*Contact us for more info*

**RESPIRAPANEL**

## Education & Healthcare

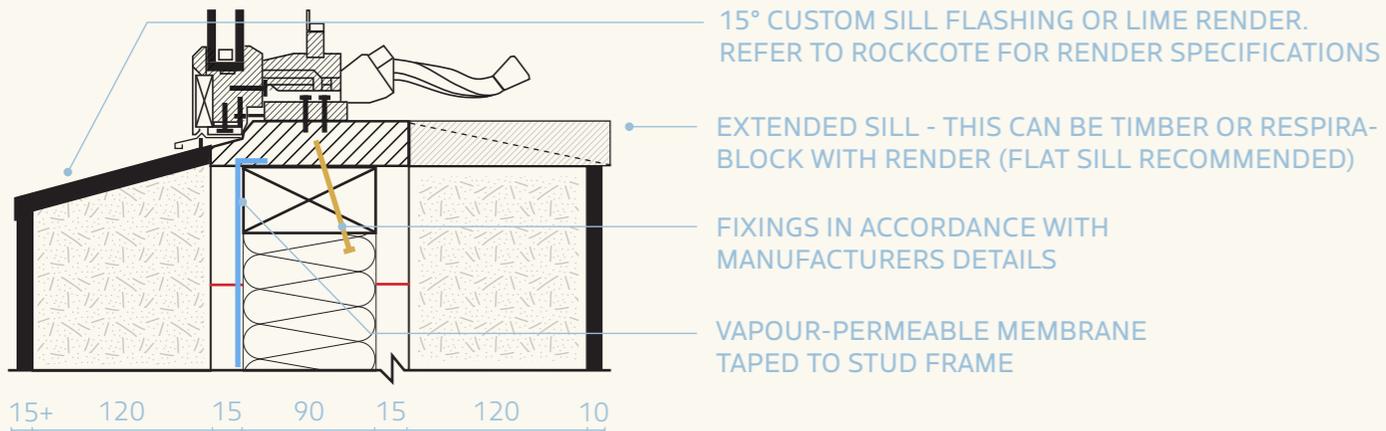


- Bio-philic design
- No VOC's, allergens or pollutants
- Respiratory health of inhabitants / users



- Temperature stability
- Acoustic and sound dampening / echo reduction
- Compatible with standard waterproofing membranes for wet areas and high traffic scenarios

### INDICATIVE WINDOW DETAIL



Current project under construction - Meenyian Community Hub  
 Architect: Public Realm Lab  
 Construction: TS Constructions x Hempcrete Victoria  
 Funded by Australian Government & South Gippsland Shire Council



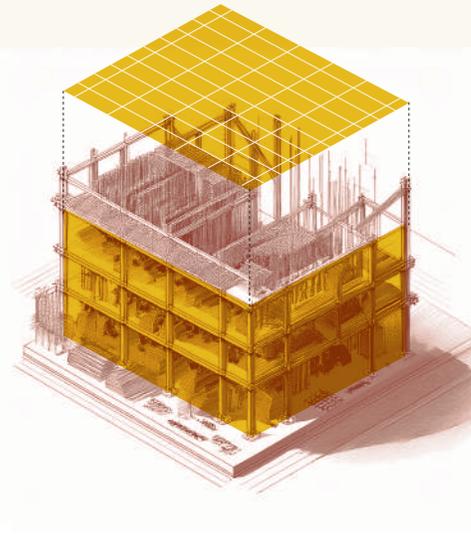
DIMENSIONS (mm)  
 250 X 200 X 80

We love sending out samples, the more hempcrete in the world the better.

So please let us know which products you would like to have and we'll get them to you quick smart.

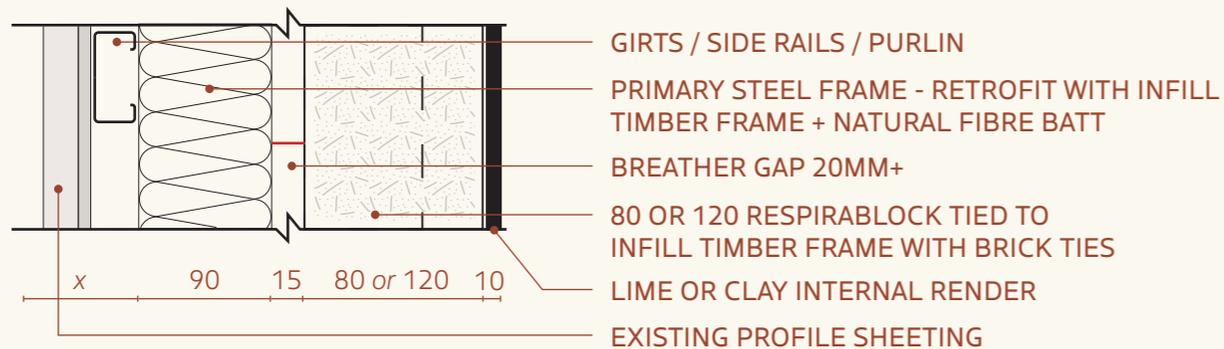
WANT A SAMPLE?

## Sheds + Industrial - ask us for our full HempShed Guide



- Temperature stability
- Rapid installation, pre-fabricated
- Energy efficiency
- Acoustic and sound dampening / echo reduction
- Moisture management

### INDICATIVE STEEL SHED DETAIL



DIMENSIONS (mm)  
Cut to any size & thickness

R-VALUE (90 mm)  
2.3

PRICE  
*Contact us for more info*

**HEMP FIBRE BATT**

# CONSTRUCTION MATRIX



External cladding		Frame / Structure (timber / steel / precast)		Internal Lining	Finishes
RespiraBlock + lime render	Breather Gap Weather Resistant Barrier	Respira Hemp Batt	Breather Gap	RespiraBlock	Vapour-open clearcoat (Murobond or Rockcote Repel)
Standard external cladding				RespiraPanel	Limewash
Existing Cladding (retrofit application)				Plaster Board / Magnum Board	Lime Render
		Cast Hempcrete with timber frame			+ vapour permeable paints

Wider blocks available!  
Talk to us to find out more



Contact us to chat through different wall build up options, trust us, we're obsessed with them.

Technical: [info@respirabuilt.com.au](mailto:info@respirabuilt.com.au)  
Operations: [immanuel@respirabuilt.com.au](mailto:immanuel@respirabuilt.com.au)  
P: 0410 950 135



## BLOCK & BLOCK

Lime Render  
80 or 120 RespiraBlock  
Breather Gap  
Weather Resistant Barrier  
Frame + Natural Batt  
Breather Gap  
80 or 120 RespiraBlock  
Preferred Finish

R-value 6.18 - 7.84  
Depending on block choice

## BLOCK & CAST

Lime Render  
120 RespiraBlock  
Frame  
Cast-In-Place Hempcrete  
Preferred Finish

R-value 5.19  
Wall buildup approx. 300mm

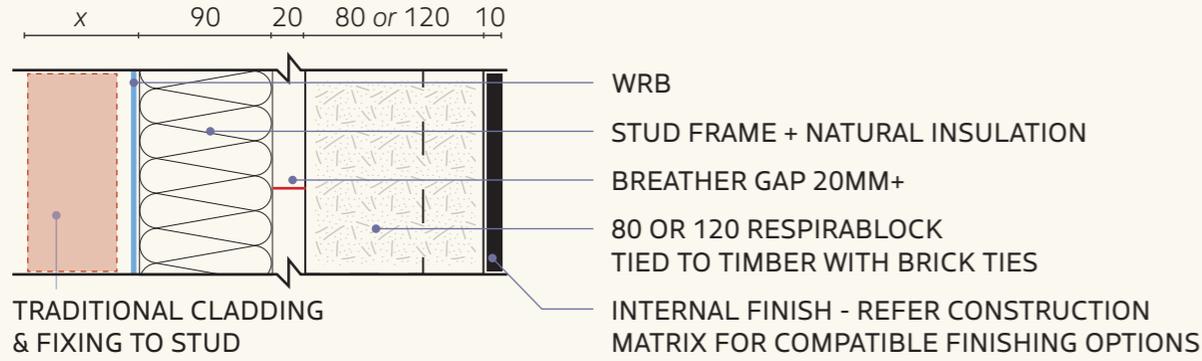
Note that blocks can be changed to 80 or 120, depending on preference or performance scope.



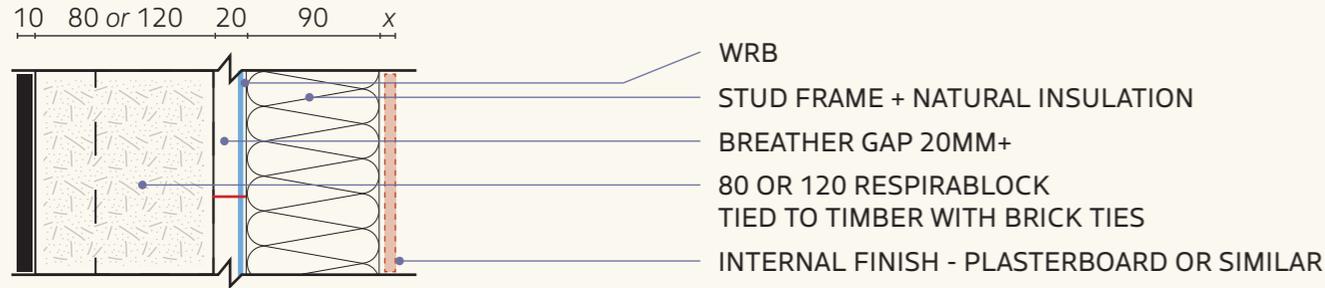
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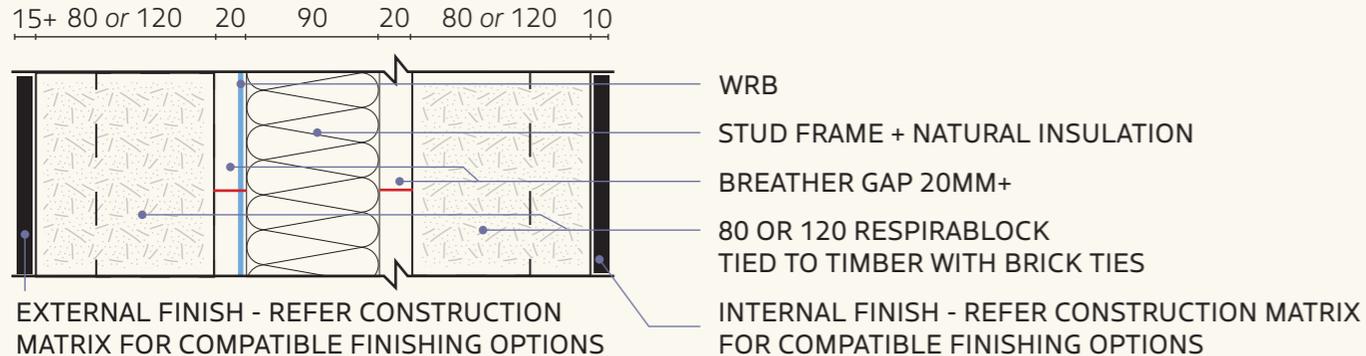
**TRADITIONAL CLADDING DETAIL WITH RESPIRABLOCK INTERNAL**



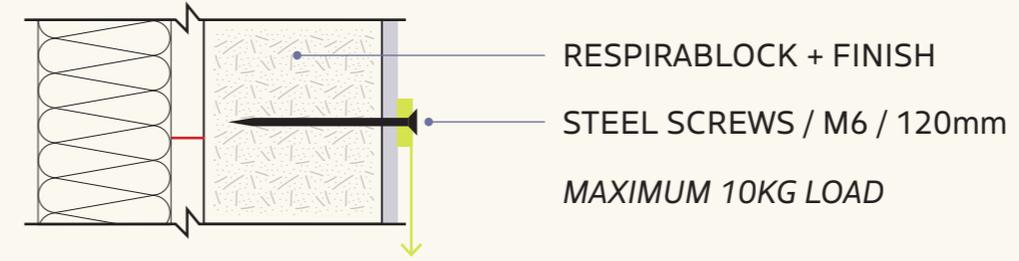
**RESPIRABLOCK VENEER + STANDARD INTERNAL LINING**



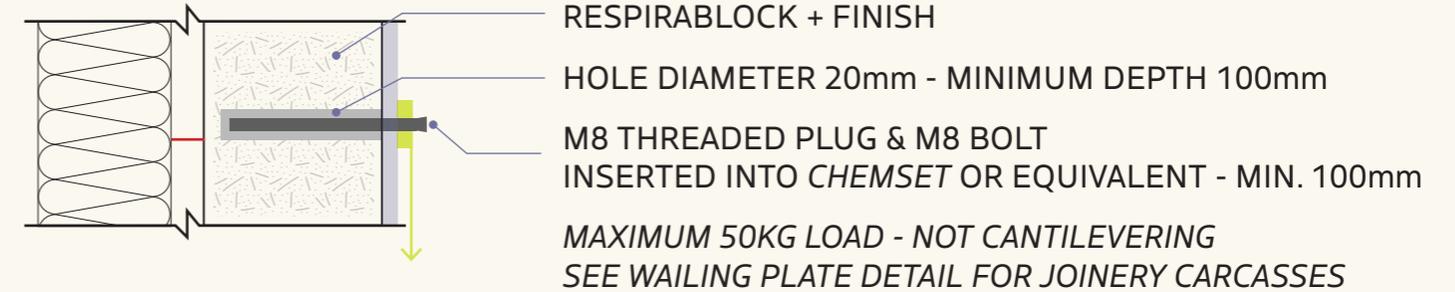
**RESPIRABLOCK EXTERNAL & INTERNAL**



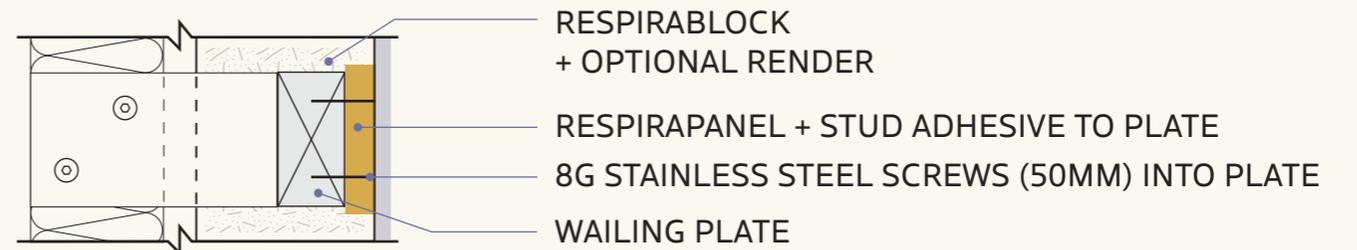
**FIXING INTO RESPIRABLOCK - 10KG**



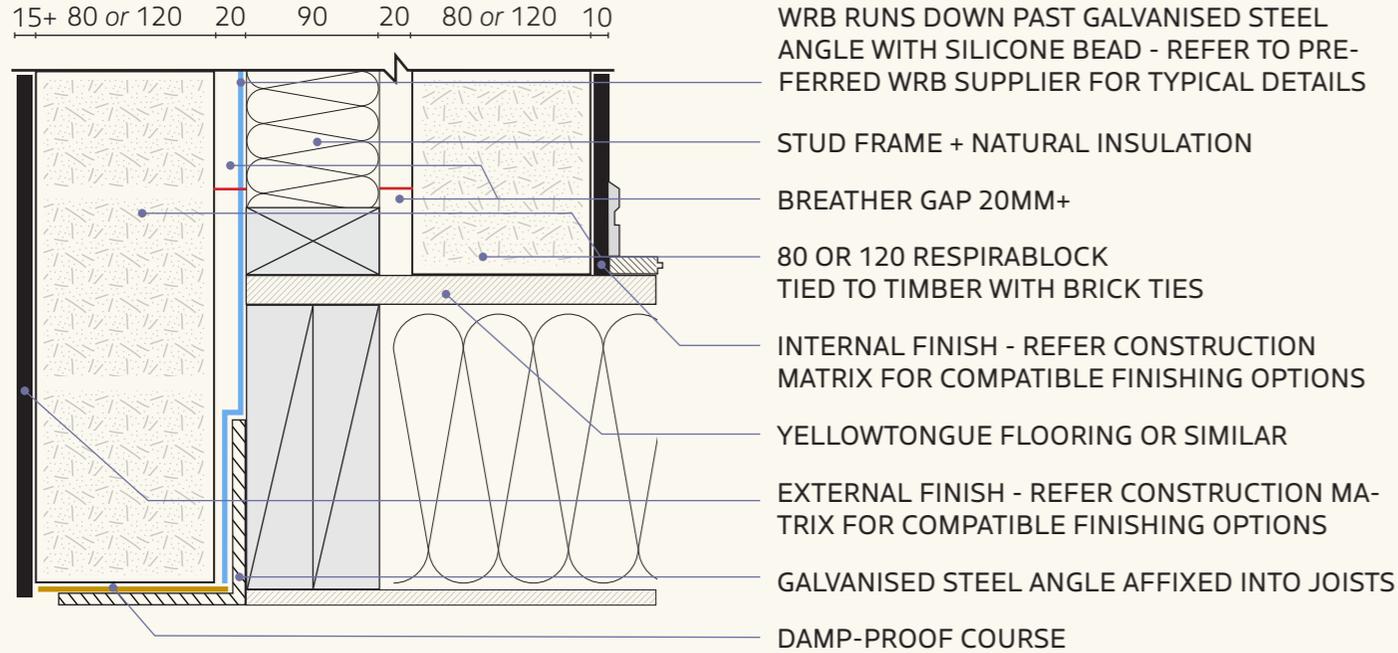
**SINGLE CONNECTIONS - 50KG**



**WAILING PLATE FOR JOINERY + CANTILEVERED LOADS**



**RAISED FLOORS / EXISTING CONDITIONS RETROFIT**

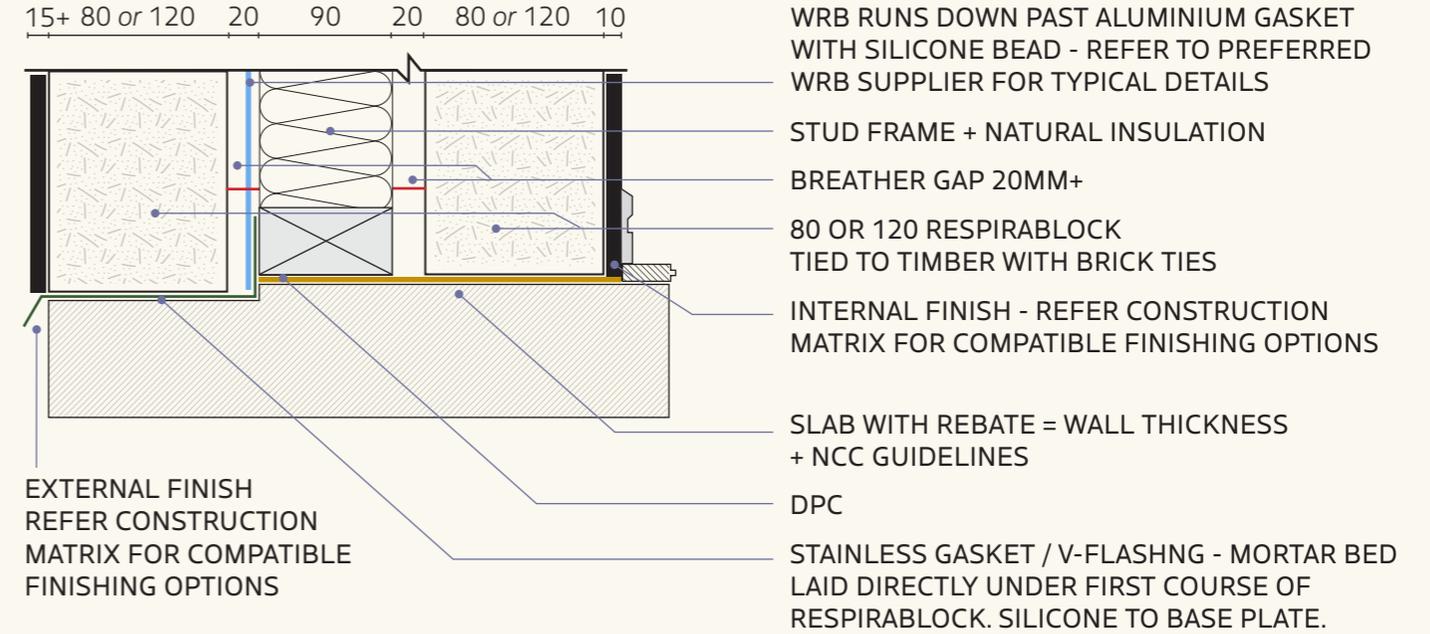


Bitumen paint must be applied to any steel elements that come into contact with hempcrete to prevent corrosion. This includes rafter hangers and gang nail plates if they're coming into contact with the lime mortar

*This detail can be used for retrofitting existing buildings with weatherboard or tin cladding (anything which has been built on a timber frame). Check with your engineer to confirm additional weight bearing on existing structure.*



**SLABS + REBATES**



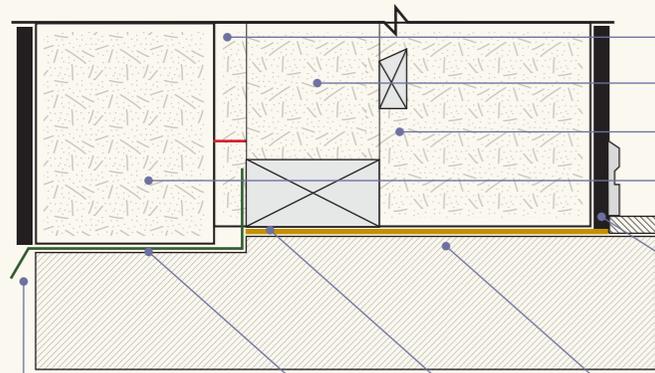
The slab must include a DPC (Damp Proof Course) or a Z flashing under the timber frame, covering the hempcrete footprint. This prevents moisture from rising into the hempcrete. It also creates a drip point for water running down the wall in rain events.

Leave a 20mm gap between the timber frame and the block wall to allow the bricklayer to achieve a plumb and straight wall. This is also important because timber frames do expand and contract, and without the gap there is the potential for cracking along the external mortar lines.

*For fire zones rated BAL 29+ we recommend our 120 RespiraBlock brick externally.*

**CAST + BLOCK**

15+ 80 or 120 20 90 20 80 or 120 10



- VENEER GAP 20MM+  
CAST HEMPCRETE TO INFILL
- STUD FRAME + HORIZ. CLEATS FOR CAST HEMP
- CAST HEMP - MINIMUM 70MM PROUD OF FRAME
- 80 OR 120 RESPIRABLOCK  
TIED TO TIMBER WITH BRICK TIES
- INTERNAL FINISH - REFER CONSTRUCTION  
MATRIX FOR COMPATIBLE FINISHING OPTIONS
- SLAB WITH REBATE = WALL THICKNESS  
+ NCC GUIDELINES
- DPC
- STAINLESS GASKET / V-FLASHNG - MORTAR BED  
LAID DIRECTLY UNDER FIRST COURSE OF  
RESPIRABLOCK. SILICONE TO BASE PLATE.

EXTERNAL FINISH  
REFER CONSTRUCTION  
MATRIX FOR COMPATIBLE  
FINISHING OPTIONS

70mm clear space from the internal face of the timber frame to the finished hemp face is critical to avoid issues with the structural integrity of the cast hemp on the finish face (this includes a no-go zone for services reticulation).

Where you can't achieve 70mm clear space between frame and finished face, use our RespiraPanel direct fix to protrusion. Refer to walling plate details for RespiraPanel fixing information.

Lintels above doors / windows to have a timber plate under the lintel to carry load and act as a 'key' for hemp to cling to. This should protrude 25mm off the face of the lintel. Stainless steel screws placed on an upwards angle also assist in locking in cast in place hempcrete once set. Alternatively use I-beam timber lintels which allow for this naturally.



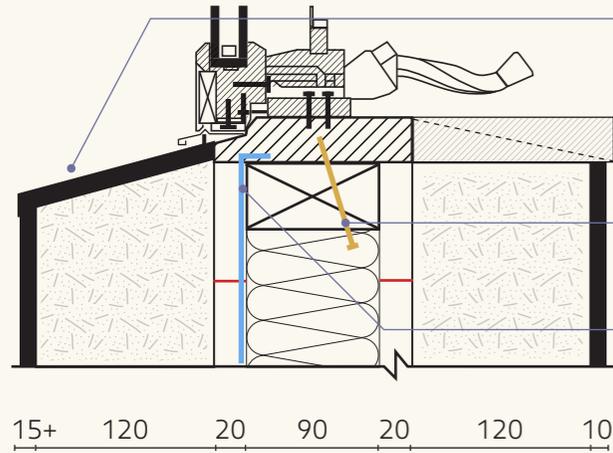
Blocks can be cut using a hand saw, reciprocating saw or even a drop saw into any shape required with ease. For very large jobs, a bandsaw can be used to cut very precise shapes en masse and with ease.

In this picture, Will is carrying 1/2 m<sup>2</sup> of 120mm RespiraBlocks. The equivalent weight for 1/2 m<sup>2</sup> of bricks is 130kg. Huge labour savings.

To read more about the cost-savings vs standard bricks, here's an article we wrote: <https://www.respirabuilt.com.au/post/hempcrete-blocks-vs-bricks>

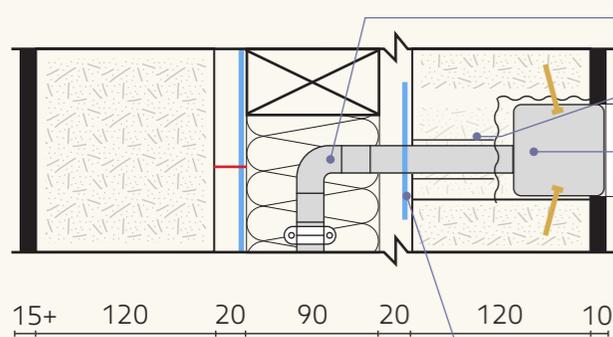


**WINDOWS / DOORS / OPENINGS**



- 15° CUSTOM SILL FLASHING OR LIME RENDER. REFER TO ROCKCOTE FOR RENDER SPECIFICATIONS
- EXTENDED SILL - THIS CAN BE TIMBER OR RESPIRABLOCK WITH RENDER (FLAT SILL RECOMMENDED)
- FIXINGS IN ACCORDANCE WITH MANUFACTURERS DETAILS
- VAPOUR-PERMEABLE MEMBRANE TAPED TO STUD FRAME

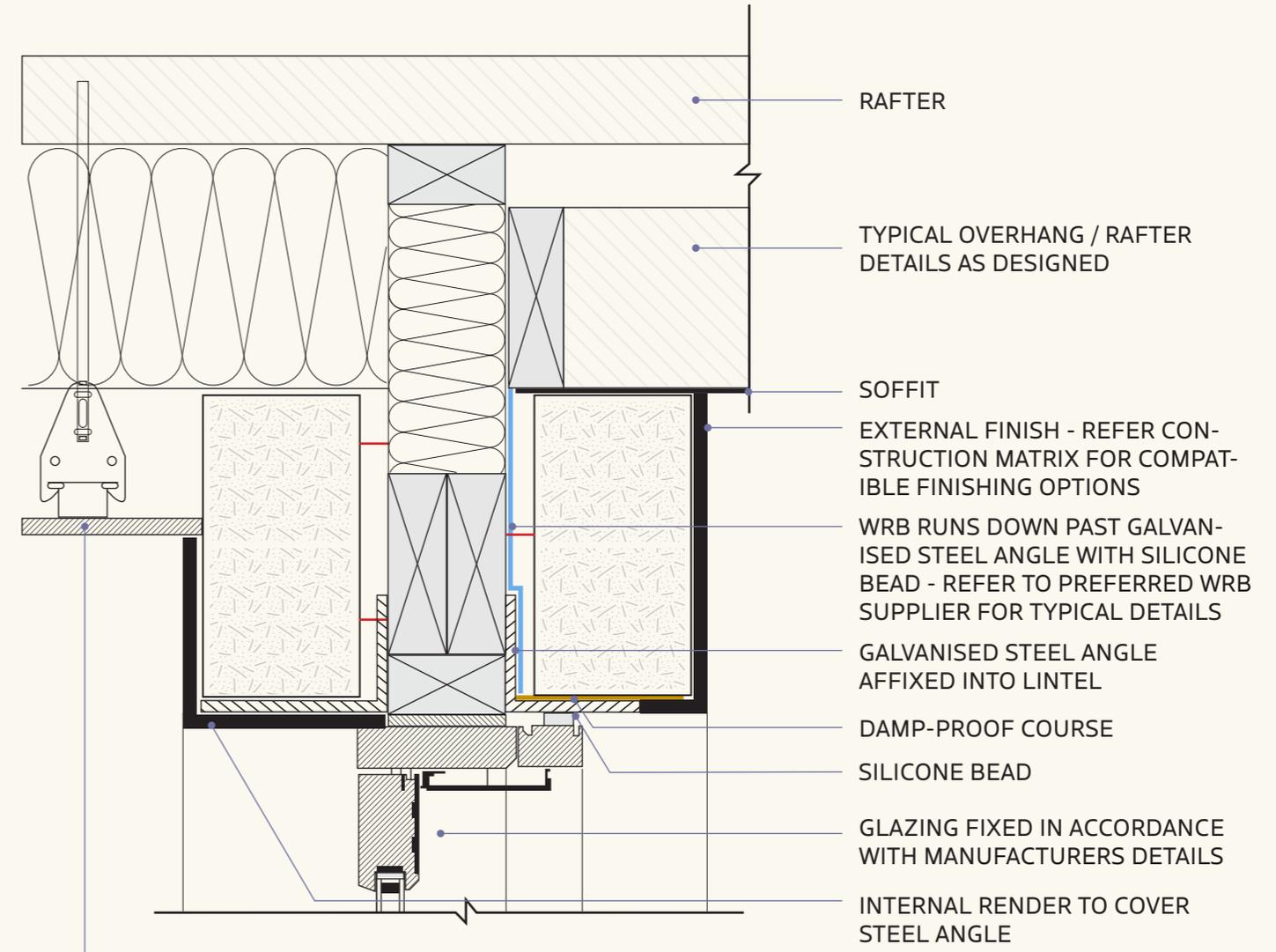
**CONDUIT / ELECTRICAL / PIPE + SERVICES**



- CONDUIT CABLE / PIPE & ELBOWS MUST BE ROUGHED IN BEFORE BLOCK LAYING
- HOLE SAW RESPIRABLOCK TO FIT CONDUIT NEATLY
- USE MULTITOOL TO CUT A NEAT GPO CAVITY - USE BLOWER TO CLEAN OUT DUST FOR GOOD ADHESION
- LINE GPO WITH SIKAFLEX + SLIDE GPO BOX IN AFFIX USING 50MM TIMBER SCREWS AND ALLOW SIKAFLEX TO CURE
- APPLY AIRTIGHTNESS SEAL AND/OR WRAP BEHIND OPENING BEFORE LAYING MORE COURSES. REFER TO PREFERRED BUILDING WRAP PRODUCT DETAILS AND SPECIFICATIONS

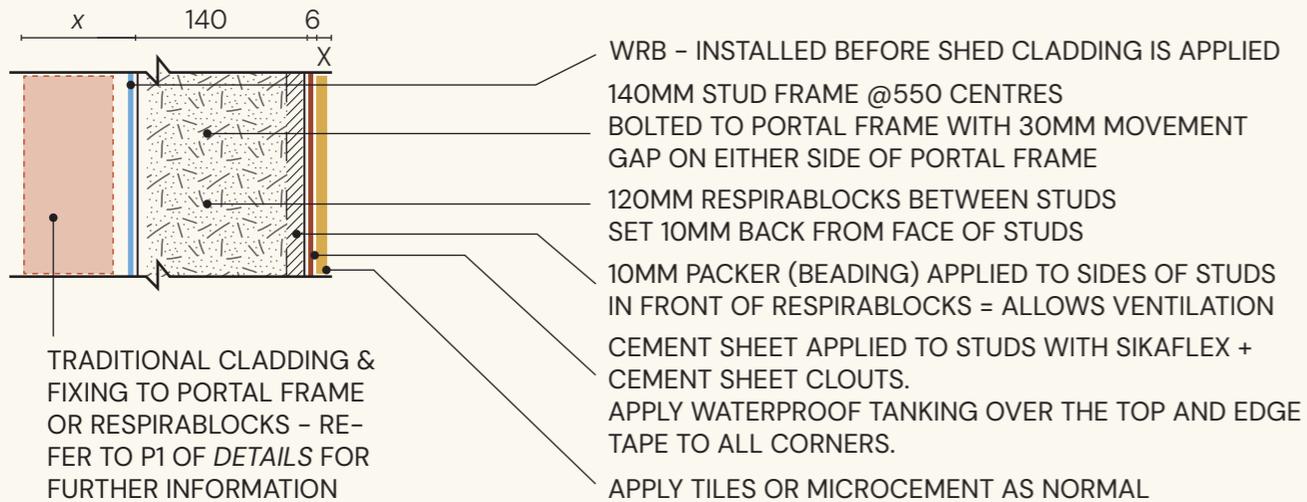
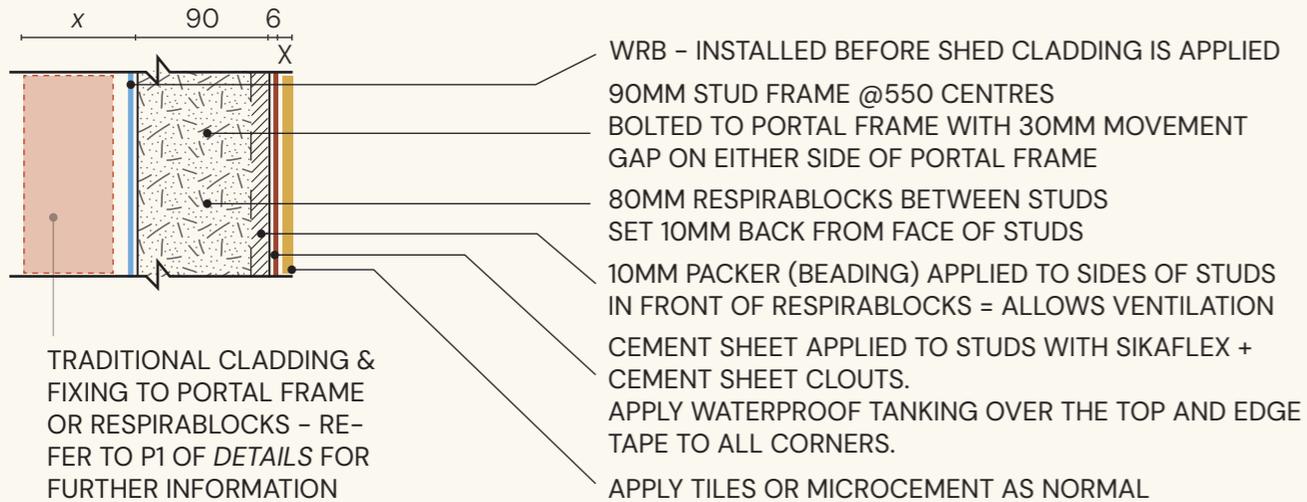


**SUSPENDED CEILINGS / OPENINGS**

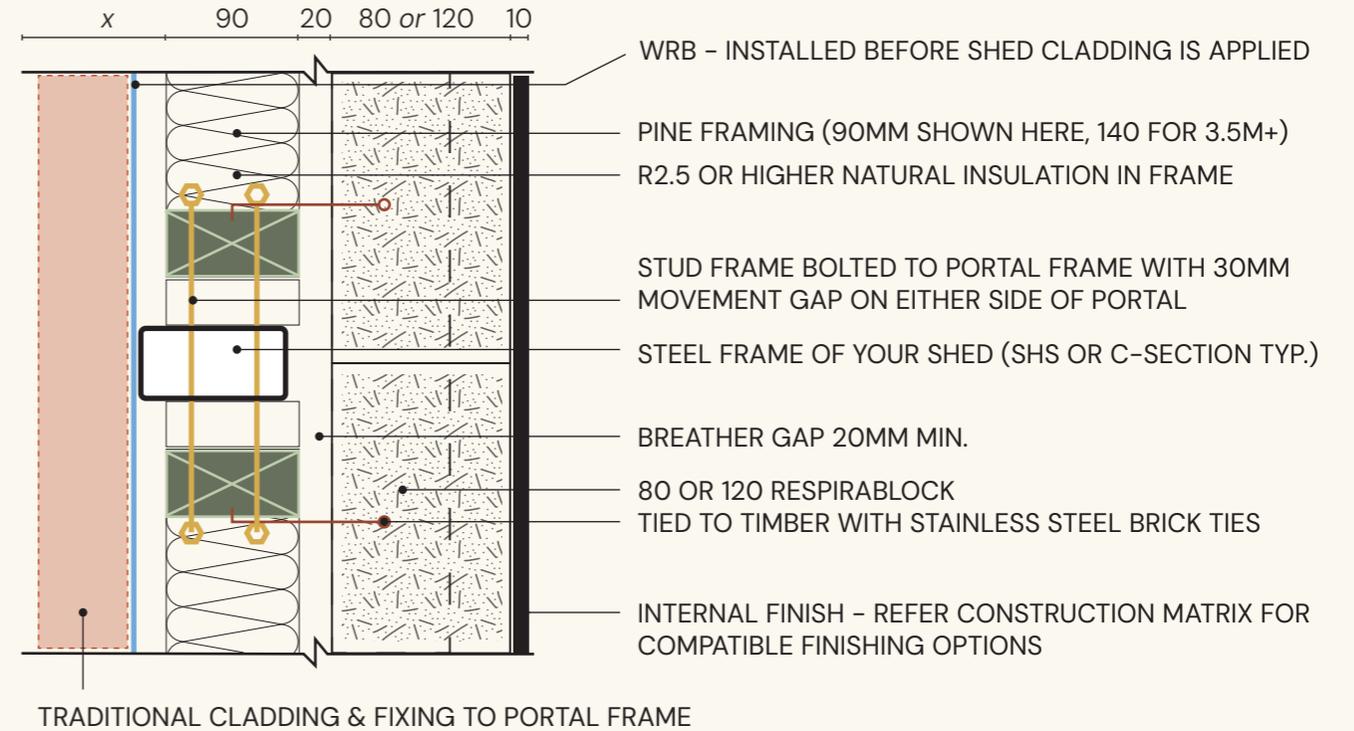


SUSPENDED CEILING - RESPIRABOARD (AFFIXED TO PREFERRED METHOD)

**CEMENT SHEET / WET AREA WALL BUILD UP**



**PLAN VIEW - FRAMING BETWEEN SHED PORTALS + RESPIRABLOCKS INTERNALLY**



We have a complete shed conversion guide available  
Call us or send us an email!



## Technical Information

NB. (height) +/- 1cm		RespiraBlock 80	RespiraBlock 120
Sizes	(WDH in mm)	500 x 80 x 200	500 x 120 x 200
Density	(Kg/m <sup>3</sup> dry)	310	310
Conductivity	(W/mk - LAMBDA λ)	0.048	0.048
Transmittance	(W/m <sup>2</sup> k - U)	0.76	0.53
Thermal offset	(no plaster)	2h 49'	5h 24'
Specific heat capacity	(J/KgK)	1280	1280
Vapour permeability	(μ)	4.5	4.5
Sound absorption coefficient (aw)		1 - CLASS A	1 - CLASS A
Soundproofing index	(RW) - dB		
Compressive strength	(N <sub>2</sub> /mm)	0.4	0.4
Shear traction w. rawplug	(kN)	2,067	2,067
Orthogonal traction w. rawplug	(kN)	2,734	2,734
Reaction to fire with lime plaster		B - s1, d0	B - s1, d0
R-VALUE		1.84	2.67

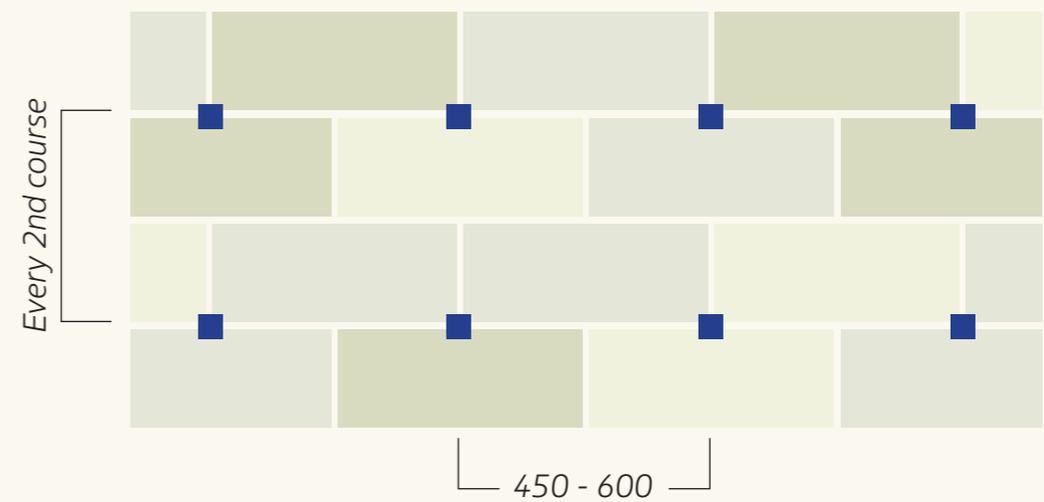
Get in touch for technical assistance and certifications to achieve fire-zone compliance.

We also offer 200mm + 300mm RespiraBlocks check out the technical information on our website.



## Key Considerations

Only use stainless steel ties.  
Ties should be placed at every stud, every second course, as illustrated below.



Set out walls, windows & door heights considering a 200mm high blockwork course with 13mm perps and 13mm bedding mortar. Set out openings at strategic heights.

For walls over 3.5m high the load bearing wall must relieve the excess load on a steel brick lintel (refer engineer specifications).

RespiraBlocks must be up 200mm from Natural Ground Line.

Keep laying progress on walls staggered to a maximum of 2m height per 24hour period.

Veneer cavity must be 20mm minimum between RespiraBlocks and timber frame.

Stainless steel flashing or lime render is recommended to avoid ingress of rainwater between RespiraBlocks and concrete slab at the base of your RespiraBlock wall.

Request the RespiraBlock technical install manual for further information.

All ROCKCOTE products are suitable to be specified as rendered finishes for RespiraBlock systems. Rockcote also offer renders for wet areas.



Rockcote Lime Plaster  
Glass Wholefoods, QLD  
Applicator: Sunshine Coast Rendering  
Photographer: Rachel Lilly



Rockcote Lime Plaster  
Glass Wholefoods, QLD  
Applicator: Sunshine Coast Rendering  
Photographer: Rachel Lilly



Rockcote Coloured Render - Cerano  
La Bella Cellar, QLD  
Applicator: Southern Cross Solid Plastering  
Builder: Adam Farrugia

We are proud to partner with Rockcote, Australia's leading render company, to provide access to their high quality materials and expert installers at discounted rates. You can explore their products below:  
<https://rockcote.com.au/>    [instagram @rockcote](https://www.instagram.com/rockcote)

Finishing options for Internal Hempcrete Walls

**Exposed Clear Coat Finish:** Highlight the natural look of the blocks with a vapor-permeable clear coat, adding warmth and feel to living spaces.

**Painted Finish:** Apply natural tones using oxides for a unique, organic aesthetic that complements various interior styles.

**Fully Rendered Finish:** Achieve a smooth, refined finish, ideal for a modern and elegant spaces.



Rockcote Lime Plaster  
Glass Wholefoods, QLD  
Applicator: Sunshine Coast Rendering  
Photographer: Rachel Lilly



Rockcote Lime Plaster  
Rimba Sweat, NSW - Designer: Daniel Malik  
Renderer: Brendan Roberts, Render Lines  
Builder: Luke Fawcett, Evo Build



Rockcote Coloured Render - Cerano  
La Bella Cellar, QLD  
Applicator: Southern Cross Solid Plastering  
Builder: Adam Farrugia

Lime Render for external walls:

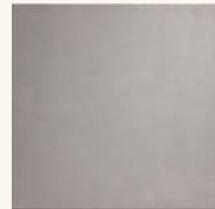
We recommend a durable and visually appealing lime render for the exterior, providing optimal protection and aesthetic value. A surveyor or building certifier will dictate the thickness required of external renders for local weatherproofing requirements. As a rule of thumb external lime renders are generally 12 - 15mm in two coats with a mesh embedded in the first (skim) coat.

# Base Renders

Rockcote systems offer a range of base textures and renders which you can mix with any of the oxides below.  
*Custom mixes available too.*



*Marrakesh*



*Microcement  
(Internal)*



*Lime Plaster*



*Otsuimigaki*



# Custom Oxides



*Natural*



*Colo*



*Warrego*



*Sandover*



*Coolumbooka*



*Coolaburra*



*Balonne*



*Murrumbidgee*



*Diamantina*



*Maranoa*



*Nogoa*



*Barcoo*

STUDIO ESTETA



JUMBLED HOUSE CREATIVE SPACE



Photography: Andrew Barnes

ROCKCOTE Marakesh



JUMBLED HOUSE CREATIVE SPACE



STUDIO ESTETA

Photography: Andrew Barnes



RespiraBuilt Projects and final finishes



*Disclaimer.*

*RespiraBult Pty Ltd will not accept responsibility for any misuse of our products if not applied by a skilled and experienced installer and in accordance with our technical specifications.*

*Due to our policy of continuing product improvement, RespiraBult Pty Ltd reserves the right to change these specifications without further notice.*

*Our goods come with guarantees that cannot be excluded under the Australian Consumer Law.*

*You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage.*

*You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.*

*With thanks, RespiraTeam.*



## let's chat

*We wanted to produce this booklet as an uber handy reference to make it as easy as possible to intergrate hemp into your projects.*

*Put us on your speed-dial for design support.*

Technical [info@respirabuilt.com.au](mailto:info@respirabuilt.com.au)  
+61 411 943 948

Technical lead /  
Co-founder



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+61 411 943 948

Business Dev. /  
Co-founder



Immanuel @  
[respirabuilt.com.au](mailto:respirabuilt.com.au)  
+61 410 950 135

Technical /  
Design



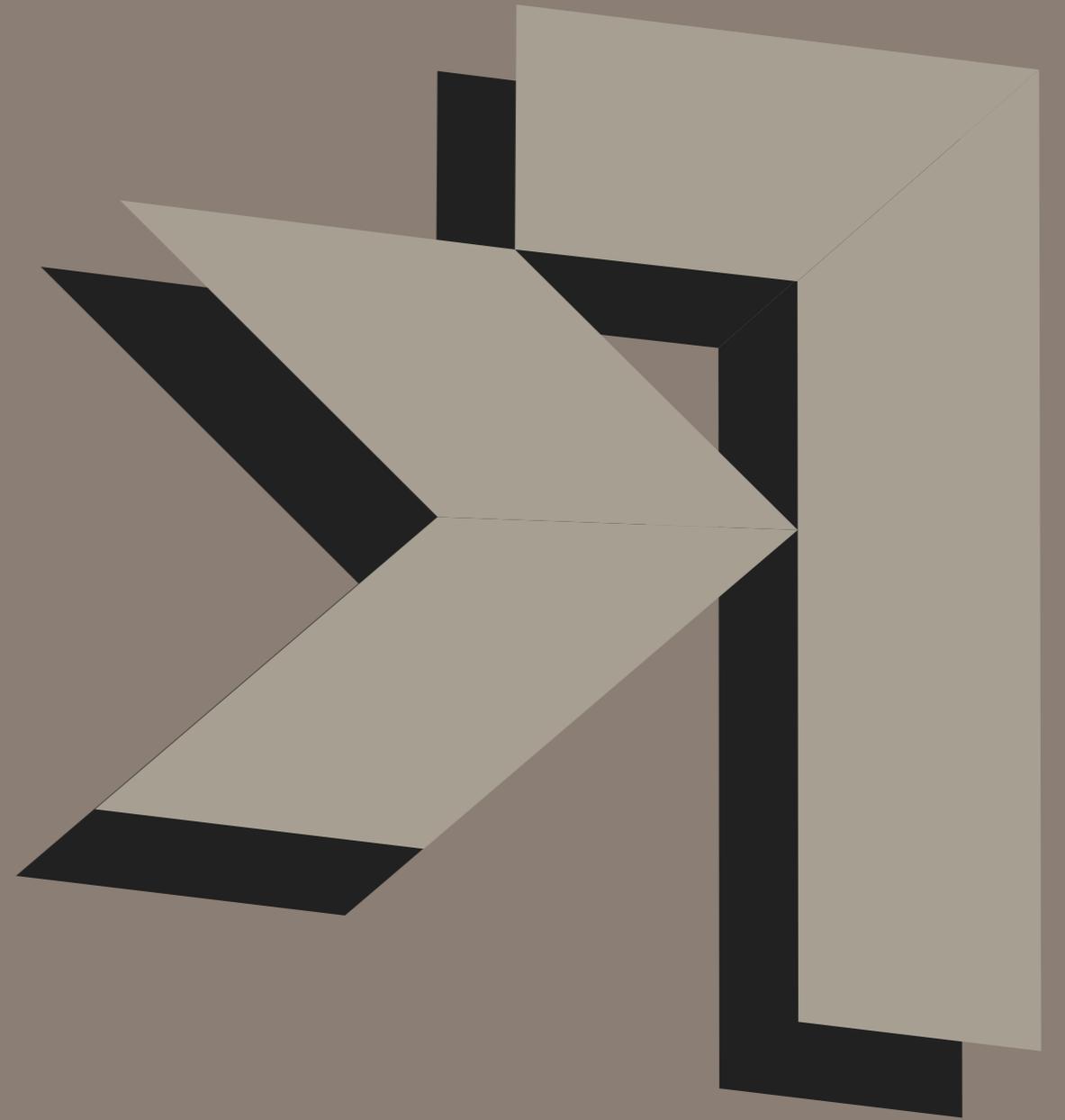
Leonard @  
[respirabuilt.com.au](mailto:respirabuilt.com.au)

Growth  
cooridnator



Heloisa @  
[respirabuilt.com.au](mailto:respirabuilt.com.au)

[respirabuilt.com.au](http://respirabuilt.com.au)



build better