



BAL29
(AS1530.8.1-2007)

Greenboard™ Insulated Wall Cladding

CodeMark™ Accredited 30005 BAL29 BUSH FIRE ATTACK LEVEL



Environmentally Responsible. Energy Efficient. Building Systems.



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NOTE: CodeMark Certification on NRG Greenboard Insulated Wall Cladding Only

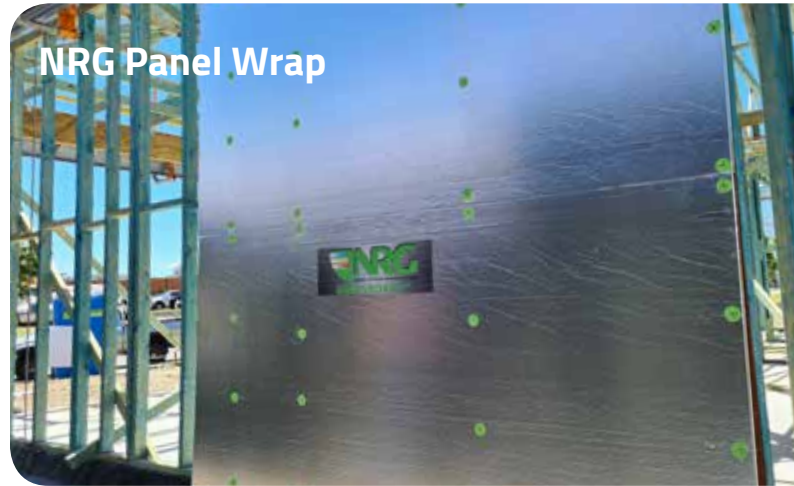
NRG Product Guide

View @ www.nrggreenboard.com

NRG Greenboard Cladding



NRG Panel Wrap



NRG Manufacturing



NRG BAL29

NRG 75mm Certified



NRG Feature Clad

NRG Slimline 150mm
NRG Midline 300mm
NRG Wideline 600mm



NRG Sunhoods & Blades



NRG Green Batts

Wall / Floor / Ceiling
Insulation

R - 1.85
R - 2.11
R - 2.76



NRG Greenboard™ Fencing





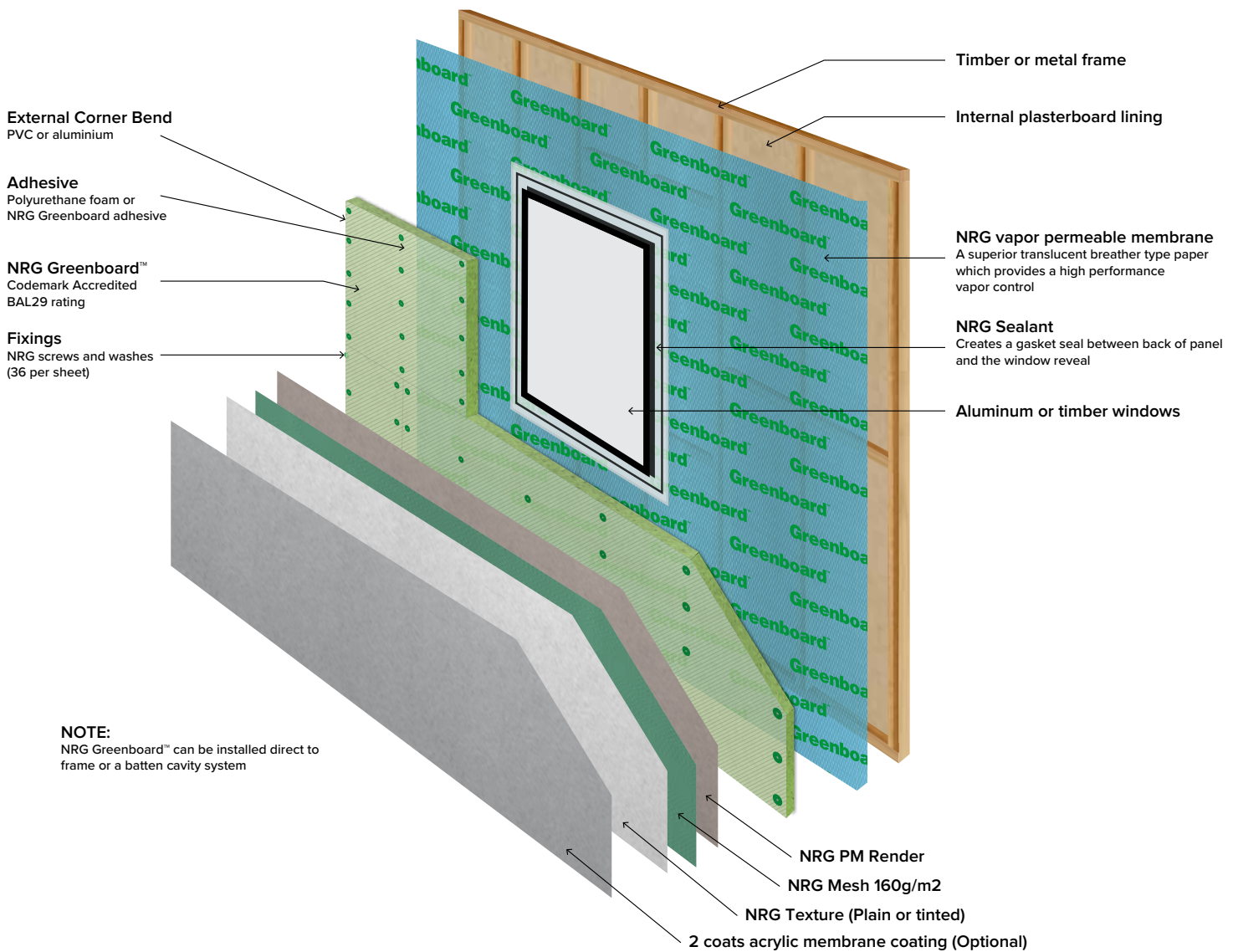
TABLE OF CONTENTS

4	NRG Greenboard Wall System
5	NRG Greenboard Recycling
6	Properties and Advantages of NRG Greenboard
12	NRG Greenboard Installation Procedure
16	NRG Render Specification
17	NRG Bead and Sealant Procedure
19	NRG Greenboard Accessories
20	NRG Greenboard Section Details
34	NRG Greenboard CodeMark Accreditation
38	NRG Greenboard BAL 29(Bush Fire attack Level)
42	NRG Sunhoods and Blades
44	NRG Warranty
45	NRG Greenboard Fencing
46	NRG Greenboard Thermal Rating
47	NRG and the Environment

NRG Greenboard™ Wall System

40mm - 50mm - 75mm - 100mm NRG Panel

Inspired design, Quality Components



**PRODUCT
STEWARDSHIP
PARTNER**

Commercial Recycling Agreement with Retail Industry to tackle imported EPS packaging

STYROCYCLE BINS

Free waste drop-off service at the point of manufacturing for the local community and small business

STYROCYCLE
POLYSTYRENE RECYCLING

**OFFCUTS FROM
PRODUCTION PROCESS**

Scrap generated from the manufacturing process is immediately placed into the recycling stream.

**SCRAP COLLECTION
FROM OUR CUSTOMERS**

We collect offcuts, scrap and unused product from our customer building sites, and bring it back for processing.

**PRODUCT
COMPONENT
FOR RESALE**

NRG PRODUCTS
NRG Greenboard™
Exterior Wall Cladding

NRG Greenboard™ Underslab Installation
Used in thermal resistance under slabs (cold rooms etc).

NRG Greenboard™ Greenbatts
Insulation for new and existing timber floors.

NRG Greenboard™ Sunhoods/Blades
Shading over windows and doors.

GRANULATION

Waste is first broken down using both manual and automatic granulating processes that goes back into EPS Block.

SHREDDING

Waste is shredded in order for it to be melted back down, pelletised and put back into expanded polystyrene (EPS) products



COLLECT

RECYCLE

**NEW
PRODUCT**

NRG Greenboard™ Insulated wall cladding

NRG Greenboard™ is an Insulated Wall Panel that combines exterior cladding with insulation so designers can achieve the 7 star energy ratings that have been introduced into the building code. NRG Greenboard™ insulated core of high density expanded polystyrene, positions the NRG Greenboard™ cladding insulation options from 1.92 R to 3.96 R. Creating an exterior dual cladding system, as a thermal exterior building envelope.

NRG Greenboard™ Insulated Wall Panel is a lightweight, energy efficient product, and once coated, the system provides a weather resistant, seam free rendered finish.

NRG Greenboard™ Advantages

CodeMark Certification

All building products must comply with the NCC (National Construction Code) NRG Building Systems has achieved CodeMark on NRG Greenboard™ Insulated Wall Cladding.

NRG Greenboard™ complies with the NCC.

BAL29

NRG Greenboard™ has passed extensive fire testing procedures (in accordance with AS1530.8.1-2007), by global testing company Exova Warringtonfire, that enables NRG Greenboard™ to comply in BAL29 areas (Bush Fire Attack Level). See BAL29 Specification Guide.

Insulation Qualities

All insulation materials are rated for their performance in restricting heat transfer. This rating is expressed as an R-value which is a measure of the material's resistance to heat transfer (thermal resistance). The higher the R-value the greater insulating effect.

Total Wall R-value for using NRG Greenboard™ (Directfix)				
Thickness (mm)	40mm	60mm	75mm	100mm
R-value on total wall	1.92 R	2.44 R	2.83 R	3.48 R

Sound Rating

NRG Building Systems has tested 60mm NRG Greenboard™ total wall system and the acoustic performance result is Rw35,Ctr-6. 100mm NRG Greenboard Rw38,Ctr-6 Please refer to NRG test results. The NRG Greenboard™ walling system can be further enhanced by using a "sound rated" insulation batt. Please refer to insulation manufacture's specifications.

Flame Retardant

NRG Greenboard™ contains a flame retardant additive and will not support fire, it has a spread of flame index of zero. If in a fire situation the toxic fumes are no greater than that of timber or other building materials.

Grooved Panel

The surface of the NRG Greenboard™ panel is Grooved both sides allowing the inside surface to breathe and channel any possible condensation away through the Grooves, downwards to the base of the wall. This is particularly important where "insulation" or "breather sarking" is used. The exterior surface groove creates maximum adhesion for the NRG Polymer modified render.

Easy to Use

NRG Greenboard™ panel size is 2480 x 1200 and 4960 x 1200 allowing installers to cover the external walls quicker and easier. Sheets can be layed horizontally and vertically. For the builder and their client, NRG Greenboard™ gets the project to lock up stage quicker allowing other trades to start and complete their tasks. Also saving on scaffold costs.

Environmentally Friendly

NRG Greenboard™ requires less energy to produce than other traditional building materials and contains no CFC's or HCFC's. NRG Greenboard™ does not contain ozone depleting substances and none are used in the manufacturing of this product. NRG Greenboard™ can be recycled (SEE NRC RECYCLNG)

VerminRetardant

NRG Greenboard™ contains a termite retardant (Bifenthrin) Repels black ants, white ants, termites, etc.

Render Levels of Finish

Reinforced render is applied to the NRG Greenboard™ substrate at approximately 4-8mm in thickness which allows qualified applicators to screed out imperfections and form a seam free level finish. Refer to NRG website for render specifications.



Greenboard Product Data

NRG Greenboard™ Energy Efficient Insulative Walling System Product Information.

NRG Greenboard™ is an insulative walling system suitable for external cladding of timber or steel framed buildings as well as solid concrete and masonry walls. The system provides a weather resistant, seam free rendered finish in a wide range of textures and colours. It also provides continuous thermal insulation over the entire wall. Developed in Germany in 1973, these systems have been extensively used throughout Western Europe and North America where strict environmental laws are in place governing the energy efficiency of both private and commercial buildings. The system is now well established in Australia ranging from dry arid areas, to tropical and alpine regions, whilst proving energy efficiency, cost effective and flexible construction alternative. The NRG Company is providing and increasing research and development of the system to improve the product.

NRG Greenboard™ Insulative Walling System consists of:

- 14.1.1 An enhanced expanded polystyrene (EPS) insulation board impregnated with an insect repellent compound and flame retardant. The board is mechanically fixed to timber/steel stud framing (direct fix or batten system) or reinforced concrete or masonry wall. The surface of the NRG Greenboard™ panel is grooved both sides allowing the inside surface to breath and channel any possible condensation away through the grooves, downwards to the base of the wall. This is particularly important where 'insulation' or 'vapour permeable membrane' (refer 16.1.9) is used. The additional advantage being that the grooved surface of the NRG Greenboard™ panel provides an excellent 'key' to accept the reinforced render system.
- 14.1.2 NRG Greenboard™ Washers and Screws (Class 3) are used for fixing to timber or steel framing, while special anchors are used for fixing to masonry wall surfaces.
- 14.1.3 External PVC/Aluminium angle beads and window trims.
- 14.1.4 A polymer modified cement render reinforced with an alkali resistant fiberglass mesh and texture coating
- 14.1.5 Acrylic texture coating and or pigmented membrane finished in your selected colour.
- 14.1.6 The NRG Walling System incorporating reinforced renders and textured finish coatings form a complete cladding system from the frame to the finished surface.
- 14.1.7 Vermin Retardant (Bifenthrin).
- 14.1.8 A high impact strength finish (Australian standard AS1170.2).
- 14.1.9 NRG Greenboard™ Insulative Walling System: Sound insulation value - 60mm NRG Greenboard™ Refer (16.1.5 - Acoustic Values (Table D) = Rw 35, Ctrr-6
100mm NRG Greenboard Rw38, Ctrr-6
- 14.1.10 NRG Greenboard™ Insulative Walling System: Is an extremely high energy efficient product, reducing heating costs in winter and cooling costs in summer.
- 14.1.11 NRG Greenboard™ Insulative Walling Systems unique grooved surface provides strength and flexibility of finish, allowing a vast range of architectural designs, finishes and colours to compliment urban design.
- 14.1.12 NRG Greenboard™ Insulative Walling Systems is the ideal substrate for lightweight construction, 2nd storey additions and where reactive soil and mine subsidence areas are concerned.

Properties and Advantages of the NRG Greenboard™ Walling System

NRG Greenboard™ panel is manufactured from high density, rigid, expanded polystyrene. The raw material is gained as a by-product from the manufacture of oil.

NRG Greenboard™ is manufactured without the use of CFC's and does not contain or emit any poisonous gas. In fact, NRG Greenboard™ is made up of 98% air entrapped in a closed cellular structure of polystyrene. This entrapped air accounts for the extremely good insulation properties of the NRG Greenboard™.

The off cuts of NRG Greenboard™ can be recycled and used in virgin material, or melted down and used for other products. This cuts down the impact to our environment, as all the material is being used, leaving a minimal amount of material to be removed from site.



- **98% ENTRAPPED AIR**
- **SUPPORTING THE ENVIRONMENT**
- **NO CFC'S USED IN THE MANUFACTURING PROCESS**
- **NO SITE WASTAGE - USING ALL OFF-CUTS AS ADDED INSULATION OR RECYCLING**

- **SUPPORTING THE CONSUMER BY REDUCING HOME AND BUSINESS ENERGY COSTS**

- **NRG GREENBOARD™ RENDER, REINFORCED WITH 160G/M² FIBERGLASS MESH FOR HIGH IMPACT STRENGTH.**

- **ADDED FIRE RETARDANT WILL NOT SUPPORT COMBUSTION**
- **BAL 29 (BUSH FIRE ATTACK LEVEL)**

- **DESIGN FLEXIBILITY.**
- **FULL RANGE OF COLOURED FINISHES AND STYLES**
- **CODEMARK ACCREDITATED**

- **EXCEPTIONAL THERMAL QUALITIES**

- **ACOUSTIC VALUES**

- **VERMIN RETARDENT**

15.1.1 Insulation for Energy Efficient Buildings

The NRG Greenboard™ system is the most cost efficient method of insulation in terms of R-value per dollar. Unlike some other methods of cladding, NRG Greenboard allow thermal bridging across the timber or steel studs framing. (check with building certifier) NRG Greenboard™ provides a continuous insulative sheath around the entire building.

15.1.2 Warranty - 10yr

i. NRG warrants that the NRG Greenboard™ sheets (the "Product") will be free from defects due to defective factory workmanship or materials prior to the installation of the product for a period of 10 years from the date of purchase, subject to compliance with the conditions published in NRG Product Warranty 2022
www.nrggreenboard.com

15.1.3 Easy to Render

The surface of the NRG Greenboard™ is grooved providing an excellent substrate for Reinforced Render Systems.

15.1.4 Energy Efficient Production

NRG Greenboard™ uses less energy in its production than conventional building materials such as concrete and masonry.

15.1.5 Fashionable Render Finishes

Available in a wide range of Architectural colours and styles (Refer to your selected manufacturers, texture coating specifications).

15.1.6 Design Freedom

Curved walls, rounded corners, embossed patterns, raised wall areas, mouldings and other architectural features are simple to achieve and cost-effective with the versatile NRG Walling System.

15.1.7 Biologically Inert

The board will not rot and provides no nutritive value for insects or micro-organisms.

Design Information General

The NRG Greenboard™ Insulative Walling System forms a continuous weather-resistant thermal envelope around the external walls of the building. The versatility of the building and the workable nature of the NRG Greenboard™ panel permits greater design freedom. This system allows the designer to economically provide a fashionable, long lasting render finish as well as comply with the strictest energy ratings required in modern building codes.

Tests show that a properly insulated building can reduce energy costs by up to 50%. This greatly reduces the running costs of the building in terms of energy savings and reduces the amount of green house gases released into the atmosphere.

16.1.1 Structure

NRG Greenboard™ 40mm, 50mm, 60mm, 75mm and 100mm thick has sufficient strength and rigidity to be supported by wall framing spaced at 450mm and 600mm maximum centres. NRG Greenboard™ can be installed over masonry walls to increase the "R-value" of the masonry wall system or brick veneer construction.

16.1.2 Building - Wind Zones (Table A)

When mechanically fixed to a variety of substrates in accordance with the "NRG Greenboard™ Walling System – Installation Manual for use in the following categories.

Wind Region	Description	Design Wind Velocity
N2	Sheltered Suburban - Non Cyclonic	40
N3	Exposed Suburban - Non Cyclonic	50
C3	Exposed Suburban - Cyclonic	74
C4	Exposed Suburban - Cyclonic	88



NRG Greenboard™ Cladding Fixing Requirements - General Area

40mm NRG Greenboard™ Cladding			50mm -60mm NRG Greenboard™ Cladding			75mm-100mm NRG Greenboard™ Cladding		
Wind Classifications	Stud Spacings (mm)	Fastener Spacing Vertical (mm)	Wind Classifications	Stud Spacings (mm)	Fastener Spacing Vertical (mm)	Wind Classifications	Stud Spacings (mm)	Fastener Spacing Vertical (mm)
N1	450	300	N1	450	300	N1	450	300
N2	450	300	N2	450	300	N2	450	300
N3	450	300	N3	450	300	N3	450	300
N4	450	300	N4	450	300	N4	450	300
N5	450	200	N5	450	200	N5	450	275
C1	450	300	C1	450	300	C1	450	300
C2	450	200	C2	450	200	C2	450	250
C3	450	130	C3	450	130	C3	450	175
C4	450	90	C4	450	90	C4	450	115

40mm NRG Greenboard™ Cladding			50mm -60mm NRG Greenboard™ Cladding			75mm-100mm NRG Greenboard™ Cladding		
Wind Classifications	Stud Spacings (mm)	Fastener Spacing Vertical (mm)	Wind Classifications	Stud Spacings (mm)	Fastener Spacing Vertical (mm)	Wind Classifications	Stud Spacings (mm)	Fastener Spacing Vertical (mm)
N1	600	300	N1	600	300	N1	600	300
N2	600	300	N2	600	300	N2	600	300
N3	600	250	N3	600	250	N3	600	250
N4	600	225	N4	600	225	N4	600	225
N5	600	150	N5	600	150	N5	600	200
C1	600	250	C1	600	250	C1	600	250
C2	600	150	C2	600	150	C2	600	250
C3	600	95	C3	600	95	C3	600	130
C4	600	65	C4	600	65	C4	600	85

NRG Greenboard™ Cladding Fixing Requirements - Within 1200mm of edge

40mm NRG Greenboard™ Cladding			50mm -60mm NRG Greenboard™ Cladding			75mm-100mm NRG Greenboard™ Cladding		
Wind Classifications	Stud Spacings (mm)	Fastener Spacing Vertical (mm)	Wind Classifications	Stud Spacings (mm)	Fastener Spacing Vertical (mm)	Wind Classifications	Stud Spacings (mm)	Fastener Spacing Vertical (mm)
N1	450	300	N1	450	300	N1	450	300
N2	450	300	N2	450	300	N2	450	300
N3	450	250	N3	450	250	N3	450	300
N4	450	225	N4	450	225	N4	450	230
N5	450	150	N5	450	150	N5	450	160
C1	450	250	C1	450	250	C1	450	240
C2	450	150	C2	450	150	C2	450	160
C3	450	95	C3	450	95	C3	450	100
C4	450	65	C4	450	65	C4	450	70

40mm NRG Greenboard™ Cladding			50mm -60mm NRG Greenboard™ Cladding			75mm-100mm NRG Greenboard™ Cladding		
Wind Classifications	Stud Spacings (mm)	Fastener Spacing Vertical (mm)	Wind Classifications	Stud Spacings (mm)	Fastener Spacing Vertical (mm)	Wind Classifications	Stud Spacings (mm)	Fastener Spacing Vertical (mm)
N1	600	250	N1	600	250	N1	600	250
N2	600	225	N2	600	225	N2	600	225
N3	600	210	N3	600	210	N3	600	210
N4	600	140	N4	600	140	N4	600	170
N5	600	90	N5	600	90	N5	600	120
C1	600	140	C1	600	140	C1	600	160
C2	600	90	C2	600	90	C2	600	120
C3	600	60	C3	600	60	C3	600	75
C4	600	45	C4	600	45	C4	600	50

16.1.4 Insulation Values (Table C)

All insulation materials are rated for their performance in restricting heat transfer. This rating is expressed as an R-value which is the measure of material's resistance to heat transfer (thermal resistance). The higher the R-value, the greater the insulating effect.

Cavity Systems add 0.48R

Thickness	40	60	75	100
Thermal conductivity at 23oC (W/m2.k)	0.037			
R-value of insulation material	1.03	1.54	1.93	2.57
Total R-value of wall from Rendered Greenboard™ Reflective sarking, cavity plasterboard	1.92R	2.44R	2.83R	3.48R

16.1.5 Acoustic Values - NRG Greenboard™ (Table D)

Summary of Acoustic Test Results: - 60mm NRG Greenboard™		Acoustic Performance
Side 1	6mm concrete render applied to 60mm thick expanded polystyrene foam. The polystyrene applied with sheet lengths vertical.	R _w 35, C _{tr} -6
Framing Side 2	90mm timber studs at 450mm centres 10mm Plasterboard applied with sheet lengths vertical. Edges caulked with expanding polyurethane foam.	R _w 38, C _{tr} -6 100mm
Ron Rumble Pty Ltd, Consulting Acoustical & Vibration Engineers - 28th August 2006		

The NRG Greenboard™ walling system can be further enhanced by using a 'sound rated' insulation batt (Refer to Insulation manufacturer's specifications).

16.1.6 Impact Resistance

The NRG Greenboard™ Walling System when installed in accordance with "NRG Specifications & Installation Manual" will have adequate resistance to impact loads likely to occur in normal residential and commercial use. The likelihood of damage in public areas in or around residential, commercial or industrial buildings where heavy impacts could occur should be considered at the design stage. Heavier grade fibreglass reinforcing mesh or multiple layers should be used and appropriate protection or barriers should be provided in vulnerable areas.(Tested to As1170)

16.1.7 Hazardous Building Materials

When installation is complete the NRG Greenboard™ Walling System and the NRG Greenboard™ Reinforced Render System is non-hazardous.

16.1.8 External Moisture

The "NRG Specifications & Installation Manual" contains specific details and instructions for flashing details, finishing to edges and sealing penetrations. Head, sill and jamb flashings must be used as specified. The NRG Greenboard™ Walling System must not be allowed to come into contact with the ground.

16.1.9 Sarking

NRG Building Systems requires the use of Class 4 vapour permeable membrane, fixed directly onto the substrate(AS 4200.1:2017)



16.1.10 Early Fire Hazard Properties (Table E)

NRG Greenboard™ contains a flame retardant additive to inhibit accidental ignition from small flame source.

Note:

NRG Greenboard™ System must be separated from heat sources such as fireplaces, chimneys or flues. NRG Greenboard™ System Does not provide a fire rated wall or boundary walls. (Unless used with 16mm Fire Check)

NRG Greenboard™	Index	Rating
Ignitability	(0-20)	6
Spread of Flame Index	(0-10)	0
Heat Evolved	(0-10)	1
Smoke Developed	(0-10)	4

NRG Greenboard™ Installation Procedure

17.1.1 Installation Procedures NRG Greenboard™

Walling System

This manual provides information on the correct procedures and materials to be used for the installation of NRG Greenboard™ Walling System over standard framed and solid structures. The drawings and details are provided to assist building designers in specifying the correct design and detail of the NRG Walling System. These details cover most common applications. If the details are to be altered or new ones proposed please contact NRG to discuss the changes. Failure to do so may void the systems warranty.

These components that make up the NRG Greenboard™ Insulative Walling System are.

- Screws and washers
- Vapor permeable sarking
- NRG Greenboard™
- PVC beads
- Polymer modified render
- Reinforced mesh
- Texture top coat

These components form part of the complete system and must not be substituted with other possible non-conforming materials.

17.1.2 Timber and Steel Framing

All timber and steel framing should conform to the relevant Australian Standards, as well as the local standards for structural requirements including wind loadings and bracing. NRG Greenboard™ is not a structural material and therefore should not be considered or used as a bracing material. Steel frame may require a thermal break (check with building certifier)

17.1.3 Existing framing

When 'over-cladding' existing timber buildings, inspection should be carried out by a fully qualified person, to identify any deterioration or infestation by wood boring insects. Although NRG Greenboard™ is impregnated with an effective insect repellent, it will not arrest or prevent further infestations of the timber framing structure. Where necessary, repairs must be undertaken to ensure that the timber substrate is sound, straight and true.

17.1.4 Back Blocking (Off Stud Joints)

Where vertical fixing of sheets 'off stud' join are to be made, it is necessary to back block as follows. Only 40mm and 50mm NRG Greenboard

- By fixing an 'off cut' of stud material vertical, (widest face facing outwards) and securely nailing to bottom plate and nogging. Alternatively, between nogging and top plate, making sure to glue both NRG Greenboard™ sheet edges with No-More Nails and fixing through each sheet into the 'black block' with washers and screws at maximum 300mm centre's.
- Alternatively, horizontal 'back block' using timber off-cuts can be placed at maximum 300mm centre's between studs, following the above procedure. (Refer to DWG 08)
- 60mm,75mm,100mm NRG Greenboard can be joined off stud using expanda foam

17.1.5 Solid Blocking and Fitting of Accessories

Consideration should be given to the installation of wall mounted accessories i.e. taps, electrical fittings, wall mounted clothes line, down pipes etc. It is important to allow for adequate nogging for these items prior to the installation of the NRG Greenboard™ or the use of NRG Greenboard™ styro screw, which can be used as an alternative and is rated as a 10kg fixing.

17.1.6 Electrical Cables and PVC

Cables penetrating the NRG Greenboard™ Walling System must be installed in conduit.

17.1.7 Flashings

All flashing to wall openings, roof sections and parapets etc. to be installed prior to the fixing of NRG Greenboard™ Walling System (and is always capped off at the bottom edge of the NRG Greenboard™ sheet using a Starter Reveal Bead refer DWG 11 – DWG 12) in accordance with good building practice and together with any requirements of the NCC. NRG Building Systems take no responsibility or liability for flashing or installations.

17.1.8 Fitting NRG Greenboard™ Walling Panels

- I. Before commencing to fix panels check that the frames are straight, all windows and flashings are correctly installed and solid backing blocks are in place where required.
- II. Timber frames must have a moisture content of less than 15% before NRG Greenboard™ panels are fitted, horizontally (preferred) or vertically. (Refer to DRW 08)
- III. Measure and cut NRG Greenboard™ Sheeting using a straight edge and masonry diamond blade in a standard power saw (diamond tip blade or in reverse, hand saw is not recommended) or a hot knife cutter.
- IV. Glue both horizontal and vertical NRG Greenboard™ sheet edges to each adjoining sheet using NRG Greenboard Adhesive/Soudal Strong As Nails or Expanding Foam.
NOTE: Greenboard sheets may be temporarily fixed to the frame and the correct fixing spacing installed later prior to rendering. Likewise a 3-5mm gap may be left between the sheets and filled with expanding foam prior to rendering.
- V. Fixing NRG washers and screws at 450/600mm stud spacings horizontally and 300mm spacings vertically (see fixing table for height spacings) :- (Refer to DRW 08) NRG Greenboard™ sheet lay horizontally, comprising of five (5) rows fixings vertically.

1st – When making butt joint, each sheet is fixed individually to the back-blocking or vertical noggin, corresponding with the above fixing set out. (Refer 17.1.4)

- VI. ‘Infill’ small areas with NRG Greenboard™ (e.g. above and below windows, etc.) – The minimum size infill is 200mm for adequate fixing.
- VII. Allow 3mm gap between NRG Greenboard™ panel and openings for bead and sealing procedure ((Refer Table 17.1.15 Beading))
- VIII. External corners - NRG Greenboard™ sheets are overlapped the full thickness of the sheet and glued using recommended construction adhesive. (DRW 07)

17.1.9 Curved walls

40mm and 60mm NRG Greenboard™ panels can be fitted to curve walls with a radius greater than 2-4 metres’. Where a tighter radius is required use multiple layers by laminating 2 x 20mm thickness NRG Greenboard™ panels (off set joints).

17.1.10 Expansion Joints (Table F)

Expansion joints allow for movement within the building and avoid unsightly cracking within the wall areas. Expansion joints must be provided where NRG Greenboard™ lengths exceed specified dimensions (see table). In addition, it allows for movement between different substrates while providing an opportunity to ‘weather seal’ such junctions. Refer DWG 09 & 10

Placement of Expansion (Control) Joints	Maximum Distance
Vertical: i.e. wall length	8 metres
Horizontal: Construction joints between floor levels , where the total wall height including gable exceeds 4.8m maximum distance.	4.8 metres
Scribed’ control joints: above large window and door openings.	
Internal Corner – When rendering, mesh up to but not across corner then later ‘scribe’ a control joint into the render, cutting (nick) the mesh intermittently to relieve the tension within the mesh. Fill with sealant prior to texture coating.	

17.1.11 NRG Greenboard™ Specifications (Table G)

NRG Greenboard™ Technical Specifications	Sheet Sizes	
20mm – Flat panel (Laminate sheets to create curved wall) X Layers	2480mm	1200mm
40mm - Grooved	2480mm	1200mm
60mm - Grooved	2480mm	1200mm
75mm - Grooved	2480mm	1200mm
100mm - Grooved	2480mm	1200mm

17.1.12 Fixings – Accessories (Table H)

NRG Greenboard™	Timber Framing Treated CSK Head	Steel Framing Treated CSK Drill Point
40mm	10 - 8 x 75mm	75mm
60mm	10 - 8 x 100mm	75mm
75mm	10 - 8 x 100mm	100mm
100mm	10 - 8 x 125mm	125mm
N.B. Screws are to be Galvanised or Treated (Class 3)		
All NRG PVC Washers and fixings are required at 300mm maximum centre's - Refer DWG 08		
Corrosive environments - consideration should be given to the use of T316 Stainless Steel fixings. Corrosive environments include marine zones, salt spray zones, corrosive chemical zones etc.		

17.1.13 Cutting and Tools Required (Table I)

NRG Greenboard™ Tools
Power Saw – using diamond blade (This provides the most accurate and preferred method; it is also the most environmentally responsible way).
Screwing - Tek Gun
Straight Edge
Level
Chalk Line
Sealant Gun
Alternatively the use of a 'hot blade' knife. This will provide the ultimate answer to straight/detail cutting. Available from Ironcore Transformers - Styrocut 120 and Styrocut 140 - www.ironcore.com.au

17.1.14 Gluing and Sealing (Table J)

NRG Greenboard™- Gluing and Sealing Components	
Construction Adhesives	NRG Greenboard Adhesive Soudal Strong As Nails
Sealants	Soudal Stretch And Seal / NRG Flex & Seal (or equivalent – compatibility:- Polystyrene Safe)
Gap Filler	NRG Expanding Foam
Foam -Backing Rod	10mm diameter (leave 6mm gap)

17.1.15 Beading (Table K)

NRG have a full range of UV stabilized PVC beads specifically designed for NRG Greenboard™ cladding .use only UV stabilized beads for external application. Aluminium beads can also be applied.

N.B. External and internal 'rail edges' must be precise to ensure a uniform complete 'fit and finish' in readiness for sealing as well as rendering.

UV Stabilized PVC Beads Range	Application Guide (for 3.5mm & 6mm PVC Beads)
External Corner Bead	<ul style="list-style-type: none"> External Corners Window Heads, Sills and Jamb , 60mm, 75mm & 100mm Refer to DWG 04 and 06
Render Starter Bead 40/50/60/75/100mm Capping base of NRG Greenboard™ Sheet	<ul style="list-style-type: none"> Rebated Slab Edge. Refer to DWG 01 High Set (above roof – exposed subfloor areas – elevated projections) Refer to DWG 02, 11 and 12
Reveal Bead 40/50/60/75/100mm	<ul style="list-style-type: none"> Window and Door Jamb.s 40mm Refer to DWG 03 NOTE: For NRG 60mm, 75mm & 100mm use standard external PVC Bead for all window and door reveals. Eave Line (optional) Refer to DWG 14 Vertical, Horizontal (Gable) Expansion Joints Refer to DWG 09 and DWR 10
Sill Bead (15° incline) 40mm/50mm	<ul style="list-style-type: none"> Window Sill 40mm Refer to DWG 5 60mm, 75mm and 100mm is not recommended.
Expansion Joint Bead	<ul style="list-style-type: none"> Flexible control joint for vertical/horizontal and gable applications. Substitute for Reveal Bead as referred to in DWG 9 and DWG 10.



Installation Procedures of NRG Greenboard™ Walling System over Concrete and Masonry Wall Surfaces

18.1.1 Preparation

All walls must be clean and dust free from dirt, oil, vegetation, and crumbling or loose materials.

18.1.2 Installation of NRG Greenboard™ using Soudal's expanding foam system.

i. When installing via the Foam adhesive system, apply a large "dob" of foam adhesive to the middle of each and every masonry block.

ii. Position the board and drill 8mm hole through the masonry at each corner offset in by approx 100mm.

iii. Use a minimum of 10 masonry anchors for each 2480 x 1200 board with at least 2 x masonry plugs staggered in the mid section of the board.

Mungo Hammer Screws (Table M)

NRG Greenboard™	HDNA Masonry Plugs	Hilti™ IDP Anchors Maximum Fixing Centres
40mm	80mm	Refer- iv) above for spacing details
60mm	100mm	
75mm	120mm	
100mm	140mm	

18.1.3 Final Checking of NRG Greenboard™ installation on Concrete and Masonry Walls - Before rendering, any irregularities in the surface of the sheet or joints are sanded back using a coarse rasp.

18.1.4 Expansion Joints within The NRG Greenboard™ installation on Concrete and Masonry Walls - All expansion joints in the substrate must be carried through the complete cladding system. (Refer to DWG 9 and 10)



NRG Greenboard™ Polymer Render and Texture Coating System

19.1.1 3.5mm Render

Option 1

- 1 coat polymer modified render (3.5mm)
- Reinforced Alkali Resistent Fibreglass Mesh (160g/mm)
- 1 coat Acrylic Texture (1.0mm)
- 2 coats of Acrylic Membrane Paint

Option 2

- 1 coat polymer modified render (3.5mm)
- Reinforced Alkali Resistent Fibreglass Mesh (160g/mm)
- 1 coat Primer
- 1 coat Tinted texture (1.0mm)
- (Clearcote optional)

6mm Render(BAL 29)

- 1 coat polymer modified render (6mm)
- Reinforced Alkali Resistent Fibreglass Mesh (160g/mm)
- 1 coat of Acrylic Texture
- 2 coats of Acrylic Membrane Paint

NRG Estimating Hints
Measure m2 of NRG Greenboard™ required + 5% waste
NRG Greenboard Adhesive: e.g. 150m ² x 0.12 = 18 tubes x 300ml)
Sealant: Calculate total window perimeter. e.g. 150Lm = 19 x 300ml tube (150mtrs x 0.12 = 18 x 300ml tube) Coverage is an approximation.
PVC Beads: Calculate window perimeter ÷ 3.00mtrs + 3 lengths (waste cutting). e.g. 75.00mtrs ÷ 3 =25 + 3 lengths (28 lengths)
Washers and Screws – e.g.150m ² x 12 = 1800
Fiberglass Mesh (1) 50mtr roll at 1.0m width = 50m ² (2) 50mtr roll at 1.2m width = 60m ²
Calculate wall Square Metres, then add 10% extra for laps and waste.
Render x 1 - 20kg Bag: 3.5mm PVC Bead = 1.7m ² 6.0mm PVC Bead = 1.1m ²

NOTE: To be used only as a guide. Refer to Render/ Paint manufactureres specifications for exact details and procedures.

19.1.2 Handling and Storage

- i. NRG Greenboard™ should be laid flat with edges and corners protected from damage. NRG Greenboard™ should not be stored in the open



IMPORTANT INFORMATION

17.1.16 NRG Greenboard™ Bead and Sealant Procedure

Installing, Priming and Sealing of Bead – Procedure. N.B. Use only UV stabilized beads for external application.

At this point particular care needs to be exercised to ensure that the installation of all PVC/Aluminium beading, and polyurethane joint sealing around window and door openings is performed correctly. This is an integral part of the total NRG Greenboard™ Walling System, to ensure a complete exterior weather proof system.

- External and internal 'rail edges' must be precise to ensure a uniform complete 'fit and finish' in readiness for sealing as well as rendering.
- Extra care needs to be taken to make sure all 'beads' are both 'plumb/level'.
- Sealing procedure stage requires extreme attention to detail to ensure water tightness of all windows, doors and openings.

- Using masking tape, accurately adhere to frame of joinery, 4mm from edge creating a neat parallel margin, ready for sealant application. **(1) Primary polyurethane jointseal post NRG Greenboard™ installation prior to polymer render**
- **(2) Secondary polyurethane jointseal post polymer render prior to paint application.**
- Cut a medium size end off nozzle of 'NRG Flex & Seal' Proceed in applying sealant. Using a coving tool, neatly create an internal cove finish. (Use only a UV high grade hybrid polymer sealant).
- Remove masking tape from joinery leaving a 100% water proof joint seal.

I. EXTERNAL CORNER ANGLES BEADS

External Points of the building, columns etc. (Refer DWR 07)

EXTERNAL CORNER

- a) Install external corner angle bead to external corner edges by applying a 'liberal' bead of NRG Greenboard Adhesive to both sides of internal corner rails of the external corner angle bead, then press bead firmly into position. Make sure the bead is straight and plumb, scraping off excess glue protruding through bead perforations.

WINDOW AND DOOR REVEALS

External Corner Beads - Render reveals to windows and doors - head, jamb and sills. This is particularly recommended for 60mm, 75mm and 100mm NRG Greenboard™.

- a) For NRG 60mm, 75mm and 100mm, allow 3mm gap between Greenboard™ panel and openings (this will provide a 'key' for the sealant).

II. REVEAL BEADS/RENDER REVEAL TRIMS -

to head, jamb and sills of windows and doors.

- a) For NRG 40mm allow 3mm gap between NRG Greenboard™ panel and openings (this will provide a 'key' for the sealant). Tape around window and door perimeters, priming both surfaces.

(Refer DWR 03)

III. RENDER REVEAL TRIM (SILL) – 40MM

- a) Allow 3mm gap, prime beads and tape around surfaces of window and door edges prior to sealing, in preparation for application of the paint system. (Refer DWR 05)

IV. EXPANSION JOINT

There are two options available -

Either by using Reveal Beads or Render Expansion Joint.

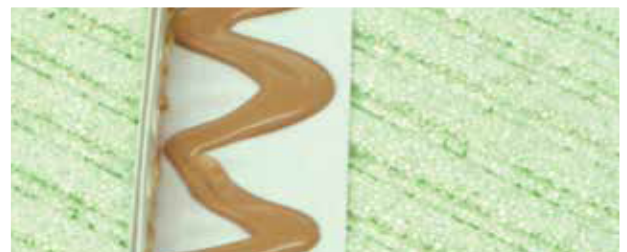
1) Reveal Beads as referred to in (DWR 09 -10)

- a) Install 'reveal bead' to both edge of NRG Greenboard™ by applying a 'liberal' bead of NRG Greenboard Adhesive, allowing a 6mm gap between both sheets, then insert a 10mm foam backing rod as shown.

2) Expansion Joint Bead (illustration shown in Accessories)

- a) Install 'render expansion joint' between both NRG Greenboard™ surfaces (leaving required gap). Applying NRG Greenboard Adhesive to either side of the internal corner rails (i.e. top and bottom sections), with sufficient glue to allow the glue to penetrate perforated rail edges. Scrape off excess.

Example of adhesive applied to bead.



IMPORTANT INFORMATION

Principal Contractor / Builder / Installer

Essential Related Trade Practices

- General Construction and Flashing Principles must be adhered to in maintaining water tightness. NRG Building Systems will not be held liable for inferior flashing and installation practices.
- It is essential that all external surfaces of the framing structure are flush and parallel, i.e. ground floor framing, mid floor framing and upper floor framing with no protrusions or setbacks. It is also a recommendation that where ply bracing is fixed externally, ply packing should be fixed to studs, to ensure a superior flat wall, prior to fixing NRG Greenboard™, and building sisalation paper.
- It is imperative that all exterior window/door and joinery are fixed into position prior to the installation of the NRG Greenboard™ to maintain water tightness and those components are fixed off plumb and level.
- Consideration should be given to the installation of wall mounted accessories i.e. taps, electrical fittings, etc. It is important to allow for adequate back-blocking for these items prior to the installation of the NRG Greenboard™.
- Termite Barriers: It is the builder's responsibility to arrange the installation of a suitable termite barrier system by a licensed qualified professional installer, prior to the installation NRG Greenboard™.
- Internal Lining Fixing: If render application has been completed prior to plasterboard installation, all plasterboard must be screw fixed to the internal side of all external wall surfaces. Failure to do so can result in defects to exterior render surface finish.
- **Light reflective value (LRV)** is the total quality of usable and visible light reflected by a surface in all directions at all wavelengths when illuminated by a light source. LRV is a measurement that tells you how much light a colour reflects, and conversely how much it absorbs. The exterior paint colour selection over the finished polymer render should have a recommended minimum reflectance value of 40% as the final paint application.

Product Advisory Line – Ph: 1800 674 001

NRG Building Systems provides a full comprehensive construction advisory service, from pre plan to onsite construction advice. Product information and how to, assistance is available on request.

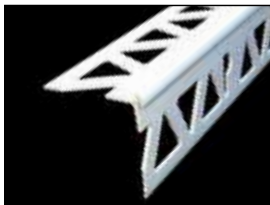


Accessories



External Corner Bead

3.5mm
6.0mm



Render Starter Bead 40mm, 60mm, 75mm and 100mm

3.5mm
6.0mm

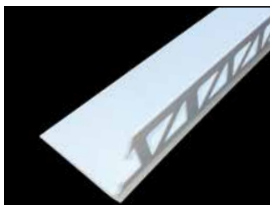


Expansion Joint Bead

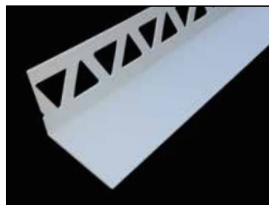


Reveal Bead 40mm - 60mm - 75mm

3.5mm
6.0mm



Render Reveal Trim Sill (15° incline)



Feature Recess Bead



NRG Sunhood Drip Bead

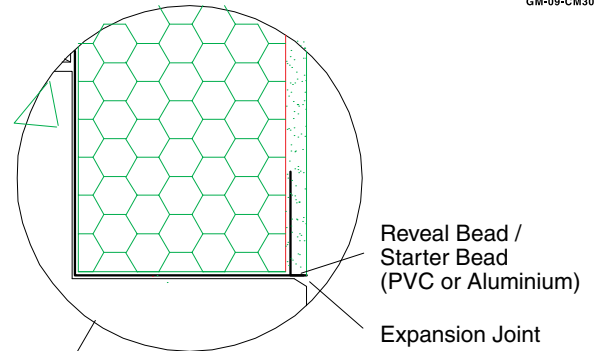
PVC Bead Profiles 100% UV Stabilised

NOTE: Aluminium beads can be applied to NRG Greenboard

DWR 01

40mm - 50mm - 60mm - 75mm - 100mm NRG panel Slab Rebate Detail

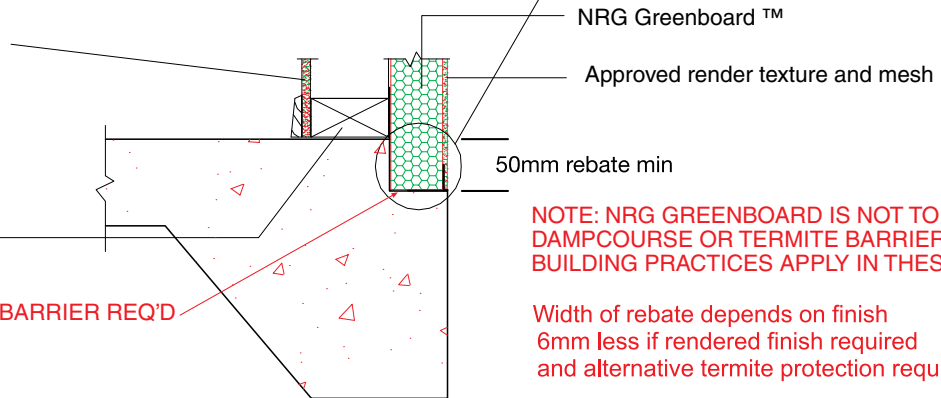
NRG Greenboard™ Set Out (Measurement Shown - Indication Only)	Step Down	Set Back (Rebate)
Rebated Slab Edge - 40mm	50mm min	45mm max
Rebated Slab Edge - 50mm	50mm min	55mm max
Rebated Slab Edge - 60mm	50mm min	65mm max
Rebated Slab Edge - 75mm	50mm min	80mm max
Rebated Slab Edge - 100mm	50mm min	105mm max



10mm plasterboard lining over stud frame

wall frame

DAMP COURSE AND TERMITE BARRIER REQ'D



NOTE: NRG GREENBOARD IS NOT TO BE USED FOR DAMPCOURSE OR TERMITE BARRIERS. STANDARD BUILDING PRACTICES APPLY IN THESE SITUATIONS.

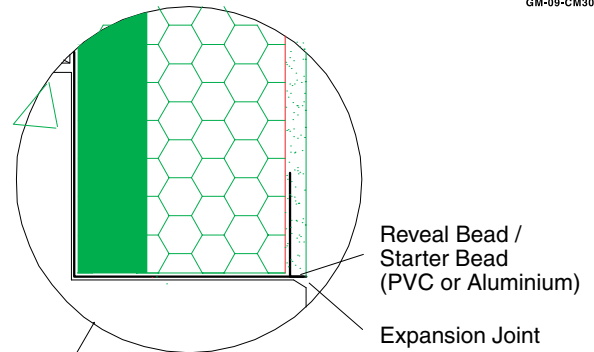
Width of rebate depends on finish
6mm less if rendered finish required
and alternative termite protection required

DWR 01



40mm - 50mm - 60mm - 75mm - 100mm NRG panel Slab Rebate Batten Detail

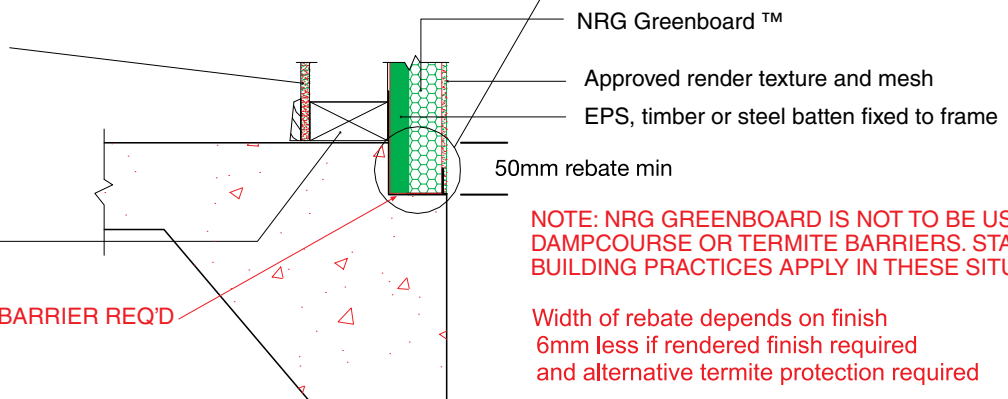
NRG Greenboard™ Set Out (Measurement Shown - Indication Only)	Step Down	Set Back (Rebate)
Rebated Slab Edge - 40mm	50mm min	45mm max + Batten mm
Rebated Slab Edge - 50mm	50mm min	55mm max + Batten mm
Rebated Slab Edge - 60mm	50mm min	65mm max + Batten mm
Rebated Slab Edge - 75mm	50mm min	80mm max + Batten mm
Rebated Slab Edge - 100mm	50mm min	105mm max + Batten mm



10mm plasterboard lining over stud frame

wall frame

DAMP COURSE AND TERMITE BARRIER REQ'D



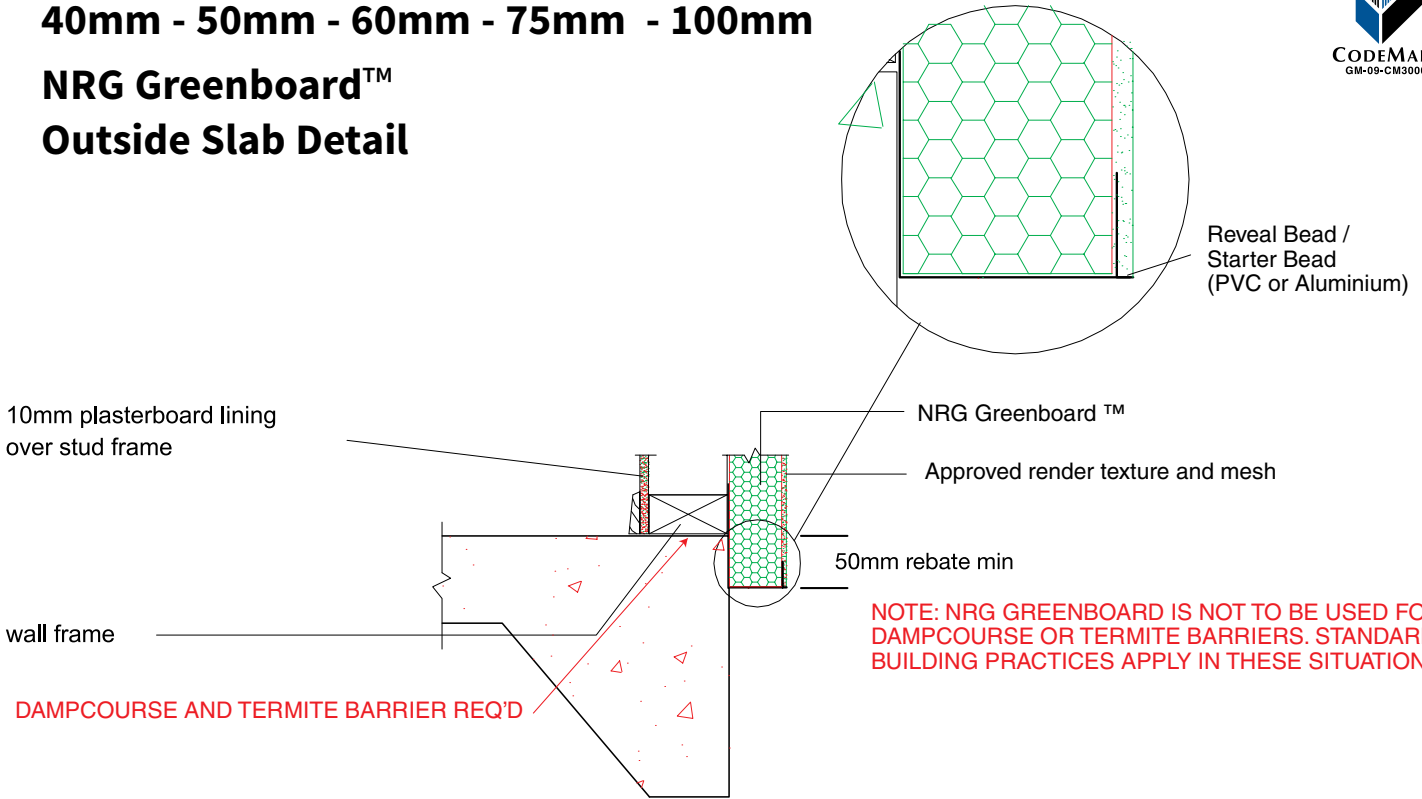
NOTE: NRG GREENBOARD IS NOT TO BE USED FOR DAMPCOURSE OR TERMITE BARRIERS. STANDARD BUILDING PRACTICES APPLY IN THESE SITUATIONS.

Width of rebate depends on finish
6mm less if rendered finish required
and alternative termite protection required

DWR 02

40mm - 50mm - 60mm - 75mm - 100mm

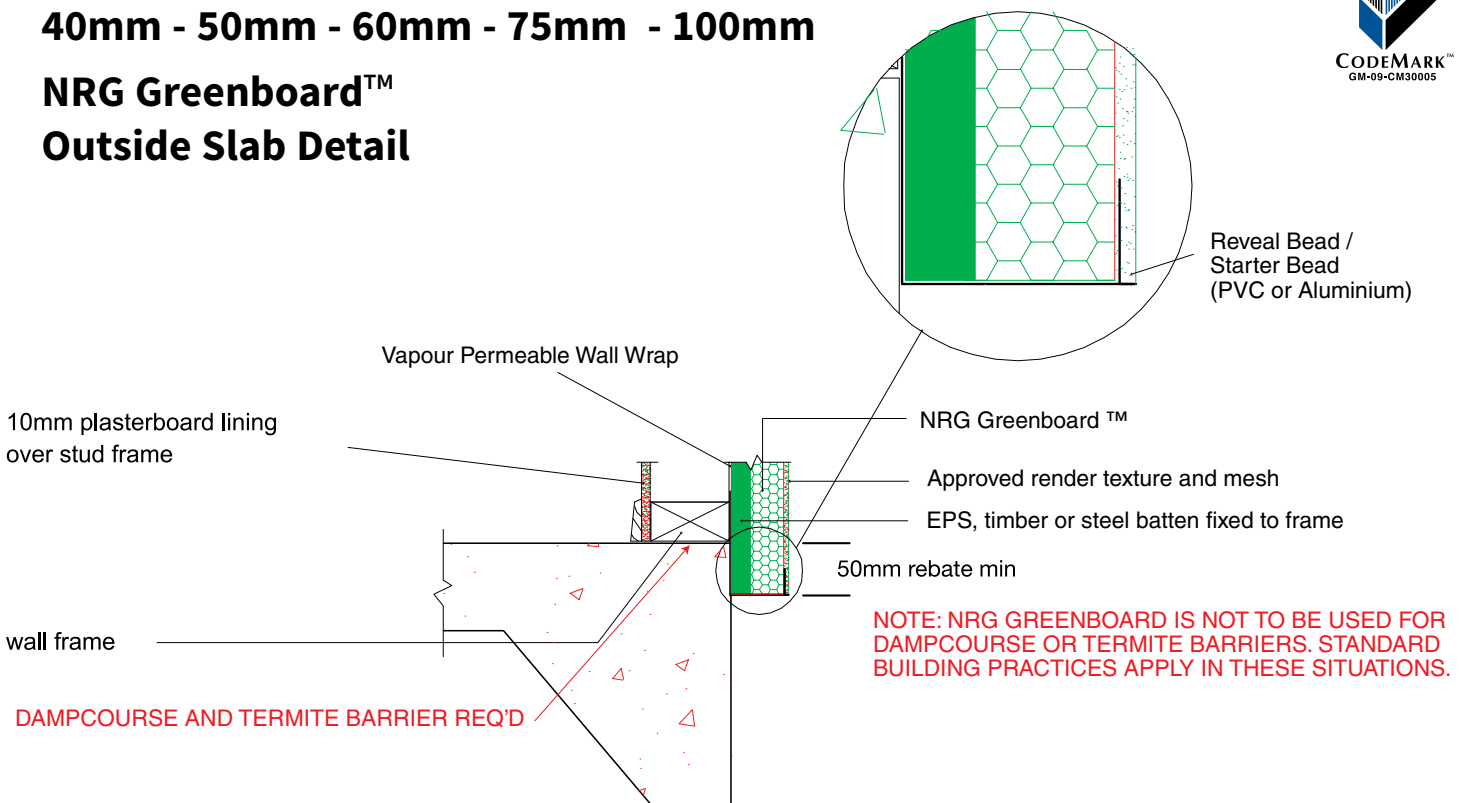
NRG Greenboard™ Outside Slab Detail



DWR 02

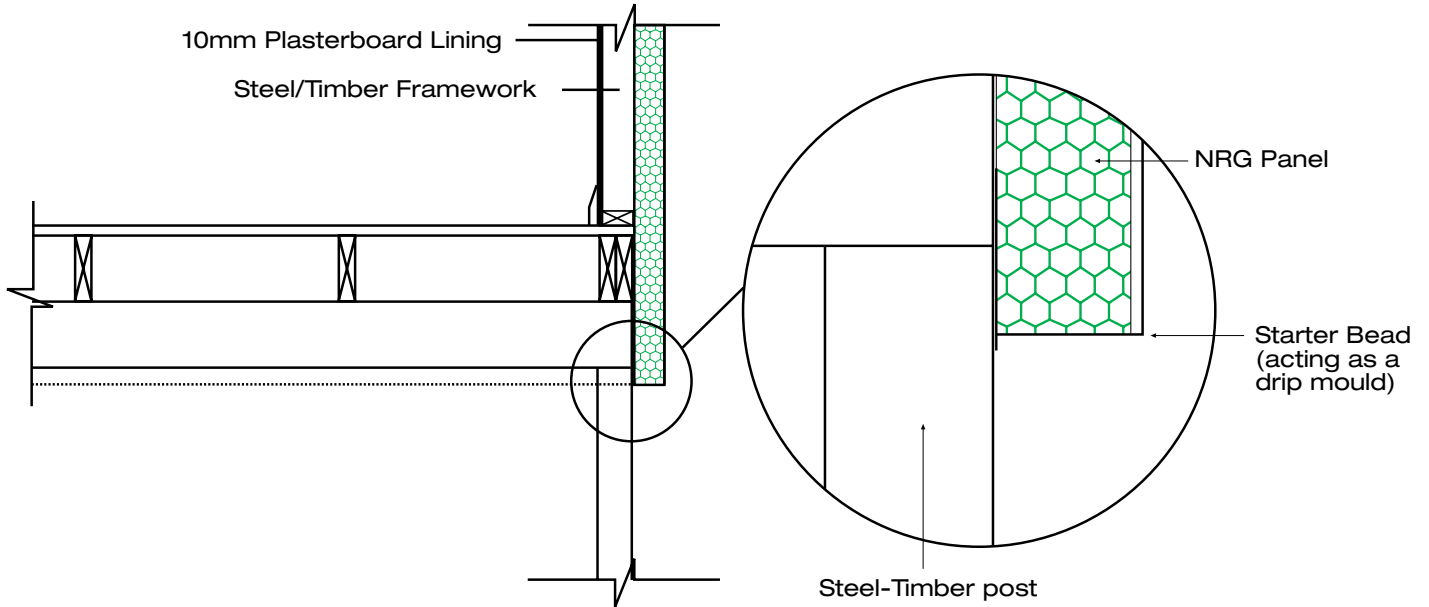
40mm - 50mm - 60mm - 75mm - 100mm

NRG Greenboard™ Outside Slab Detail



DWR 03

40mm - 50mm - 60mm - 75mm - 100mm NRG panel Timber Floor Detail

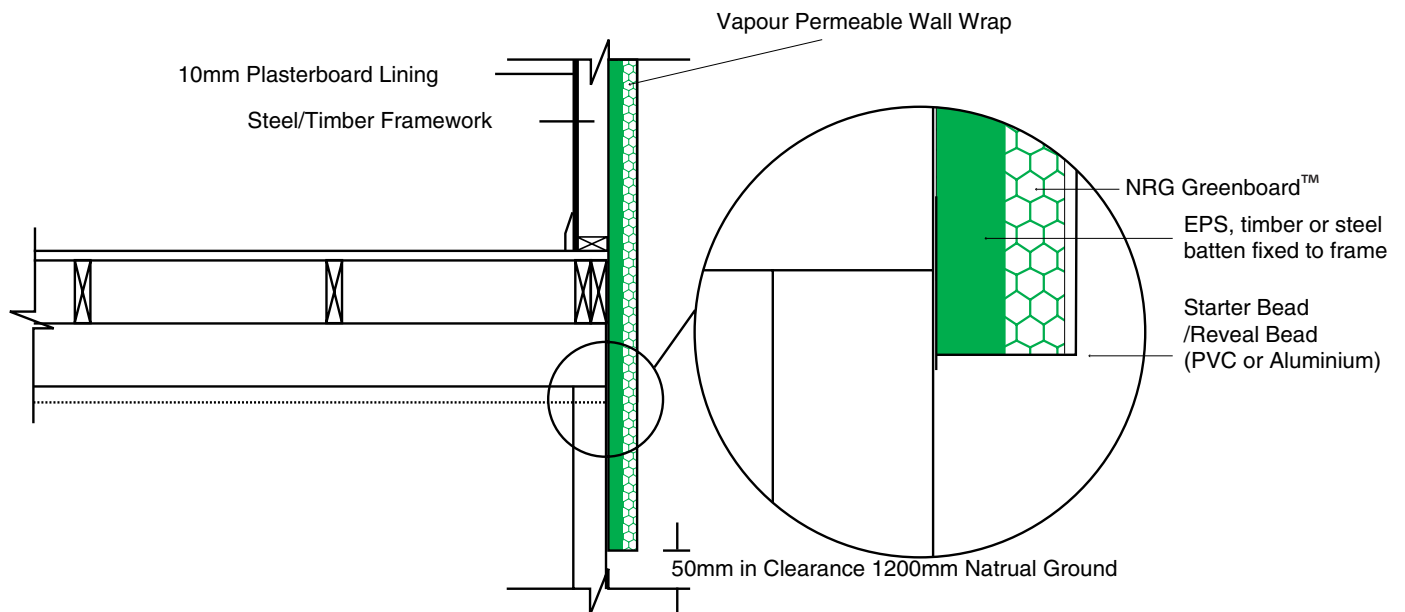


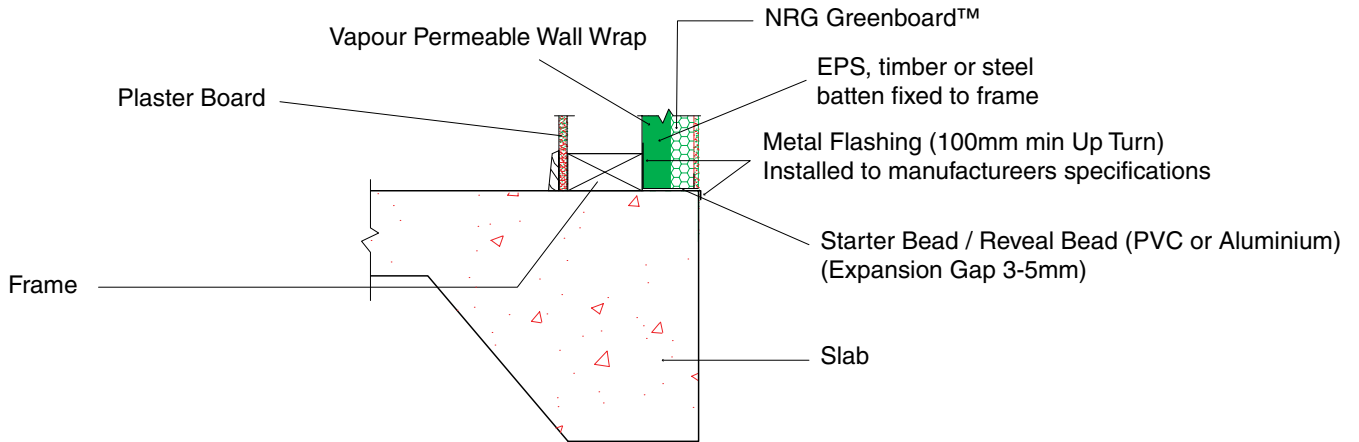
DWR 03



40mm - 50mm - 60mm - 75mm - 100mm NRG Greenboard™ Timber Floor Detail

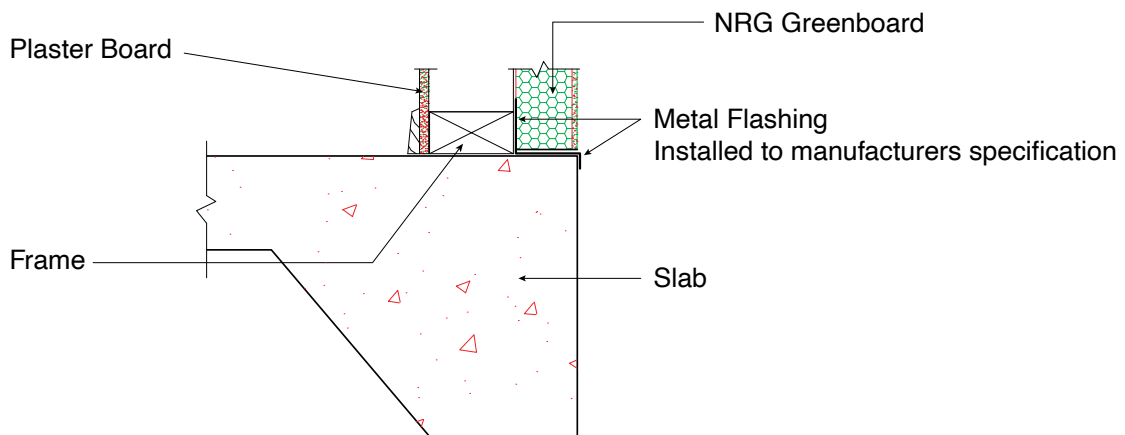
BAL29
(AS1530.8.1-2007)





DWR 04

NRG Flashing/Slab Detail



Environmentally Responsible. Energy Efficient. Building Systems.

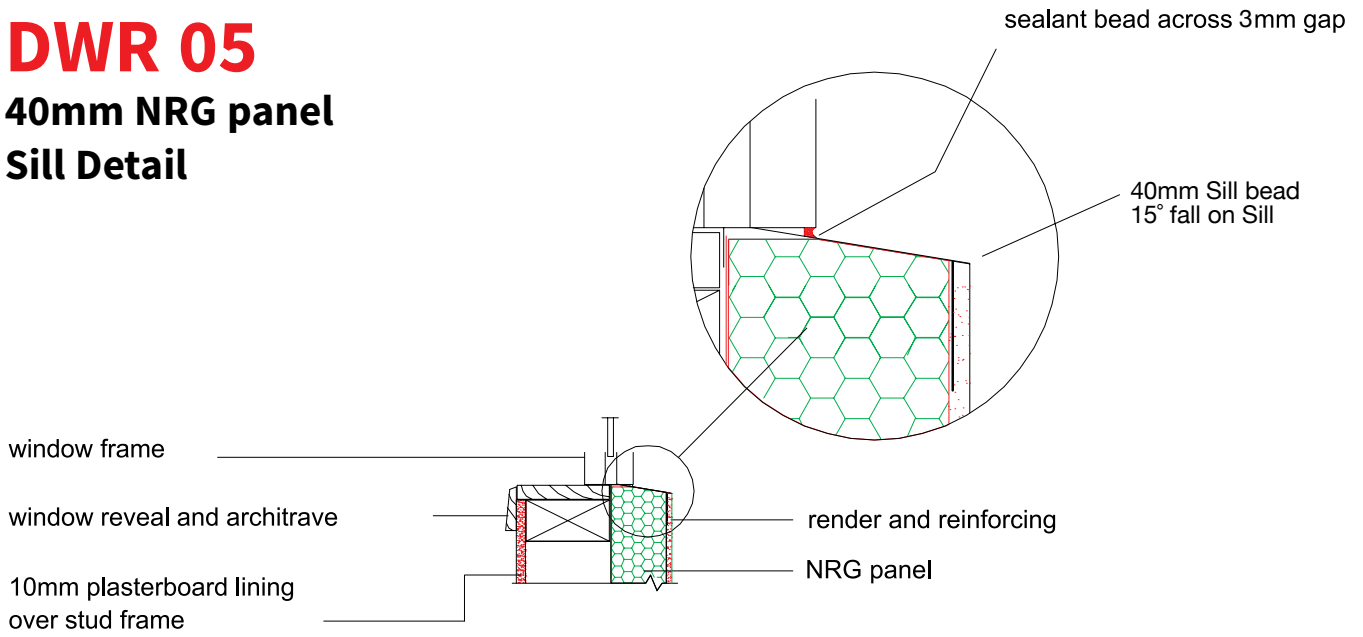
Head Office: 3/13-15 Octal St, Yatala, Qld, 4207
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Free Call 1800 674 001

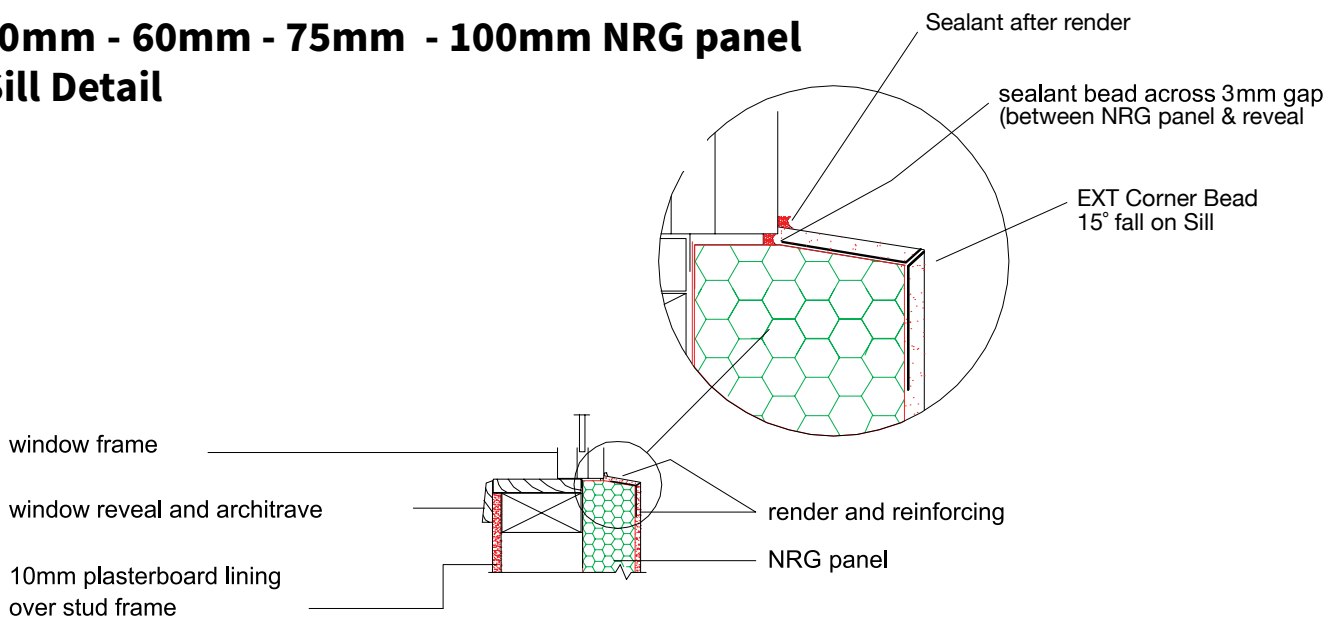
DWR 05

40mm NRG panel Sill Detail



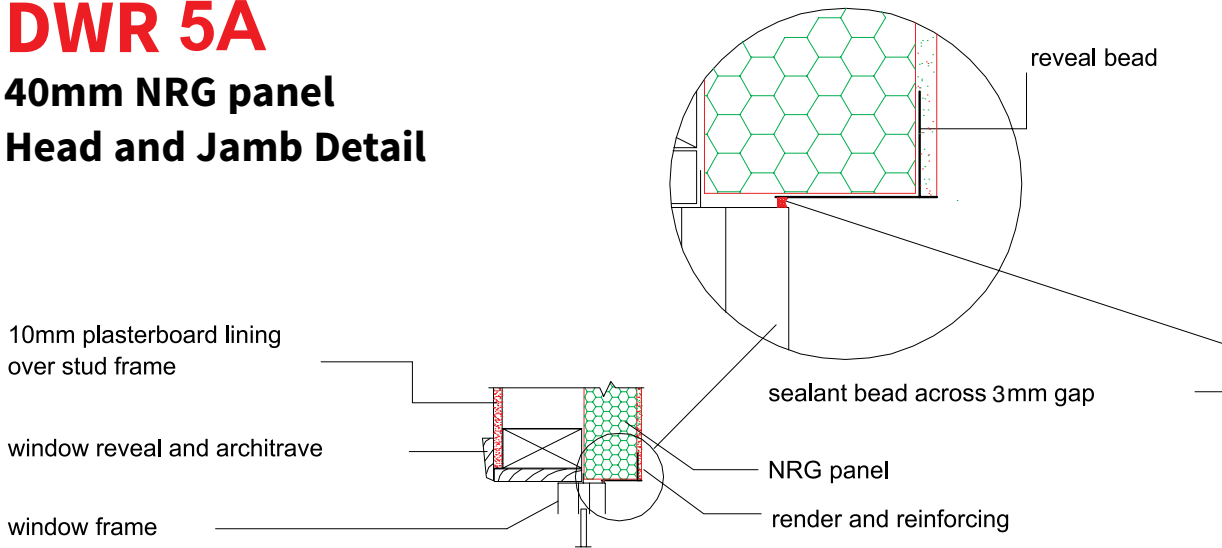
DWR 06

50mm - 60mm - 75mm - 100mm NRG panel Sill Detail



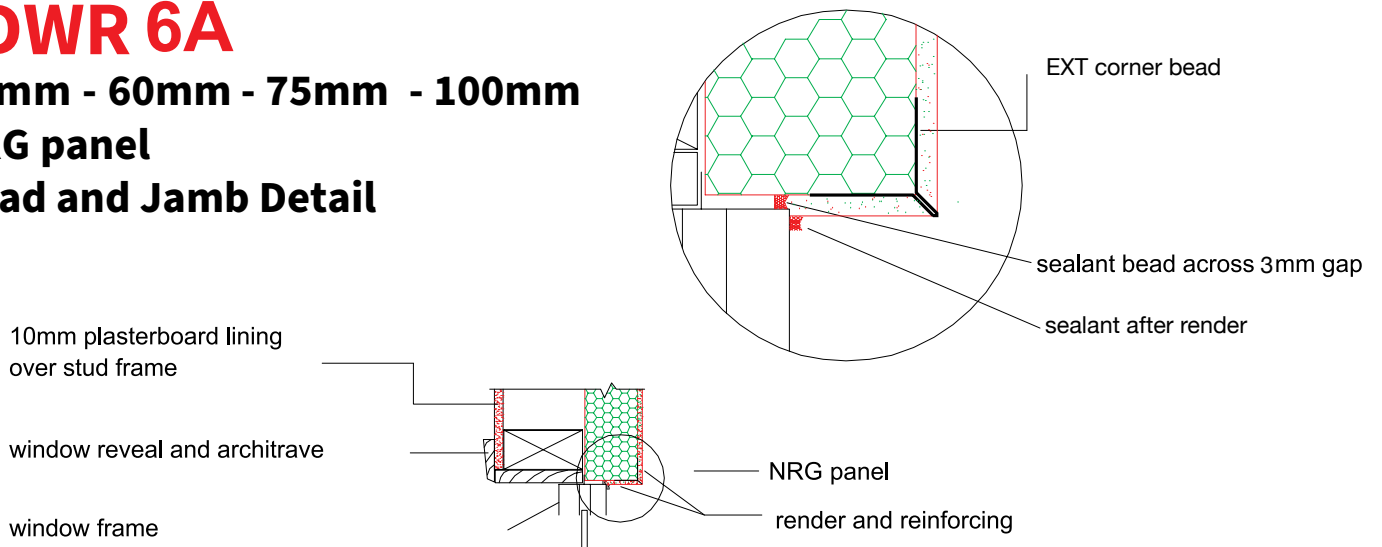
DWR 5A

40mm NRG panel Head and Jamb Detail



DWR 6A

50mm - 60mm - 75mm - 100mm NRG panel Head and Jamb Detail



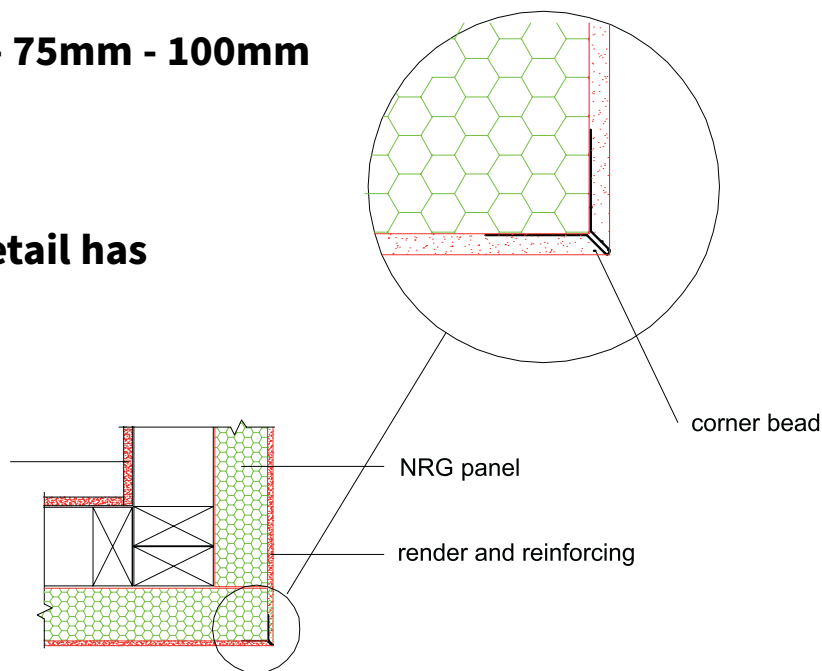
DWR 07

40mm - 50mm - 60mm - 75mm - 100mm

NRG panel

External Corner Detail

Note: Internal corner detail has no beading

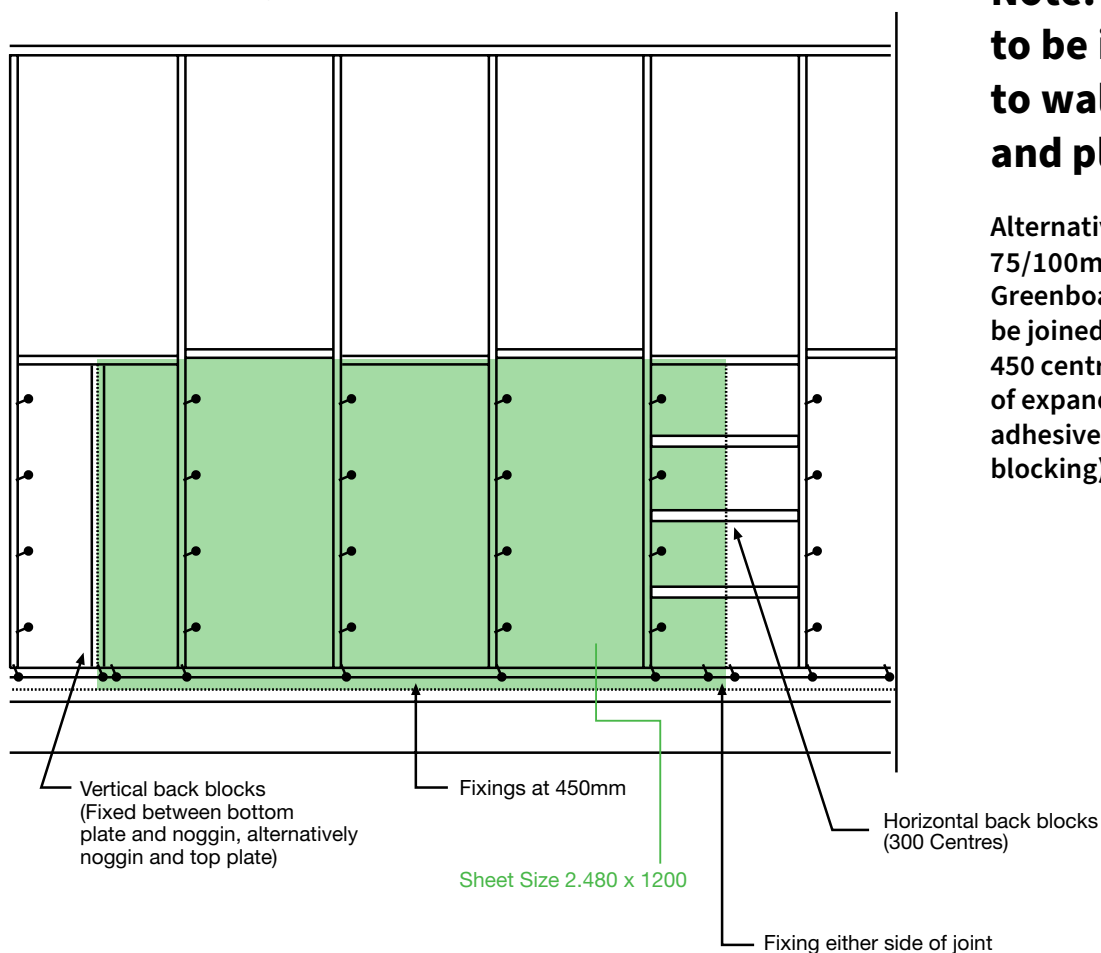


DWR 08

40mm - 50mm - 60mm NRG panel

Back Blocking Detail

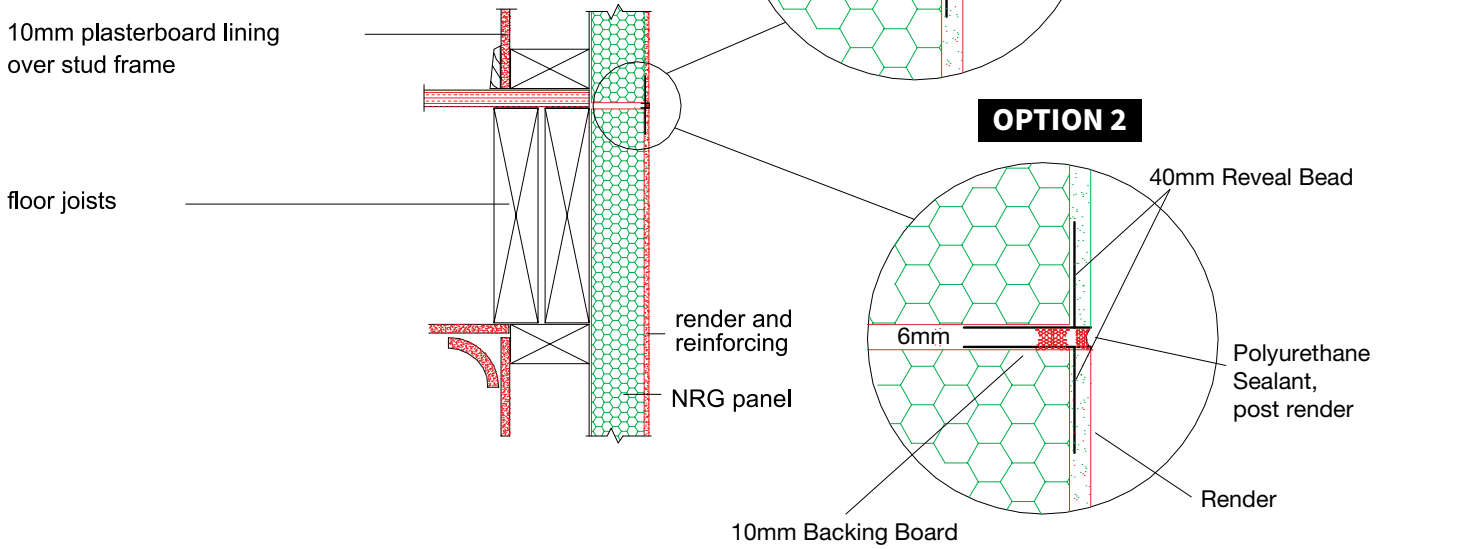
Note: Back Blocking to be installed prior to wall insulation and plasterboard



Alternatively for NRG 75/100mm Greenboard sheets can be joined off stud at 450 centres with the use of expanda foam as an adhesive (no back blocking)

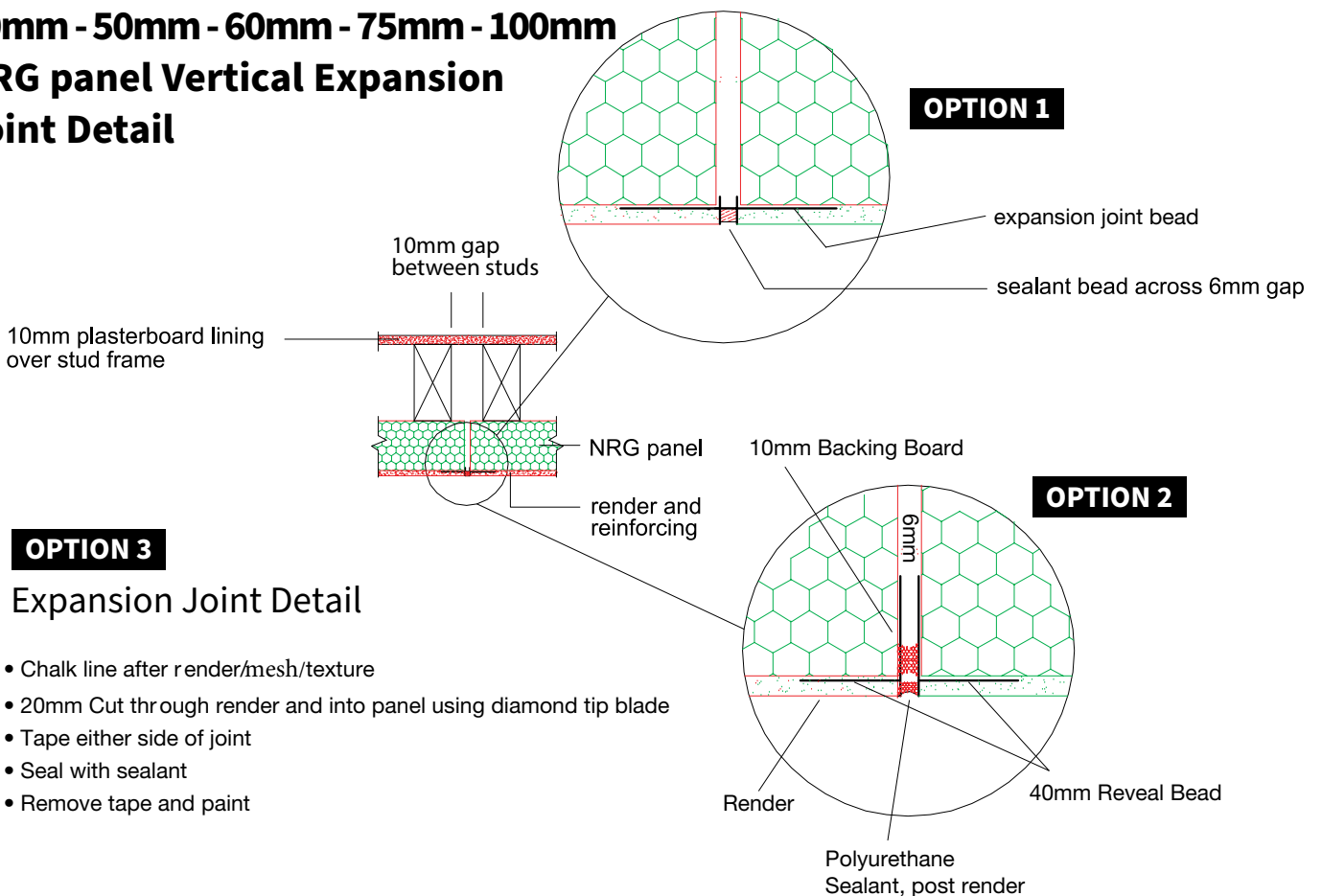
DWR 09

40mm - 50mm - 60mm - 75mm - 100mm NRG panel Horizontal Expansion Joint Detail



DWR 10

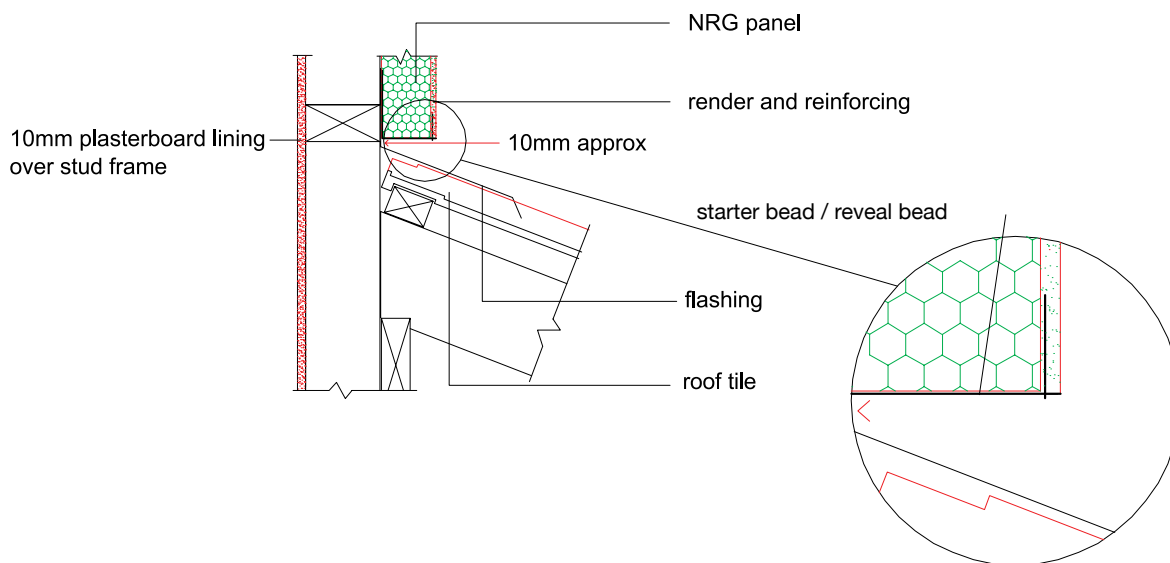
40mm - 50mm - 60mm - 75mm - 100mm NRG panel Vertical Expansion Joint Detail



- Chalk line after render/mesh/texture
- 20mm Cut through render and into panel using diamond tip blade
- Tape either side of joint
- Seal with sealant
- Remove tape and paint

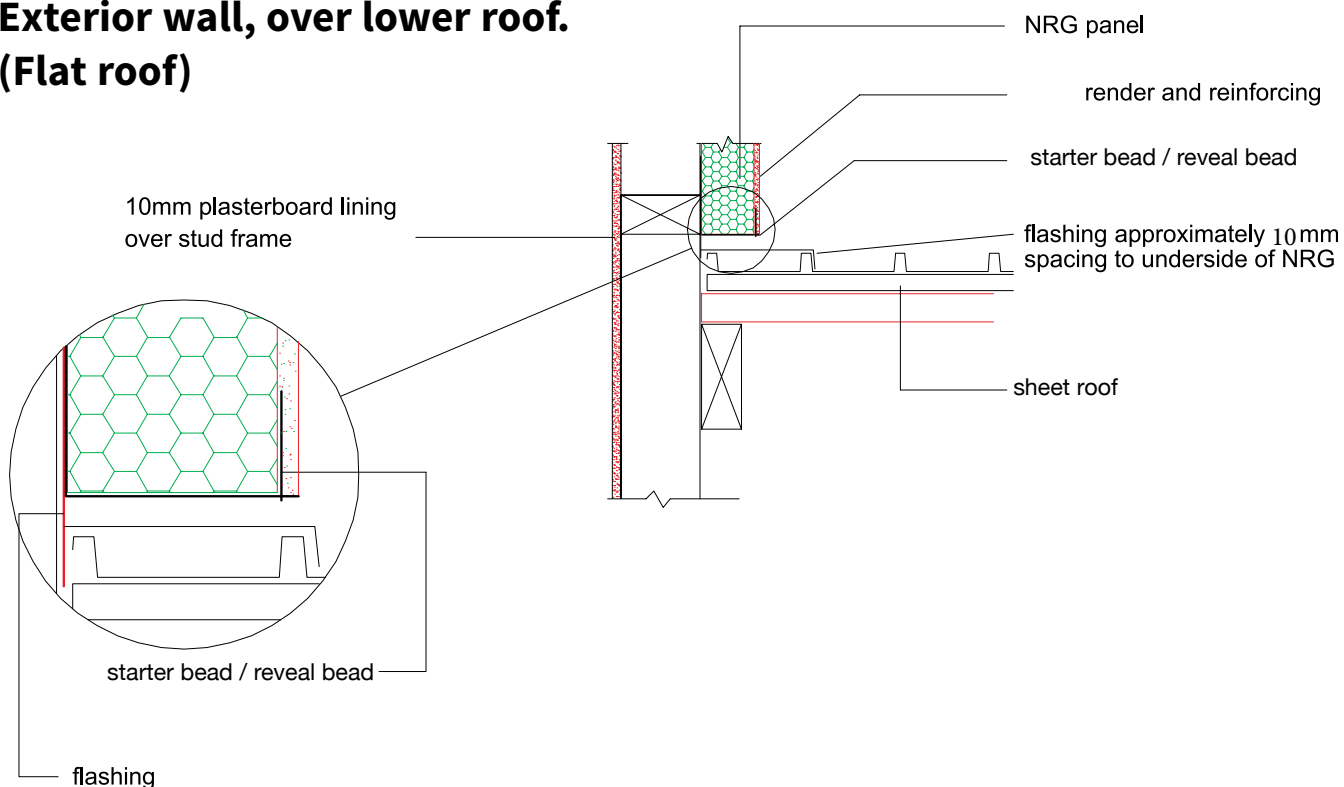
DWR 11

40mm - 50mm - 60mm - 75mm - 100mm NRG panel
Exterior wall, over lower roof.



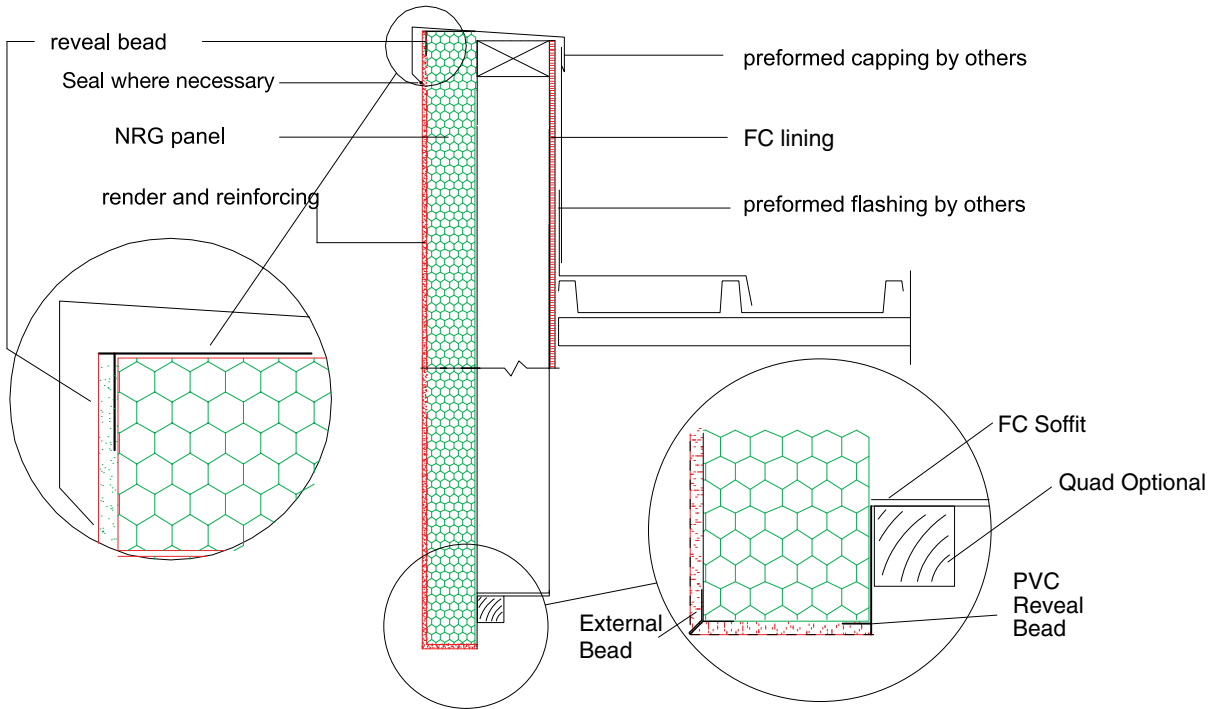
DWR 12

40mm - 50mm - 60mm - 75mm - 100mm NRG panel
Exterior wall, over lower roof.
(Flat roof)



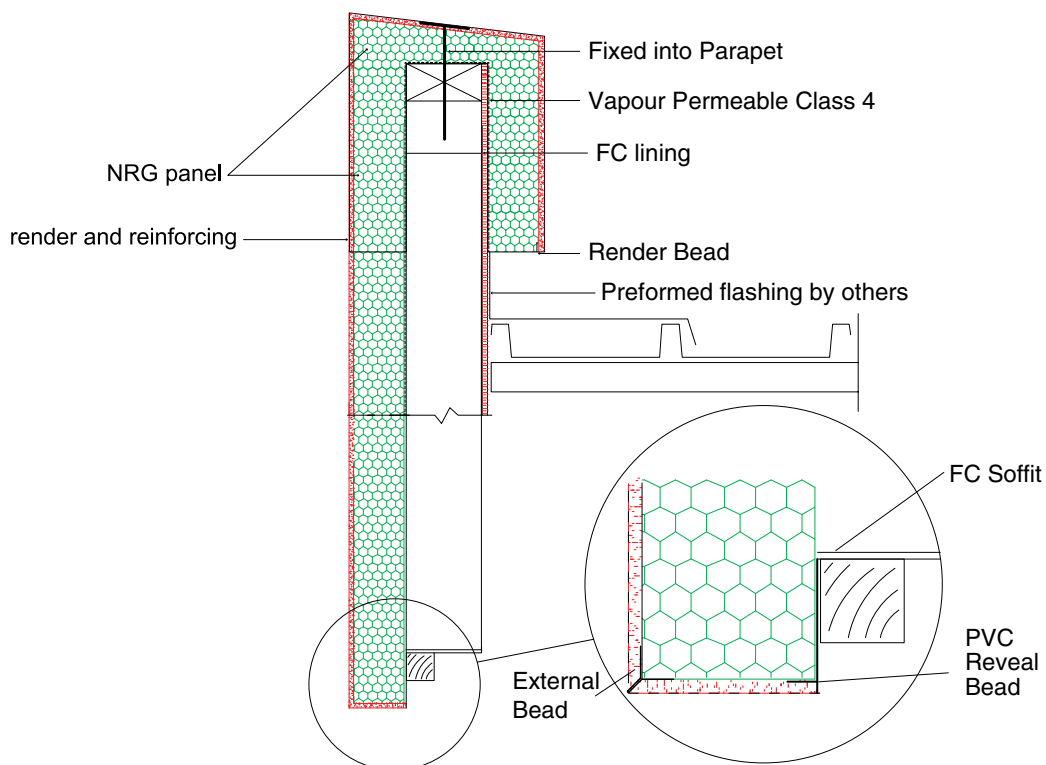
DWR 13

40mm - 50mm - 60mm - 75mm - 100mm NRG panel Parapet Wall Detail and Drip Groove Detail



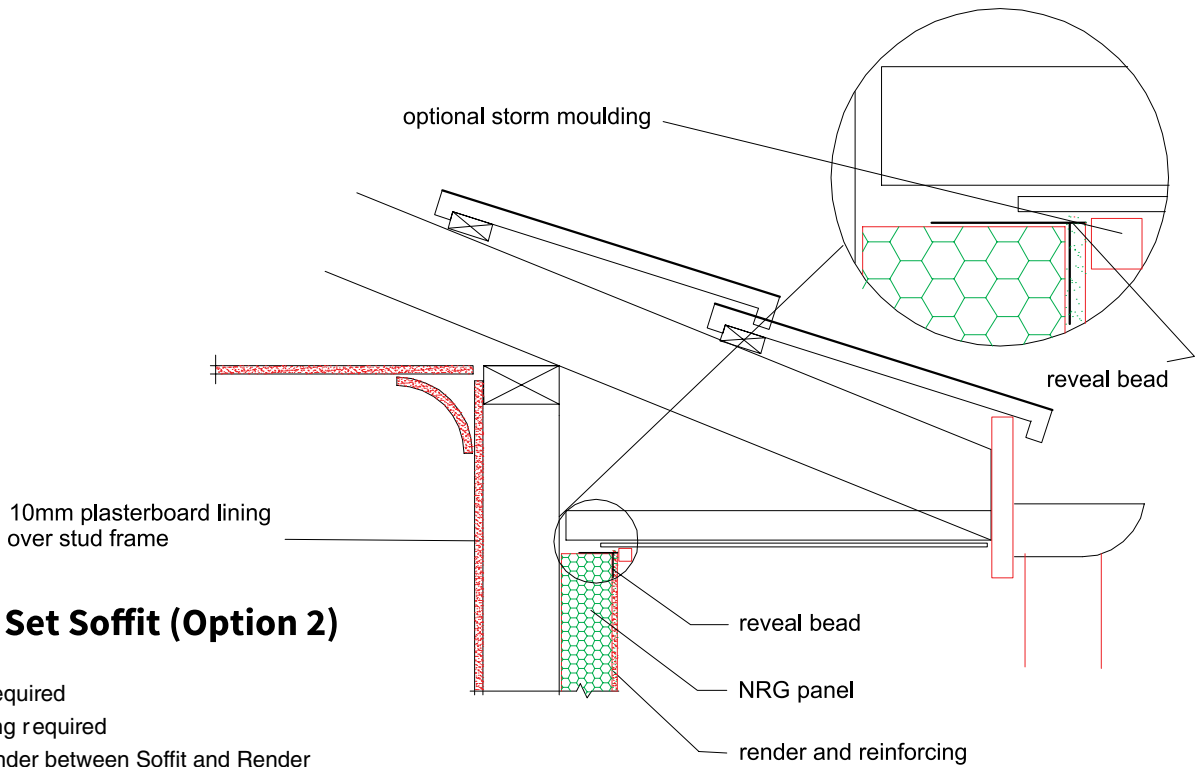
DWR 13A

40mm - 50mm - 60mm - 75mm - 100mm NRG Panel Parapet Wall Detail and Drip Groove Detail



DWR 14

40mm - 50mm - 60mm - 75mm - 100mm NRG panel Soffit Detail

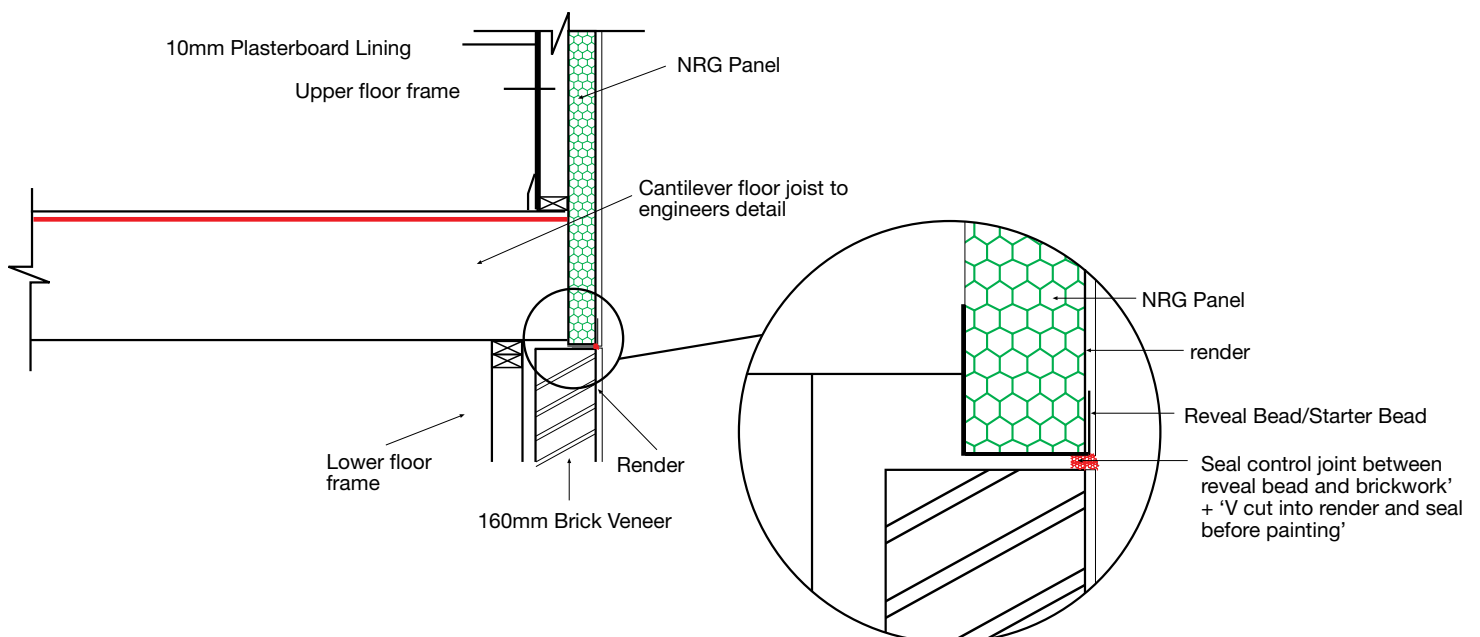


Square Set Soffit (Option 2)

- No bead required
- No moulding required
- V cut in render between Soffit and Render
- Seal and paint

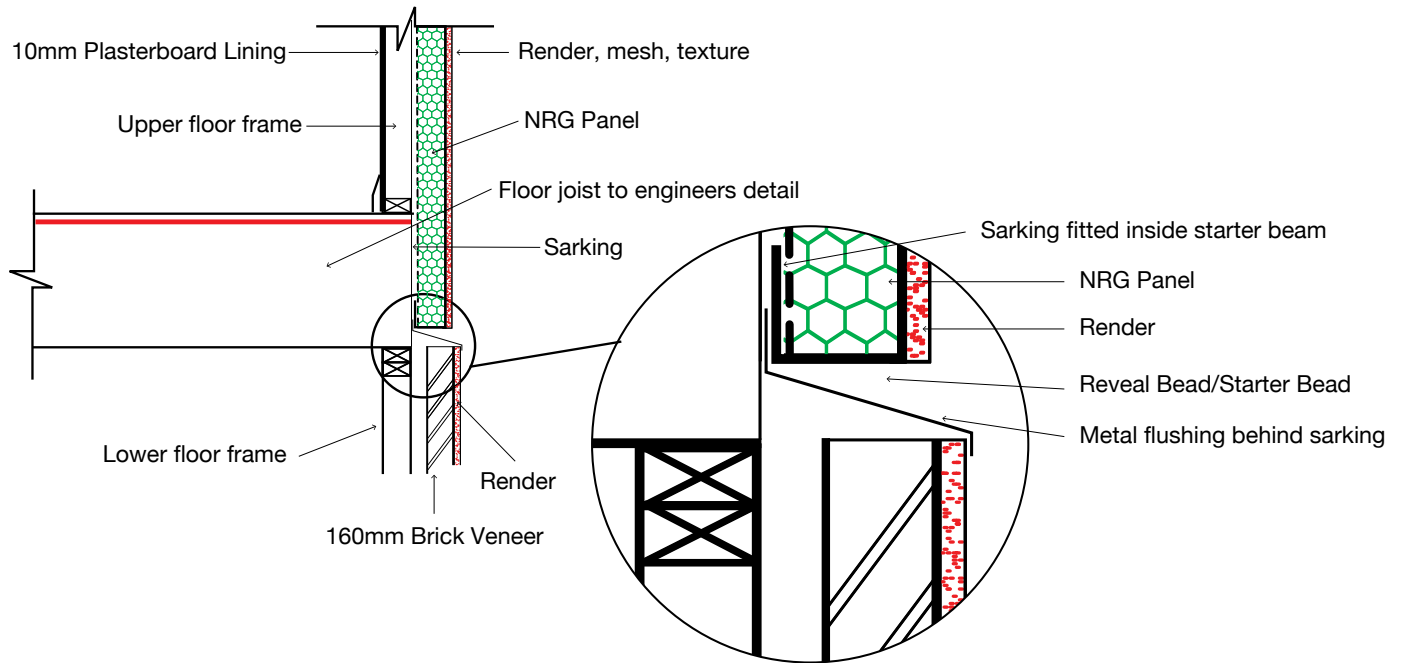
DWR 15

40mm - 50mm - 60mm - 75mm - 100mm NRG panel NRG Panel Cantilever Floor Detail



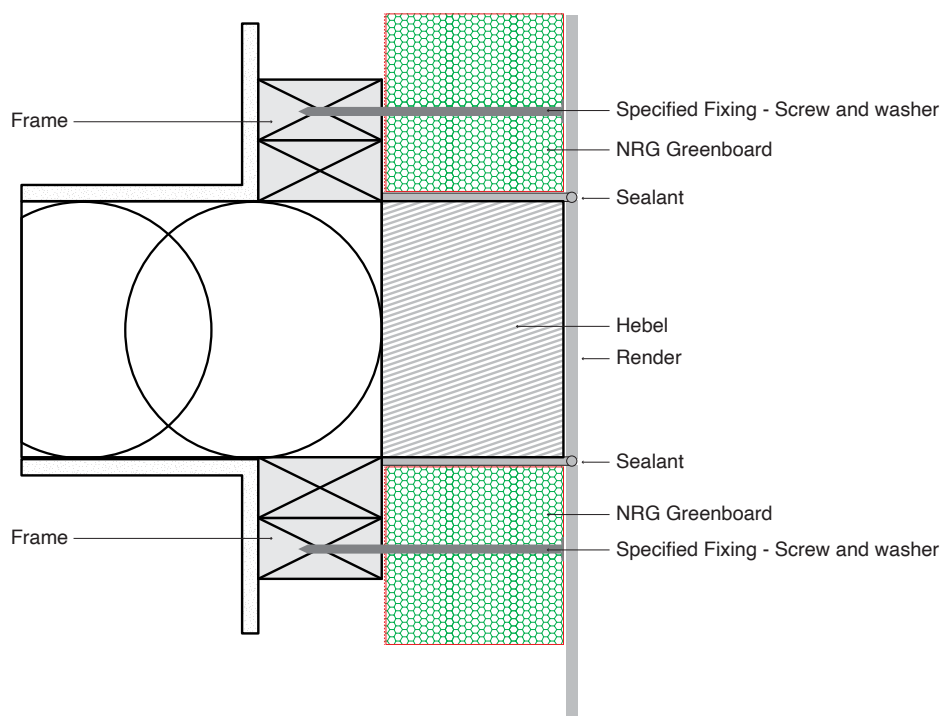
DWR 15A

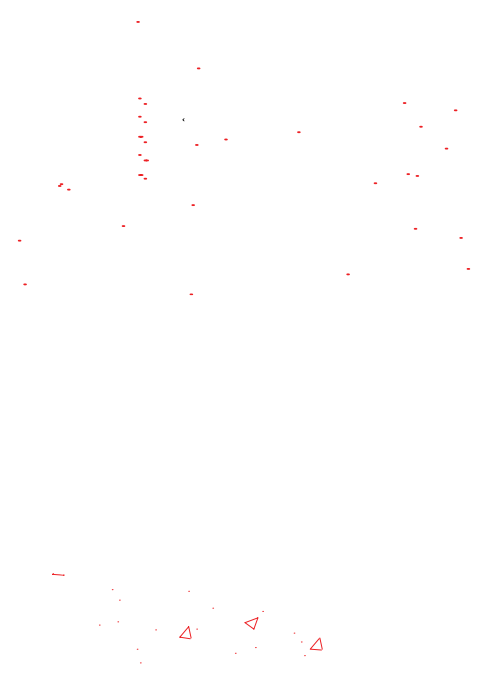
40mm - 50mm - 60mm - 75mm - 100mm NRG Panel
Brick Cavity Flushing



DWR 16

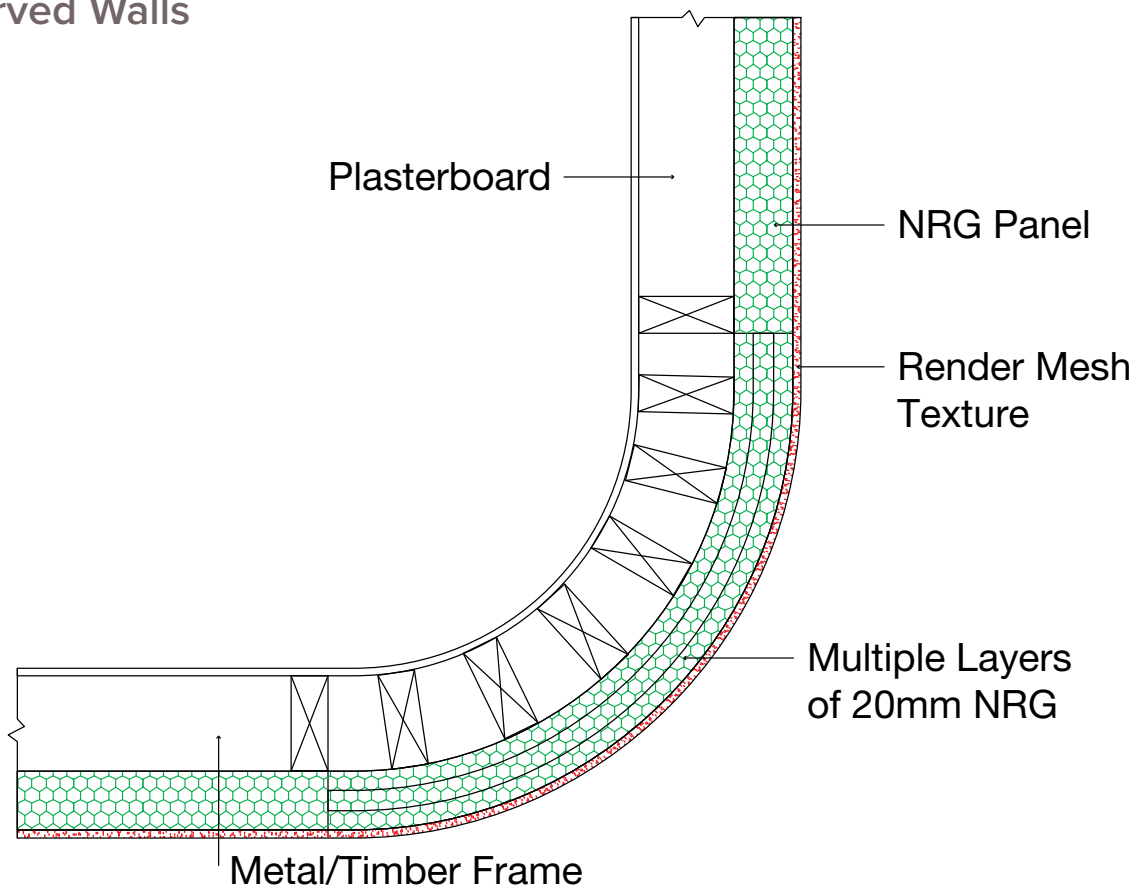
NRG Party Wall





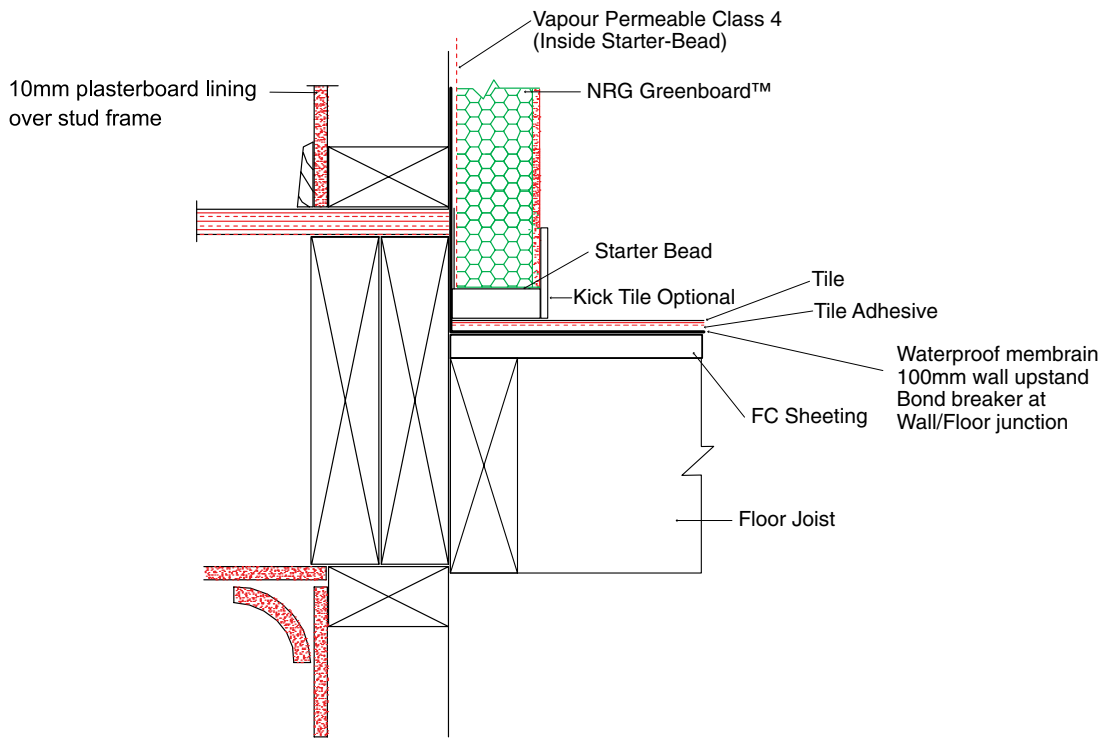
DWR 18

Curved Walls



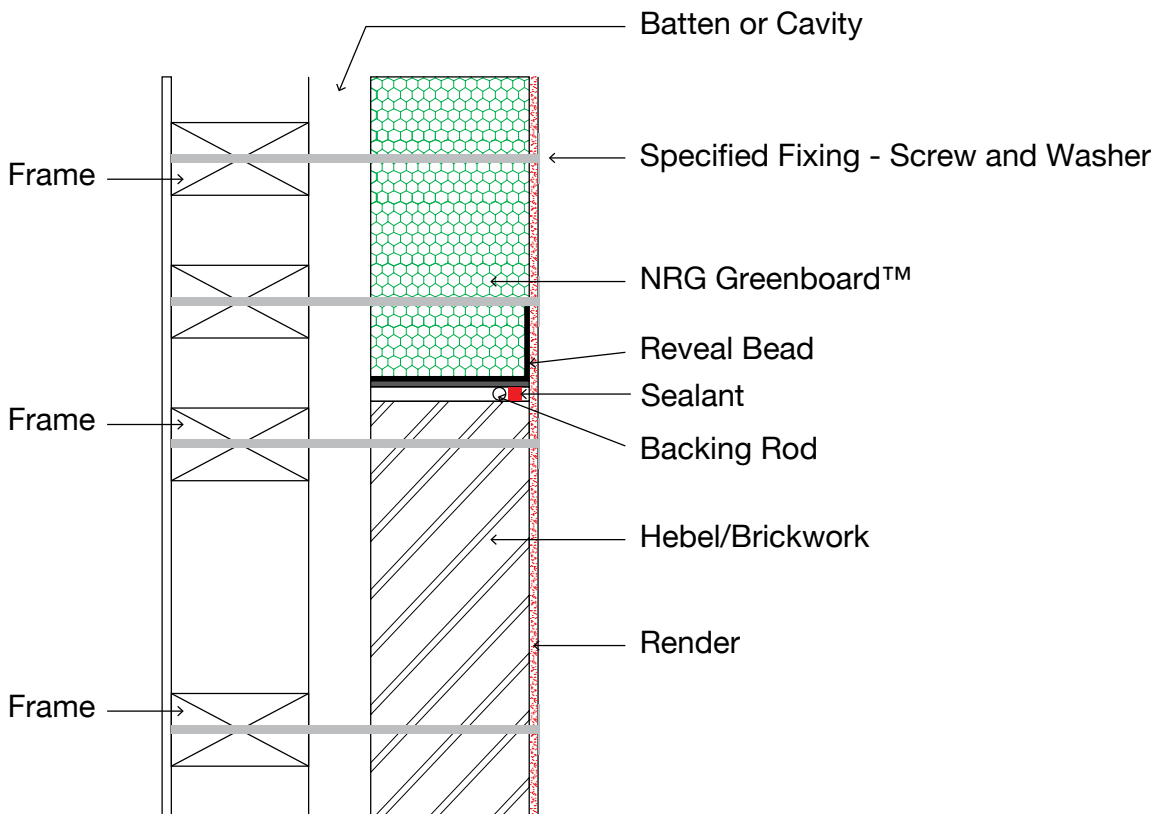
DWR 19

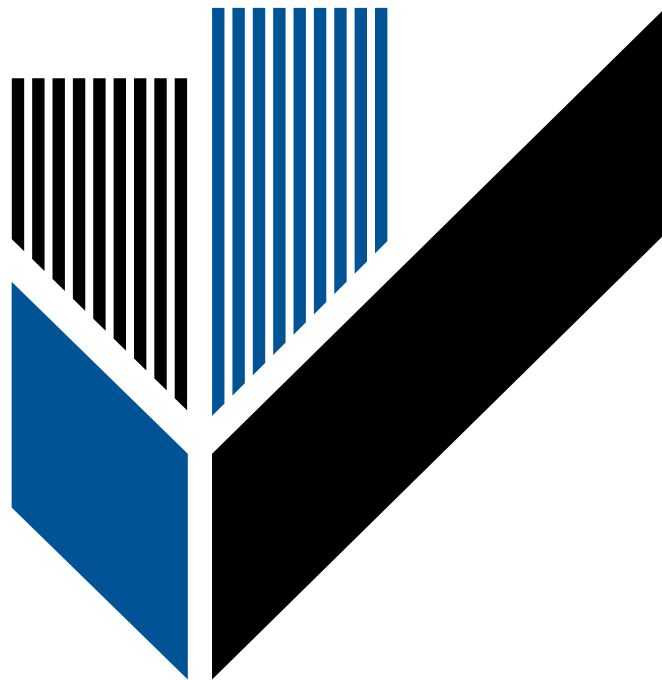
Balcony Detail



DWR 20

40mm - 50mm - 60mm - 75mm - 100mm NRG Panel NRG Greenboard™ / Masonry Detail Metal top hat batten or cavity





CODEMARK™
GM-09-CM30005

CODEMARK™ ACCREDITATION

**NRG GREENBOARD™ is CodeMark™ Accredited and complies with the
building Code of Australia (BCA)**

NOTE: CodeMark Certification on NRG Greenboard Insulated Wall Cladding Only

BAL29 (Bush Fire Attack Level)

NRG Greenboard™ is tested to BAL29 (AS1530.8.1-2007)



Certificate of Conformity



Global-Mark Pty Ltd,
Suite 4.07, 32 Delhi Road,
North Ryde NSW 2113,
Australia

Tel: +61 (0)2 9886 0222 -
www.Global-Mark.com.au

Certificate Holder:

NRG Building Systems
(Aust) Pty Ltd
3/13-15 Octal St Yatala,
QLD 4207

Tel: +61 (0)2 6672 2227 -
www.nrggreenboard.com

Certificate number: CM30005 Rev3

THIS IS TO CERTIFY THAT

NRG Greenboard™ Insulated Wall Cladding System

Type and/or use of product:

NRG Greenboard™ Insulated Wall Cladding System with thermal insulation properties.

Description of product:

- Expanded polystyrene: 40, 50, 60, 75 or 100mm thick complying with Class M of AS 1366.3-1992 (R 2018), which contains Bifenthrin
- Direct fixed to stud framing by screws and PVC washers or fixed to stud framing through EPS battens to form a drainage cavity
- PVC (UV stabilized) or Aluminium beading
- 5 x 5 mm alkali resistant fibreglass mesh reinforcement
- Polymer modified render system to NRG Render Specification
- Acrylic based texture membrane coating

COMPLIES WITH THE FOLLOWING BCA PROVISIONS AND STATE OR TERRITORY VARIATION(S)

BCA 2022

Performance Requirement(s)	Volume One		Volume Two including ABCB Housing Provisions	
	B1P1 (1) & (2) (a),(b),(c),(d),(h),(i),(j),(k) & (l)	Structural reliability	H1P1 (1) & (2) (a),(b),(c),(d),(h),(i),(j),(k) & (l) & (3)	Structural stability and resistance
B1P2	Structural resistance			
F1P4	Rising damp	H2P2	Weatherproofing	

Scope of certification: The CodeMark Scheme is a building product certification scheme. The rules of the Scheme are available at the ABCB website www.abcb.gov.au. This Certificate of Conformity is to confirm that the relevant requirements of the Building Code of Australia (BCA) as claimed against have been met. The responsibility for the product performance and its fitness for the intended use remain with the certificate holder. The certification is not transferrable to a manufacturer not listed on Appendix A of this certificate.

Disclaimer: The Scheme Owner, Scheme Administrator and Scheme Accreditation Body do not make any representations, warranties or guarantees, and accept no legal liability whatsoever arising from or connected to, the accuracy, reliability, currency or completeness of any material contained within this certificate; and the Scheme Owner, Scheme Administrator and Scheme Accreditation Body disclaim to the extent permitted by law, all liability (including negligence) for claims of losses, expenses, damages and costs arising as a result of the use of the product(s) referred to in this certificate.

The purpose of Global-Mark construction site audits is to confirm the practicability of installing the product; and to confirm the appropriateness and accuracy of installation instructions. In placing the CodeMark mark on the product/system, the certificate holder makes a declaration of compliance with the certification standard(s) and confirms that the product is identical to the product certified herein. In issuing this Certificate of Approval Global-Mark has relied on the expertise of external bodies (laboratories, and technical experts).

Hervé Michoux
Global-Mark Managing Director

Peter Gardner
Unrestricted Building Certifier

Date of issue: 17/05/2022

Date of expiry: 17/05/2025





BAL29

AS1530.8.1-



APPLICATION FORM FOR NRG CODEMARK™ CERTIFICATION (ISSUE 5)

NRG Energy Efficient Building Systems has developed a Lightweight Energy Efficient External Wall Cladding System that has **Codemark™ Certification**. This certification advises Building Inspectors, Building Certifiers, Designers, Builders, Home Insurers that NRG Greenboard™ Wall Cladding **Deems to Comply** to the Building Code of Australia (BCA).

To apply for the NRG Greenboard™ Codemark Certification for your Greenboard™ Wall Cladding project the Builder and Installer must fill out in full this application form, sign and return to NRG within a month of installation to register the project for Certification.

PROJECT DETAILS

Job Address.....

State..... Postcode.....

GREENBOARD™ SUPPLIER

NRG Greenboard™ Distributor was.....

What thickness of sheets and how many purchases.....

Render Specification.....

BUILDERS DETAILS

Builders Name..... Licence No.....

Company Name..... Phone..... Fax.....

Address..... Email.....

I, the builder certify that I have installed the NRG Greenboard™ wall cladding in accordance with the NRG Greenboard™ Specification Manual edition 11 and am aware of the importance of installing the NRG Greenboard™ to the specifications to achieve CodeMark™ Accreditation.

Builders Signature.....

Date.....

p. 07 3382 7742 f. 07 3382 7741

e. sales@nrggreenboard.com

w. www.nrggreenboard.com

PO Box 110, Ormeau QLD 4208

Factory 3,13-15 Octal St Yatala St 4207



BAL29

(AS1530.8.1-2007)



CAVITY RELEASE INSTALLATION CHECK LIST FOR NRG CODEMARK™ CERTIFICATION

INSTALLER

Name..... Company.....

Address.....

Phone..... Email.....

License No.....

(A) NRG GREENBOARD™ CAVITY RELEASE INSTALLATION CHECKLIST

- Installation has been completed in accordance with NRG Specifications Manual (Version 11 September 2022)
- Both Builder and Installer
 - are conversant with the method of Greenboard™ Installation and
 - have ready access to all relevant technical information related to Greenboard™ Installation
- NRG Greenboard™ is fixed in Accordance with fastener spacing's (table B.1, page 7). NRG Technical Manual e.g. 300mm centres vertically, 450mm centres horizontally
- Glue both horizontal and vertical. Greenboard™ sheet edges to each adjoining sheet using an approved construction glue or expanda foam
- Allow 3mm gap between Greenboard™ edge and openings for bead and sealing procedure (refer table 17.1.16, page 14) NRG Technical Manual (Version 11 September 2022).
- Expansion Joints are installed where NRG Greenboard™ meets other substrates
- Expansion Joints are installed horizontally maximum of 3 metre spacing and vertically maximum of 8 metre spacing (as per detail, DWR09 and DWR10)

I the Installer have checked the checklist and have installed the NRG Greenboard™ Wall Cladding in accordance to NRG Greenboard™ Specification Manual (Version 11, September 2022).

Installer Signature.....

Date.....

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PO Box 2405, Burleigh MDC QLD 4220
Factory 4, 32-38 Dover Drive, West Burleigh QLD 4220

NRG GREENBOARD



BAL 29 Rating
Bush Fire Attack level

Sponsor name	NRG Building Systems	Document no	267333 SOA6.1
Sponsor address	32–38 Drover Drive, West Burleigh, 4220, QLD, Australia		
Issue date	2 November 2023	Expiry date	31 May 2027

Description of assessed system

The assessed system consisted of a framed wall system as appropriate for external walls.

The scope of the assessment includes the bushfire attack level (BAL) of the described assessed system in accordance with AS 1530.8.1:2007.

Assessed system performance

The element of construction described above was assessed by this laboratory on behalf of the report sponsor in accordance with the stated test standard in Table 1 and achieved the results outlined in Table 2. A complete description of the assessed construction can be found within the referenced assessment report.

Table 1 Test standard and assessment report details

Referenced report	Test standard	Referenced report issue date	Referenced report expiry date
267333 R6.1	AS 1530.8.1:2007	31 October 2023	31 May 2027

Table 2 Formal assessment summary

Reference test	Description	Variations	BAL rating
EWFA 2581501.2	The test assembly consisted of a nominal 3000 mm wide X 3000 mm long X 211 mm thick wall system. The wall system consisted of two 90 mm X 45 mm timber stud frames incorporating an 800 mm X 800 mm timber reveal window. The unexposed side was faced with 10 mm Gyprock plasterboard. The exposed face consisted of 75 mm NRG Greenboard™ foam cladding onto which 10 mm thick ROCKCOTE PM100 QRender Pre-Blended Cement Render and Mesh, ROCKCOTE Sandcote Pre-coloured Acrylic Coating and ROCKCOTE Armor Flex paint were applied.	<ul style="list-style-type: none"> The render is to be NRG Polymer Modified Render instead of ROCKCOTE QRender PM100, as tested. The thickness is to remain unchanged and include grooves in the Greenboard™. The fibreglass mesh must remain, as tested. The 1 mm texture finish to be NRG Sand Medium or other similar 1 mm acrylic texture coating instead of ROCKCOTE Sandcote as tested The final acrylic paint coating to be NRG Shieldcoat instead of ROCKCOTE Armour Flex The tested EPS battens to be optionally removed The timber framing to be 90 mm X 35 mm or 70 mm X 35 mm instead of the tested 90 mm X 45 mm Wall framing to be optionally light gauge steel (up to 2 mm BMT) instead of timber Substitution of the tested PVC beads with aluminium beads Inclusion of 75 mm as the minimum thickness for NRG Greenboard™. 	BAL A – 29

Conditions / validity

- This document is provided for general information only and does not comply with the regulatory requirements for evidence of compliance.
- The main assessment report must be provided for regulatory requirements and evidence of compliance.
- Reference should be made to the relevant assessment report or regulatory information report to determine the applicability of the test result to a proposed installation. Full details of the constructions and justification for the conclusions given, along with the validity statements, are given in the assessment reports.
- The results of the assessment report may be used to assess the bushfire attack level (BAL), but it should be recognised that a single test method will not provide a full assessment of fire hazard under all conditions.
- All work and services carried out by Warringtonfire Australia are subject to and conducted in accordance with our standard terms and conditions. These are available on request or at <https://www.element.com/terms/terms-and-conditions>.

Testing authority	Warringtonfire Australia Pty Ltd	
Address	409-411 Hammond Road, Dandenong South, VIC 3175	
Phone	T: +61 (0)3 9787 1000	
ABN	81 050 241 524	
Email	australiafire@warringtonfire.com	
Authorisation	Prepared by:	Reviewed by:
		
	Kimal Wasalathilake	Omar Saad

NRG GREENBOARD™ WALL SYSTEM **COMPONENTS FOR BAL29 AREAS**

- 1/ 75mm/100mm **NRG Greenboard™** 2480 x 1200
- 2/ NRG 100mm/125mm 10 gauge bugle head screws
- 3/ NRG Greenboard™ 40mm Washers
- 4/ Sisalation: Vapour Permeable Class 4
- 5/ NRG PVC/Aluminium 6.0mm Render Beads
- 6/ NRG Greenboard Adhesive
- 7/ NRG Flex and Seal Sealant
- 8/ NRG Polymer Modified Render(6mm min)
- 9/ NRG Sand Medium Texture(1mm min)
- 10/ NRG Shield Coat or similar(2 coats)

NOTE: For BAL certification these components must not be altered.

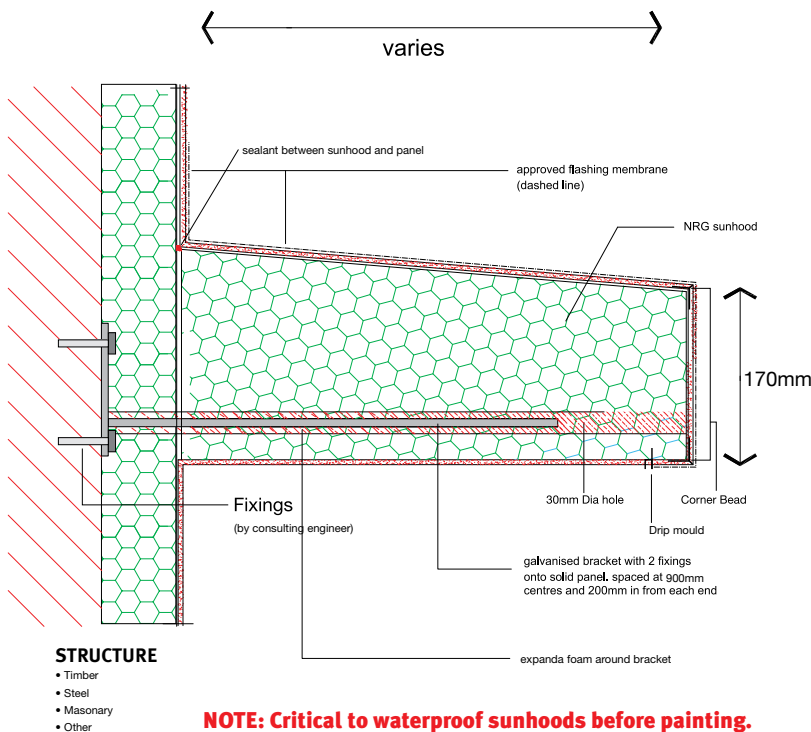


Sunhoods & Blades

Design Simplicity-Energy Efficient-Building Systems



Combining Sunhoods with NRG Greenboard™ Wall Cladding System



NRG Sunhood Options

OPTION 1 NRG EPS to be polymer rendered

OPTION 2 Pre finished polyurethane hardcoat

Benefits

- Design Simplicity
- Lightweight Construction
- Speed of Installation
- No more costly fabrication or forming-up
- Suitable for Residential, Commercial, Industrial and Refurbishment
- Providing a 'polymer modified, fully reinforced render system'.
- Extensive choice of textures & colour finishes. (applied by licensed trades persons on site)
- Assist in Compliance* with BCA 2006 3.12.2.2 -Volume Two-Shading

Australian Building Codes Board -3.12.2.2 Shading -Page 542

Where shading is required to comply with 3.12.2.1, it must—

- be provided by an external permanent projection, such as a verandah, balcony, fixed canopy, eaves, shading hood which
 - extends horizontally on both sides of the glazing....
 - provide the equivalent shading to (i)....
- be provided by an external shading device, which
 - is capable of restricting at least 80% of the summer solar radiation; &
 - if adjustable, is readily operated.

Explanatory information:

- Shading devices can include fixed louvers, However, such devices need to be designed for the climate and latitude to ensure that summer sun penetration is restricted, while winter sun access is achieved.
- Gutters can only be considered as providing shading if attached.
- Shading devices can be either attached or located . . . may be considered to provide shading to glazing if it complies with 3.12.2.2(b).

Extracts from the Building Code of Australia have been supplied with the permission of the Australian Building Codes Board -www.abcb.gov.au

NRG Sunhoods and Blades are design for Aesthetic and Energy Efficiency Purposes and are engineered for wind loading, not as a trafficable area (i.e. platform/support area).

Description (Standard length 2500mm)	Width (mm)	Front Height (mm)	Rear Height (mm)	Bracket Size
Sunhood -Window Awning	300mm	170mm	210mm	200mm
Sunhood -Window Awning	450mm	170mm	210mm	300mm
Sunhood -Window Awning	600mm	170mm	210mm	450mm
Sunhood -Window Awning	750mm	170mm	210mm	600mm
Sunhood -Window Awning	900mm	170mm	210mm	750mm
Blades	As Above	170mm	170mm	As Above

* Subject to site orientation of structure by qualified design professional and engineers specifications, together with the limitations governed by physical dimensions due to manufacturing processes

** NRG Energy Building Systems reserves the right to alter dimensions of Sunhood and Blades. *** Special Sizes' within the limit of widths shown may be ordered —price on application.

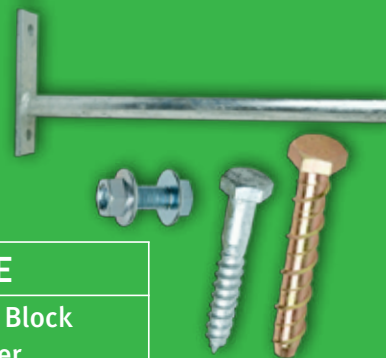
IMPORTANT INFORMATION: Light reflective value (LRV) is the total quality of usable and visible light reflected by a surface in all directions at all wavelengths when illuminated by a light source. LRV is a measurement that tells you how much light a colour reflects, and conversely how much it absorbs. NRG EPS (polystyrene) sunhoods should have a recommended minimum reflectance value of 40% as the final paint application. This will assist in reduced heat impact to horizontal surfaces and reflect intense summer temperatures.

STEP 1 DETERMINE NRG SUNHOOD OR NRG BLADE

...positioning to exterior wall/ window/ door.

**IMPORTANT: TO BE INSTALLED BY QUALIFIED TRADESMEN****STEP 2 DETERMINE EXTERIOR WALL STRUCTURE & SUBSTRATE:**

...Timber/steel frame, masonry block/brick, tilt panel. Select correct galvanised mechanical fixings for exterior wall structure/substrate (see table below).

**GALVANISED BRACKET MECHANICAL FIXING TABLE**

SUBSTRATE	GALV 12MM Dia	MIN LENGTH	EXAMPLE
Masonry	Dyna Bolt	50mm	Tilt Panel/ Block
Masonry	Coach Screw/Plug	65mm	Brick Veneer
Timber Frame	Coach Screw	65mm	Cladding Substrate
Steel Frame	Purlin Bolt	30mm	Cladding Substrate

STEP 2.1 ENSURE LEVEL LINE SET OUT:

...to the underside of the NRG Sunhood, desired height. Locate and fix galvanised mechanical brackets to wall structure @ 600mm centres maximum. (NOTE: Polyurethane seal back plate of bracket & bolt penetrations to wall structure/ substrate to prevent water egress).

STEP 3 TRANSFER BRACKET CENTRE DIMENSION:

...to the rear back edge of the NRG Sunhood/ Blade. Position height co-ordinate of axis (for bracket hole) approximately 50mm up from the base of Sunhood or centre- line of blade.

STEP 4 USING A 30mm DRILL BIT:

...bore this oversized hole to the required depth to each corresponding bracket. Thoroughly remove all loose e.p.s bead debris.

STEP 5 DRY FIT NRG SUNHOOD/BLADE:

...onto structural galvanised bolted brackets to wall structure. Ensure Sunhood/Blade fits correctly (level & plumb) at this stage.

STEP 6 REMOVE NRG SUNHOOD/BLADE:

...Place face (front edge) down onto ground level. Using expandable trigger foam, inject (saturate) all 30mm bored holes ensuring liquid foam has encased entire sleeve hole from its base up to the outer edge. Also generously trigger foam the back edge face that is to secure to wall structure.

STEP 7 SLIDE NRG SUNHOOD/BLADE:

...onto brackets and push back until the rear back face of the Sunhood/ Blade compresses tight back to wall structure. Check for level/ plumb into final position and temporarily prop support for 24 hours.

STEP 8 ADHERE P.V.C. UV STABILISED EXTERNAL BEADS:

to all external corners and use expansion bead to underside front edge to form a drip groove.

STEP 9 PRIMARY & SECONDARY POLYURETHANE SEAL:

(prior to render) ...Sunhood/Blade attachment at wall intersection. Secondary over seal post render (prior to waterproofing process)

STEP 10 NRG RENDER ACRYLIC SYSTEM:

...1st coat and 2nd Polymer Modified render/ fibreglass mesh. Top coat acrylic texture. NOTE: 48 HOUR CURE TIME ('V' disk join @ wall top internal for Polyurethane Secondary over seal).

STEP 11 WATERPROOF APPLICATION:

...x 2 coats over top face, (turn up 100mm onto wall face) front edge and bottom edge return to drip groove. (NOTE: Using a polyurethane UV stabilised exterior membrane)

STEP 12 APPLIED FINISHES:

NOTE: To exterior specification for rendered surfaces.



WARRANTY

NRG Building Systems Pty Ltd ("NRG") warrants to the purchaser of the Product and the last purchaser prior to the installation of the Product for a period of 10 years from the date of purchase that NRG Greenboard™ sheets (the "Product") will be free from defects due to defective factory workmanship or materials and, subject to compliance with the conditions below, will be resistant to cracking, rotting, damage from termite attacks to the extent set out in NRG's relevant published Specifications current at the time of installation. Nothing in this document shall exclude or modify any legal rights a customer may have under the Trade Practices Act or otherwise which cannot be excluded or modified at law.

CONDITIONS OF WARRANTY

The warranty is strictly subject to the following conditions:

- i) NRG will not be liable for breach of warranty unless the claimant provides proof of purchase and makes a written claim either within 30 days after the defect would have become reasonably apparent or, if the defect was reasonably apparent prior to installation, then the claim must be made prior to installation;
- ii) this warranty is transferable;
- iii) the Product must be installed and maintained strictly in accordance with the relevant NRG Specifications current at the time of installation and must be installed in conjunction with the components or products specified in the specifications; To obtain copies of such specifications, contact NRG Building Systems on 1800 674 001. Further, all other products, including coating and jointing systems, applied to or used in conjunction with the Product must be applied or installed and maintained strictly in accordance with the relevant manufacturer's instructions and good trade practice;
- iv) the project must be designed and constructed in strict compliance with all relevant provisions of the current Building Code of Australia, regulations and standards;
- v) the claimant's sole remedy for breach of warranty is (at NRG's option) that NRG will either supply replacement product, rectify the affected product or pay for the cost of the replacement or rectification of the affected product;
- vi) NRG will not be liable for any losses or damages (whether direct or indirect) including property damage or personal injury, consequential loss, economic loss or loss of profits, arising in contract or negligence or howsoever arising. Without limiting the foregoing, NRG will not be liable for any claims, damages or defects arising from or in any way attributable to poor workmanship, poor design or detailing, settlement or structural movement and/or movement of materials to which the Product is attached, incorrect design of the structure, acts of God including but not limited to earthquakes, cyclones, floods or other severe weather conditions or unusual climatic conditions, efflorescence or performance of paint/coatings applied to the Product, normal wear and tear, growth of mould, mildew, fungi, bacteria, or any organism on any Product surface or Product (whether on the exposed or unexposed surfaces);
- vii) all warranties, conditions, liabilities and obligations other than those specified in this warranty are excluded to the fullest extent allowed by law;
- i) if meeting a claim under this warranty involves re-coating of Products, there may be slight colour differences between the original and replacement products due to the effects of weathering and variations in materials over time.

DISCLAIMER

The recommendations in NRG's specifications manual are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to conditions (iii), (iv), (vi) and (vii) above. Further, as the successful performance of the relevant system depends on numerous factors outside the control of NRG (e.g. quality of workmanship and design), NRG shall not be liable for the recommendations in that literature and the performance of the relevant system, including its suitability for any purpose or ability to satisfy the relevant provisions of the Building Code of Australia, regulations and standards. NRG Building Systems has endeavoured to produce this manual taking into account good building practices and experience gained over many years. NRG Building Systems will not be liable for omissions and or errors contained in this manual.'

NRG GREENBOARD™ Fence



4960x1200x200

4960x600x200

2480x1200x200

2480x600x200

THERMAL RATING FOR GREENBOARD WALL SYSTEM Timber or Steel Frame

NRG DIRECT FIX SYSTEM

NRG Greenboard™ Thickness	50mm	60mm	75mm	100mm
External Air Film	0.03 R	0.03 R	0.03 R	0.03 R
Render System	0.02 R	0.02 R	0.02 R	0.02 R
NRG Greenboard™ R-value	1.03 R	1.56 R	1.95 R	2.60 R
Breather Sisalation Wrap	0.48 R	0.48 R	0.48 R	0.48 R
Cavity and Frame	0.17 R	0.17 R	0.17 R	0.17 R
10mm PlasterBoard	0.06 R	0.06 R	0.06 R	0.06 R
Internal Air Film	0.12 R	0.12 R	0.12 R	0.12 R
Total R-Value	2.18 R	2.44 R	2.83 R	3.48 R

NRG CAVITY RELEASE SYSTEM

NRG Greenboard™ Thickness	50mm	60mm	75mm	100mm
External Air Film	0.03 R	0.03 R	0.03 R	0.03 R
Render System	0.02 R	0.02 R	0.02 R	0.02 R
NRG Greenboard™ R-value	1.30 R	1.56 R	1.95 R	2.60 R
NRG Greenboard™ EPS Batten	0.48 R	0.48 R	0.48 R	0.48 R
Breather Sisalation Wrap	0.48 R	0.48 R	0.48 R	0.48 R
Cavity and Frame	0.17 R	0.17 R	0.17 R	0.17 R
10mm Plaster Board	0.06 R	0.06 R	0.06 R	0.06 R
Internal Air Film	0.12 R	0.12 R	0.12 R	0.12 R
Total R-Value	2.66 R	2.92 R	3.31 R	3.96 R

All insulation materials are rated for their performance in restricting heat transfer. This is expressed as an R-value which is the measure of material's resistance heat transfer (Thermal Resistance). The higher the R-value, the greater the insulating effects.

Total R-value ratings were checked by,



PO Box 1721
Springwood Qld, 4127

PH. 1300 304 313 or Email. info@qbears.com.au



NRG GREENBOARD™ and the ENVIRONMENT

- **NRG Greenboard™ Energy Efficient Insulative Walling System Product Information.**
- **NRG Greenboard™ is comprised of 98% air and therefore only 2% polystyrene making it a highly efficient use of raw material.**
- **NRG Greenboard™ remains inert, is non toxic, odour free and nonbiodegradable.**
- **No CFC's or HCFC's foam agents are used in its manufacture, so NRG Greenboard™ causes no damage to the ozone layer.**
- **Effective installation of NRG Greenboard™ can cut carbon dioxide emissions by up to 50%.**
- **The R-value of NRG Greenboard™ does not deteriorate during its life time; therefore the reduction in emissions lasts the full lifetime of the building.**
- **The energy used to manufacture NRG Greenboard™ is recovered within six months by the energy saved in the building in which NRG Greenboard™ is installed.**
- **Typically, for every kg of oil used in NRG Greenboard™ manufacturing, about 200kg will be saved in reduced heating demands.**
- **All NRG Greenboard™ waste is recycled. Either through installation of off-cuts in the wall cavity or it can be granulated and mixed with virgin material to make new products.**

Environmentally Responsible. Energy Efficient. Building Systems.



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Free Call 1800 674 001

NOTE: CodeMark Certification on NRG Greenboard Insulated Wall Cladding Only



ENVIRONMENTALLY RESPONSIBLE. ENERGY EFFICIENT. BUILDING SYSTEMS.



**NRG Provides you with seasonal
comfort all year round**

