Supercrete™

Sustainable Cost Effective Construction & Coating Systems

Block

General Information

Supercoat™

100% NZ
Owned & Operated

Contents

1.0 Scope

In the past, design of structures using Supercrete™ Block has been done in accordance with the Australian Standards and more recently, in accordance with a NZ document modifying the Australian Standards to align with NZS 4229.

There have always been differences between New Zealand and Australian construction. Code requirements and construction methodology has required additional input from the NZ designer to produce code compliant designs using Supercrete™ Block. This design guide now brings all the requirements for New Zealand specific design together to assist designers, architects, engineers, and builders in the design and construction of structures using Supercrete™ Block in New Zealand. It is also for the assistance of local council and regulatory staff as a guide to recommended methods for design and construction using Supercrete™ Block.

Note that the material properties and benefits, and manufacturing process are not covered in this guide. For this information, refer to the Supercrete Material Properties Manual.

This design guide includes the following information:

- Basic block construction details and architectural details, including design information for block structures that do not require specific engineering design in accordance with NZS 4230 Code of Practice for the Design of Masonry Structures (Grade C masonry)
- Bracing wall design
- Design information for block structures that do require specific design in accordance with NZS 4230 (Grade B masonry)

Note that there is no specific code in New Zealand to date for lightweight autoclaved aerated concrete. The design principles detailed in NZS 4229 Code of Practice for Masonry Structures Not Requiring Specific Design, and NZS 4230 for masonry structures requiring specific design can, however, still be applied to Supercrete™ Block design as this type of construction does fall within the parameters of these codes.

They do not however, have design tables and data specifically for AAC and where applicable, design tables and information are included in this design guide to allow for the differing strength and construction using Supercrete™ Block. There are also some additional aspects of AAC block design that are included that often do not require analysis with traditional concrete masonry, such as face loading of walls. The main physical differences between traditional filled core concrete masonry and Supercrete™ Block construction are given in Table 1.

Where applicable, AS 3700 Masonry Structures has been used to derive tables as the Australian Code does specifically include AAC structures. This has only been used where New Zealand codes do not specifically contravene the Australian Code.

Table 1. Comparison between traditional concrete masonry and Supercrete™ Block walls

	Traditional core filled concrete masonry	Supercrete™ Block
Vertical Reinforcing	D12 bars at 800 max. crs in block cores	D12 rod in drilled 50mm holes at 1000mm max crs
Block Joints	Blocks levelled with 10mm nominal thickness or mortar	Blocks Glued with 2-3mm thickness of Supercoat Superbond Adhesive to form walls into single homogeneous panels
Bond Beams	Depends on construction but in solid wall construction at 1200 crs max. Stirrups required in all bond beams	Normally a single bond beam at top of wall of 3000mm crs - no stirrups required
Grout	Grout infill is instrumental in bonding blocks together and forms the main structural component in the wall	Grout is simply a filler and bonding agent to enable vertical rods to work together with the AAC
Mass	2.2kPa per m height	0.65 kPa per m height
R Value	0.47 for 200mm thick wall only	1.54 for 200mm thick wall only
Bracing Capacity 2.4x2.4m Panel	875 BU for 200 series wall	470 BU for 200 thick wall

Note that the wall mass of a Supercrete™ Block wall is approximately ¼ the mass of a traditional concrete masonry wall while the bracing capacity is still more than half that of the latter.

2.0 What is Supercrete™ Block Construction?

Supercrete™ Blocks are solid unreinforced AAC with a dry density of 525 kg/m³ which is slightly less than most softwood timbers. Blocks are available in a 250mm course height and are all 600mm long. Thicknesses of 50, 100, 150, 200, 250 and 300mm are available. Supercrete™ Block walls are able to take full structural loads within a building, including floor and bracing loads. They are used for both external walls and internal load bearing or non load bearing walls, and can be combined with Supercrete™ structural floor panels so that as many of the main building components are the same material. This reduces relative movement of building parts to a minimum and assists with seismic force dissipation with all the Supercrete™ parts of the structure moving uniformly together. There is also the added advantage that the reduced mass of all these AAC components reduces the actual seismic forces on the structure as the seismic forces are directly proportional to the building mass.

The blocks are glued together with Supercoat™ Superbond Adhesive to form solid masonry walls. Walls are normally reinforced with D12 vertical rods which are dropped into place in 50mm diameter holes bored through the blocks as they are laid.

The rods are epoxy grouted into the foundation. Walls sit on a DPC strip which acts as a slip layer to take up differential movement between the floor and the wall. The first block course will normally sit in a full width rebate along the edge of the slab. The top course of each wall will normally have a poured concrete bond beam which is simply formed by tying two horizontal deformed bars to the vertical rods, and forming the sides with 50mm Supercrete™ facing blocks and filling the space with ordinary grade concrete.

Unlike many construction systems, Supercrete™ Block construction recognizes the fact that all buildings move under the influence of temperature, moisture content, ground movement and varying live loads. This movement is simply accommodated by recognizing how the individual parts of the building would want to move, and installing joints at these locations to keep the structure waterproof.

Because of the insulating and acoustic properties of the Supercrete™ material, it is not necessary to provide additional insulation on the walls, and they do not need to be strapped and lined as with traditional concrete masonry.

The normal finish for Supercrete™ block walls is to render them with Supercoat™ Superbuild Render, which is trowelled on in two 3mm layers, texture rendered and then coated with an acrylic paint. (refer to The Supercoat Coating Guide).

Design using Supercrete™ Block is simpler than traditional concrete masonry as the designer is able to use the material in free form structures and to embellish designs with decoration and mouldings all from the same Supercrete™ material. The basic design principles however remain the same and guidelines for these are outlined in Section 6.0

3.0 Benefits

A summary of the advantages of using Supercrete™ block construction is as follows:

- The block construction system is very simple yet allows complete design flexibility for simple or complex designs and architectural features.
- Solid wall construction gives a quality and feel to a building that is normally associated only with elite homes at the top end of the market.
- Independent cost comparisons show that Supercrete™ Block is great value for money.
- Supercrete™ Block does not rot or decay over time, does not support the growth of fungus or mould, and does not harbour rodents or insects.
- Block construction has all the inherent thermal, acoustic and fire resistant benefits of AAC. All walls 150mm thick or more have a 4-hour fire rating.
- Supercrete™ Block construction can be complemented with Supercrete floor panels, roof panels, stair treads, and wall panels.
- As blocks are glued together, they form homogeneous panels with uniform thermal and acoustic properties over the whole wall surface.
- The low density of Supercrete™ Block gives a high strength to weight ratio, with a reduced bracing demand. Supercrete™ Block buildings have performed well under actual earthquake conditions.
- Supercrete™ Block can be used for internal and external walls, load-bearing walls and for multi-storey construction.
- Supercrete™ Block is easy to work and shape with tools normally used for timber, rather than concrete.

4.0 Acoustic Properties

4.1 Overview

Supercrete™ Block has very good acoustic properties i.e. it is a very effective sound insulator. The acoustic properties™ of Supercrete are covered in greater depth in the Supercrete™ Material Properties Guide and the Supercrete™ Acoustic Wall Systems Design Guide. The method of measuring sound volume and its passage through walls and floors are detailed in these guides and the following is just a brief overview to give a feel for the sound insulation you can expect from Supercrete™ Block construction. For most residential applications, the inherent acoustic properties of Supercrete are a bonus advantage of using the material. Any specific acoustic requirements for a structure will require the services of an acoustic engineer.

In New Zealand, the sound insulation properties of a material are expressed as a Sound Transmission Class (STC) which can be loosely translated as the number of decibels that a material can be expected to reduce noise by. Unlike thermal properties, acoustic properties of different materials cannot be added together as the sound transmission is also dependant on the sound frequency. It is also complicated by the fact that the STC scale is logarithmic rather than linear, so a noise drop of say 5 decibels in the upper noise range will be far more noticeable than a 5 decibel drop in a lower noise range. Typical intensities of common noises are shown in table 3.

The STC ratings of various thicknesses of Supercrete™ Block walls are shown in Table 2.

4.2 Intertenancy walls

Clause G6 of the NZBC requires that common walls between different occupancies must have a STC rating of 55 or more, although the site performance of a wall when tested in place may be a maximum of 5 decibels below the laboratory test value.

As with most materials, Supercrete™ Block on its own will not meet the minimum requirement but does give a very good basis for an intertenancy wall with supplementary lining and/or insulation that will. Table 4 gives various examples of Supercrete™ Block walls with supplementary lining and insulation. It should also be noted that the NZBC requirement is a minimum, and as with thermal insulation, consideration should be given to whether the minimum is satisfactory, or whether a higher degree of acoustic insulation is required. Some areas of buildings may be insulated more than others depending on their use e.g. sleeping areas or media rooms. Varying the acoustic insulation throughout a Supercrete™ Block structure is a relatively simple exercise as the Supercrete™ Block gives such a good base STC value. For more information on using Supercrete™ for acoustic insulation in Intertenancy walls, refer to the Supercrete™ Acoustic Wall Systems Design Guide.

Table 2. Supercrete™ Block Acoustic Insulation

Supercrete™ Block thickness mm	STC value of black only
100	38
150	43
200	43
250	46
300	49

Table 3. Common Noises

Noise Source	Intensity Decibels
Virtual Silence	10
Quiet Room	20
Average Home	30
Motor Car	40
Conversation	50
Traffic	60
Argument	70
Door Slamming	80
Rivet Gum	90
Car Horn	100
Thunder	110
Aero Engine	120
Threshold of pain	130

Table 4. Enhanced Supercrete™ Block wall acoustic values

Lining 1	Lining 2	Insulation	Supercrete™ Block thickness mm	STC
Render	Nil	Nil	150	46
			200	46
			250	48
			300	50
Render	Render	Nil	150	46
			200	46
			250	48
			300	50
10mm plasterboard	10mm plasterboard	Nil	200	43
			250	46
10mm plasterboard 28mm furring channel resilient mounts	10mm plasterboard	10kg/m3	100	50
			150	54
			200	56
			250	59

5.0 Thermal Design

5.1 Overview

Supercrete™ AAC has excellent heat insulating properties because of the entrained air within the cellular structure of the material. In most cases, the use of supplementary insulation can be avoided.

The thermal insulation of a material varies with the density of the material. Generally, the lower the density, the higher the proportion of entrained air, and the higher the insulating effect of the material. Heat transfer occurs by heat flowing from one side of a wall to the other side of the wall when there is a temperature difference between the two sides.

Heat flows from the hot side to the cooler side (first law of Thermodynamics) and cannot flow in reverse. This heat flow is expressed as a thermal resistance (R) of a material which is a measure of its resistance in allowing heat to flow between the two surfaces of the wall at different temperatures. The R Value is dependent on the thermal conductivity of the material and its density, the higher the R Value, the less heat flow, and the better the insulation.

However, as it is dependent on density, the R Value of a material can be significantly influenced by the moisture content as the air spaces with effectively zero mass will be replaced by a mass of water. Another way of looking at this is that the still air in the voids within a material provides almost perfect insulation as the heat cannot pass through these voids. When they are replaced with moisture, there is a medium then present through which the heat can pass.

5.2 Code requirements

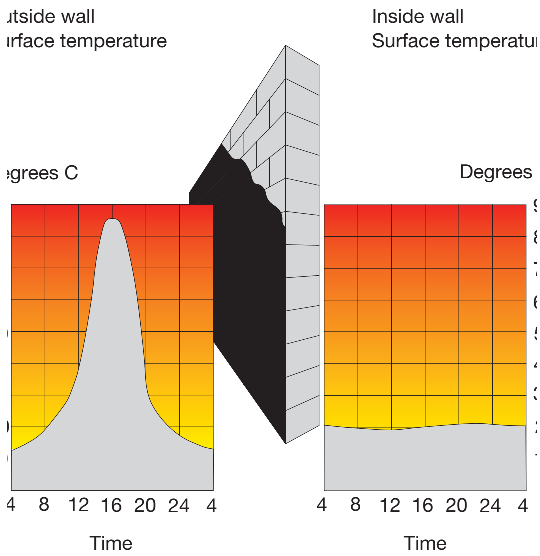
The NZ building Code specifies a minimum R Value for solid masonry construction of R1.0 to 1.2 in South Island residential construction and a minimum of R0.8 to 1.0 for most North Island areas. These values are lower than those required for timber framed construction due to the more homogeneous nature of masonry walls. However, these are minimums and consideration should be given at the design stage to the economics of achieving substantially higher figures and their payback throughout the life of the building, with regard to the cost of energy input to maintain a comfortable internal environment.

Table 5 shows that the 200mm minimum thickness of external Supercrete™ Block walls will meet the NZBC minimum R Value for all areas of New Zealand, even at a 10% moisture content. As the insulation value is directly proportional to the wall thickness, a 300mm thick wall will provide an additional 50% more insulation above this. This is not only important for winter warmth but also for summer cooling where the insulating properties of Supercrete™ Block can keep the interior of a Supercrete building pleasantly cool, even on the hottest of summer days.

The R Value is measured in m². °K/W or square metres of wall at a temperature difference in degrees Kelvin from one side to the other, per Watt of heat transferred. Note that a difference of one degree Kelvin is the same as a difference of one degree Celsius as the two scales are the same except for their base of absolute zero and the freezing point of water respectively.

Autoclaved Aerated Concrete Wall Surface Temperatures

The effectiveness of Supercrete™ Block in controlling internal room temperatures was illustrated in tests by the Fraunhofer Institute for Architectural Physics in Germany. Surface temperatures were measured over a 24-hour period on a 250mm thick Supercrete wall. The exterior of the wall was painted black to raise its surface temperature, which varied through a range of 70 degrees Celsius. The inside wall temperature remained at a comfortable 20 degrees Celsius with only a 2 degree variation. Test results are shown in the graph below.



The R Values of plain Supercrete™ Block walls of varying thicknesses are given in Table 5 for varying moisture content.

Table 5. Thermal resistance of Supercrete™ Block

Block Thicknessmm	R (m2.K/W) Dry State	R (m2.K/W) 5% m.c.	R (m2.K/W) 10% m.c.
100	.086	0.71	0.61
150	1.29	1.07	0.92
200	1.72	1.43	1.23
250	2.15	1.79	1.54
300	2.58	2.15	1.84

The normal moisture content in a NZ home will be between 5 and 10 percent. Supercrete™ Block is unusual in that the walls are homogeneous right through, with a material that is, in itself, insulating. This is different to most wall systems that are made up of several different materials, some of which will be insulating and some will not. This leads to heat leakage paths through walls via the least insulating materials. Timber framed walls have these heat leakage points at each timber framing member. Traditional concrete filled masonry construction, being much denser than Supercrete™, has little insulation inherent in the walls with the majority of heat flowing through the denser poured concrete, or the mortar joints. Supercrete™ Block with its thin glued joints presents a panel of uniform insulation over the whole wall area, and can meet NZBC minimums without any additional lining or insulation.

5.3 Lintels and Bond Beams

Poured concrete lintels have a high density compared to Supercrete™ Block, and an R Value that is lower. Where 50mm facing blocks are used on both sides of a poured in-situ lintel or bond beam, there is still effectively a 100mm layer of Supercrete™ insulation, and in walls thicker than 200mm, the total facing block thickness can be increased to 150 or 200mm for 250 and 300mm thick walls respectively (Type 6 and 7 lintels in figure 2). R Values for varying types of lintel and bond beam construction are shown in Table 6 below.

This shows that where a higher proportion of wall width is made up of poured concrete, the insulation drops considerably. This is analogous to timber framed construction where solid timber lintels and double or triple studs locally reduce the R Value to less than the overall wall value required by the NZBC. This can occur where openings are very wide, or lintel height is restricted by wall height. Where no facing block or only a 50mm thickness is used on a poured in-situ lintel, consideration should be given to facing the lintel area with additional insulation to avoid a heat leakage area. This can be in the form of an accent lintel using Supercrete™ facing blocks or panel glued to the exterior or interior of the wall. Alternatively, some walls could be constructed using thicker block to allow thicker facing blocks.

5.4 Thermal mass

The construction of thermal walls within a house to store solar heat is becoming increasingly common in house design and the question is often asked about the suitability of Supercrete Block for this purpose. The heat storage capacity of a material is directly related to its mass. The mass of Supercrete is relatively low due to its air content, so the heat storage capacity of Supercrete is also low and therefore not recommended for this purpose. The insulating properties of the Supercrete would also make it slow to heat up, and slow to later release heat.

250 & 300mm thick block comply with NZS 4218 as High Thermal Mass Walls. 200mm block does not.

5.5 Thermal Calculations

As the total R Value for a wall is simply the sum of the R Values of all the components making up a wall, the calculation to determine the total R Value for a wall is very simple. An example for a 200 mm thick Supercrete block wall with Supercoat render on both sides is given below;

	R
Exterior still air layer	0.03
Supercoat Render	0.02
200mm Supercrete™ Block (5% m.c.)	1.43
Plasterboard	0.06
Interior still air layer	0.09
Total R Value	**1.63**

The still air layers are a layer of air that is held against the wall surface by friction.

Table 6. R Values of insitu lintels and bond beams

Total Supercrete™ facing Thickness mm	Poured concrete Thickness mm	Total wall Thickness mm	R (m2.K/W) Dry state
0	200	200	1.14
50	150	200	0.53
100	100	200	0.93
150	100	250	1.36
200	100	300	1.79

Supplemetary insulation should be considered

Appendix C
Block Construction Checklist

Supercrete™

Checklist for Supercrete™ Block Construction

IMPORTANT NOTES

- All sections of this checklist must be filled out in full by the tradesperson performing the work.

PROPERTY DETAILS

Project/ Owner Name: ______________________________

Project Address: ______________________________

MAIN CONTRACTOR DETAILS

Builders Name: ______________________________

Company Name: ______________________________

Company Address: ______________________________

____

Phone: ______________ Fax: ______________

Mobile: ______________ Email: ______________

BLOCKLAYERS DETAILS

Blocklayer Name(s): ______________________________

Supervisors name (where applicable): ______________________________

Company Name: ______________________________

Company Address: ______________________________

____

Phone: ______________ Fax: ______________

Mobile: ______________ Email: ______________

Pre-Installation Requirements

The Blocklayer must ensure that the following features are present and sign that they are satisfied with the quality.

FOUNDATION & FLOOR SLAB

Perimeter footings shall have a rebate to the outer edge, the height and width (rebate type) should be specified on the drawings. Typically this will be 50mm (min) or 100mm but may be varied by the designer & must be checked by the project specific engineer. Check to ensure that the Supercrete™ Blocks supplied for the first course will bring the top of the first course 200mm above slab level. The width of the rebate should be the same as the width of block being used for each wall. The top surface of this rebate should be smooth and free from lumps, irregularities or blemishes. Remove all lumps an irregularities in the rebate before removing all loose material and sealing with Supercoat Tanking Membrane. Ensure that all movement control joints/saw cuts in the floor slab are in the locations specified on the drawing, or if not specified, have been installed after consultation with the designer or engineer.

FOUNDATION REBATE SATISFACTORY **YES** ☐

REMOVE ALL IRREGULATIONS ON REBATE **YES** ☐

SEAL REBATE WITH SUPERCOAT TANKING MEMBRANE **YES** ☐

CONTROL JOINTS IN FLOOR SLAB ALL INSTALLED **YES** ☐

SLAB CONTROL JOINT LOCATION SPECIFIED BY **YES** ☐

Signed **Date**

SUPERCRETE™ BLOCK, MATERIALS AND TOOLS

Check to ensure that the correct Supercrete™ Block quantities, Supercrete Adhesive, vertical rods and starters, coupling nuts, any panel products, and tools have been supplied. Unwrap the first pallets of block that will be used and separate blocks out to air dry adjacent to place of use, if required. Unpack lintels and locate for each opening.

CORRECT SIZES AND QUANTITIES ON HAND **YES** ☐

BLOCKS SUFFICIENTLY DRY FOR INSTALLATION **YES** ☐

Signed **Date**

Installation Requirements

VERTICAL STARTER ROD INSTALLATION

Vertical rod locations and movement control joint locations should be shown on the drawings. If not, then standard Supercrete™ technical literature, or Supercrete™ representative guidelines should be used for locating the control joints and vertical rods in conjunction with the designer and/or engineer, ensuring that these are not placed in any wall that the designer requires to be used as a bracing wall. Any conflicts in rod placement with, control joint locations, wall openings, Lintel seating, adjacent walls or floor slab control joints need to be resolved. Special care must be taken to locate rods on either side of movement control joints and at the sides of all openings to intersect lintels. The maximum spacing of any rods is 1.0 metre. In some cases, starter rods may be cast in the slab rebate at time of pouring. These are difficult to place accurately and must all be checked for location when the slab has gone off, and any rods not in the correct location should be replaced. Holes for starter rods should be drilled 2 to 4mm larger in diameter than the typical M12 rod size to a depth of 150mm and be located in the centre of the block wall width. Drilled holes should have dust blown clear using high pressure air. The specified epoxy should be injected into the holes using the nozzle of the gun and the starter rod pushed down into the hole and rotated and lifted back and forth to get fully coated in epoxy and left to cure. Note that there should be just enough epoxy placed in the hole so that a small excess sits proud of the slab when finished. Fit coupling nuts to each rod and place adhesive tape across top for thread protection.

VERTICAL ROD LOCATION DETERMINED BY

RODS CAST INSITU OR EXPOXIED (delete one) ______

TYPE OF ADHESIVE USED ______

DUST REMOVED FROM DRILLED HOLES **YES** ☐

COUPLING NUTS PROTECTING THREADS **YES** ☐

Signed **Date**

FIRST BLOCK COURSE

Clean off rebate and run DPC along base off rebate with holes punched for rods. Prepare first blocks for installation by drilling 50mm dia. holes for starter rods and cutting side access notch out blocks for coupling nuts. Label cutouts for each location and store in safe place. Lay Supercrete™ Thick bed Mortar (10mm nominal 20mm maximum) on DPC and begin laying from exterior corners, carefully levelling each block longitudinally and transversely while aligning with profile stringlines. Brush dust off all surfaces of block that will have Supercrete™ Adhesive applied and apply Supercrete™ Adhesive to vertical joint faces using the appropriate width notched trowel and lightly tap each block horizontally with rubber mallet to ensure adhesive bond with previous block. With the correct amount of Supercrete™ Adhesive, this should squeeze out from the joints once the block is placed and the glued joint width should be 2.5mm nominal wide. Clean Supercrete™ Adhesive off the block surfaces at the glued joints.

DPC CORRECTLY PLACED ON REBATE **YES ☐**
CUTOUTS NUMBERED AND STORED **YES ☐**
FIRST COURSE BLOCKS INSTALLED TO CORRECT LINE AND LEVEL **YES ☐**
GLUED JOINTS SHOWING CORRECT AMOUNT OF ADHESIVE AND CLEANED OFF **YES ☐**

Signed **Date**

BLOCKLAYING

The second and subsequent courses of blocks should be laid with a minimum overlap of 100mm on the block below but preferably with a half block width. Blocks cut to length should be square in both directions and sanded smooth. Store off-cuts neatly with length marked on for ready re-use. Any irregularities on the top of each course must be sanded smooth and level before placing the next course. All dust should be brushed off the top of each course before applying Supercrete™ Adhesive. The cement content of the Supercrete™ Adhesive will not properly hydrate and reach full strength if mixed and applied below 5°C. In temperatures greater than 30°C, it is likely to set too quickly, preventing a positive bond between blocks. Supercrete™ Adhesive work must be carried out between these temperatures. Blocks on the top of the wall should be protected with plastic or other waterproof material to ensure that they are dry for laying subsequent courses. Excess glue should be trowelled flush as the blocks are laid, and the surface of the wall sanded smooth at the end of each day or at the start of the next day depending on climatic conditions. Freestanding walls without returns should be braced against wind loading.

BLOCK OVERLAPS CORRECT **YES ☐**
TOP OF EACH COURSE STRAIGHT AND LEVEL **YES ☐**
WALLS TRULY VERTICAL **YES ☐**
DUST CLEANED OFF BLOCKS BEFORE LAYING **YES ☐**
WALL FACES SANDED SMOOTH AS WORK PROGRESSES **YES ☐**
TOP OF WALLS UNDER CONSTRUCTION PROTECTED FROM RAIN AND DEW **YES ☐**
TEMPORARY BRACES ON FREESTANDING WALLS **YES ☐**
APPROPRIATE LAYING TEMPERATURE RANGE ________________

Signed **Date**

MOVEMENT CONTROL JOINTS

At control joints, there should be a 10mm wide (plus or minus 2mm) clear gap between blocks. On every second course, control joint ties should be placed in the block joints across the control joint with the crimp facing upward. Care should be taken as construction proceeds to ensure that excess adhesive does not lodge on top of the exposed section of tie in the joint as this would prevent it from moving.

CORRECT CONTROL JOINT GAP WIDTHS **YES ☐**
JOINT TIES IN ALTERNATE COURSES **YES ☐**
JOINT TIES WITH CRIMP FACING UP AND CLEAR OF EXCESS ADHESIVE **YES ☐**

Signed **Date**

LINTELS

All precast lintels are designed to be installed one way up only and the top of the lintel is stamped for this purpose. Some lintel sizes are assembled from two or three separate sections which are glued together in place. Lintels should be prebored for vertical rods before lifting into place. Lintels made up from multiple may have chases cut on each piece to form a hole when assembled, or have a hole bored through a single piece. If it is required to cut a lintel to length on a short wall, both ends of the lintel should have an equal length cut off, rather than cutting the offcut off just one end. Care is required when placing lintels to ensure that holes line up with the holes in the supporting blocks, and that they are centrally placed over an opening with the correct bearing length. Because of their height, holes should be marked on the underside and bored from bottom to top. Supporting blocks for lintels should be full length blocks, and lintels should be glued to these in the same way as any other block Lintels made up from multiple pieces should be assembled with the first piece flush with one side of the wall, and subsequent pieces glued over the entire side face and clamped to these. Special care is required to ensure that these lintels are installed with their sides vertical.

FULL BLOCKS SUPPORTING LINTELS **YES ☐**
CORRECT LINTEL SEATING AT EACH END **YES ☐**
LINTELS BORED FOR VERTICAL RODS **YES ☐**
MULTIPLE PIECE LINTELS GLUED ON INTERNAL FACES **YES ☐**
CUT LINTELS EVEN ON BOTH ENDS **YES ☐**

Signed **Date**

VERTICAL RODS

Vertical rods should be installed when the wall height reaches the bottom of the bond beam course. Ensure that vertical holes are clear of excess adhesive and preferably flush each hole with water to remove all dust before dropping rods into place. Ensure that coupling nuts have half of their thread on each rod end. Remove all loose adhesive from around starter rods. Trim inside face of cut-out blocks if necessary and glue back in place. Wait until adhesive has fully cured before filling with grout. Bore a 25mm hole into the rod core on the first rod core at three different heights. Pour a measured amount of 17 MPa grout into these cores while moving the rod from side to side until it flows out the base hole, plug the hole and continue filling to the top. All subsequent cores of this height should be filled using a similar amount of grout.

ALL VERTICAL ROD CORES GROUTED **YES ☐**

Signed **Date**

COMMENTS

BOND BEAMS & CAST INSITU LINTELS

Location of bond beams and cast insitu lintels should be shown on the drawings. Unless specified otherwise, reinforcing in bond beams shall be two D12 bars tied to the vertical rods 50 and 150mm above the base of the bond beam. At control joints, the two bars must lap a minimum of 400mm on each side of all control joints. One upper and lower bar must be sleeved with PVC pipe or taped with Denso tape or similar, to allow the rods on each side of the joint to move relative to each other longitudinally. No stirrups or ties are required in bond beams. Lintel steel for cast insitu lintels must be specified on the drawings and tied in place accordingly. Once all steel reinforcing is in place, the lintel facing blocks may be glued in place. The thickness of these should be specified on the drawings but if not, should be 50mm thick minimum. Fit polystyrene spacers in control joints or glue end blocks in place to ensure gap in bond beam is maintained at control joints. Where cast insitu lintels are more than 200mm in height, the two sides of the lintel should be tied together with through bolts or top clamps to prevent concrete pressure from distorting or breaking the facing blocks. Fill bond beams with 17 MPa concrete block fill mix and lintels with specified strength concrete, lightly prodding as filling proceeds to displace air pockets/voids. Slightly overfill the bond beam and when starting to harden, remove any excess and trowel off smooth, flush with the top of the facing blocks.

CORRECT BOND BEAM STEEL INSTALLED **YES ☐**

CORRECT LINTEL REINFORCING PLACED **YES ☐**

BOND BEAM STEEL SLEEVED AT CONTROL JOINTS **YES ☐**

LINTEL AND BONDBEAM FACES HIGHER THAN 200mm TIED TOGETHER BEFORE POURING **YES ☐**

SPECIFIED LINTEL CONCRETE STRENGTH ________ MPa

BONDBEAMS AND LINTELS CORRECTLY FILLED WITH CONCRETE **YES ☐**

Signed **Date**

REBATE BLOCKS AT OPENINGS AND DECORATIVE BLOCKS

Cut and glue all rebate blocks in openings to give specified rebate height. Sand interior face of openings and rebates smooth and apply Supercoat Tanking Membrane before installation of window and door joinery.

REBATE AND DECORATIVE BLOCKS INSTALLED **YES ☐**

SUPERCOAT TANKING MEMBRANE APPLIED TO ALL REBATE SURFACES **YES ☐**

Signed **Date**

COMMENTS

Technical Support

Superbuild International Ltd and its network of Distributors offers technical assistance across New Zealand. Visit www.superbuild.co.nz for your local Distributor who will offer free estimating services; technical support to project architects, engineers, builders and owners.

Health & Safety

Information on any known health risks of our products and how to handle them safely is shown on their package and/or the documentation accompanying them.

Additional information is listed in the Material Safety Data sheet. To obtain a copy, telephone 0800 GO 4 SUPER or visit www.superbuild.co.nz

Guarantee

Supercrete™ Autoclaved Aerated Concrete products and Supercoat™ Coating System products are guaranteed to be free of defect in material and manufacture.

Installation workmanship and coating application work is guaranteed by the personnel who perform this work.

Substitution of this claddings' listed components is not permissible and if alternative brands, materials or elements are used, this will void all guarantees.

This guarantee excludes all other guarantees and liability for consequential damage or losses in connection with defective cladding, other than those imposed by legislation.

For further information on products and our New Zealand wide Distributor Network Phone 0800 GO 4 SUPER or visit www.superbuild.co.nz

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