



## ***TECHNICAL MANUAL***

Wall System Descriptions and  
Building Details

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## 1 GENERAL DESCRIPTION

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Clad-X AAC wall panel system is an exterior wall cladding system that provides light weight, high quality, and highly durable cladding solutions perfectly suited to the needs of residential housing and light commercial buildings. With the exterior coating solutions provided by the Watty Granosite reinforced exterior plaster system, Clad-X AAC wall panel system is a sensitive cladding system on the New Zealand market.

This technical manual document outlines the typical installation and application of the Clad-X AAC Wall Panel system, if specifiers require additional or modified details please contact Clad-X.

Clad-X AAC Wall Panel is an exterior wall panel which is made from 50mm Autoclaved Aerated Concrete (AAC) masonry panel with corrosion protected vertical/horizontal steel reinforcing suitable for exterior cladding of residential housing and light commercial buildings. AAC panels are coated with the Watty Granosite reinforced plaster system to produce the selected texture finish.

Clad-X AAC wall panel properties:

Dry Density:	520kg/m <sup>3</sup> *
Compressive Strength	4.0 MPa*
Dry Shrinkage Value:	0.015%*
Water Absorption:	up to 36% (by volume) *
Dry mass of 50mm Clad-x panel:	31 kg/m <sup>2</sup> coating and substrate, considered a medium weight cladding in terms of NZS 3604
Windzone:	up to Very High wind zones defined in NZS 3604

\*note: the information is supplied by manufacturer.

## 2 COMPLIANCE WITH THE BUILDING CODE

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### 2.1 COMPLIANCE OF SCOPE

The Clad-X AAC Wall Panel System complies with the following clauses of the New Zealand Building Code:

- B1** - Structure
- B2** - Durability
- E2** - External Moisture
- F2** - Hazardous Building Materials

### 2.2 B1 STRUCTURE

Clad-X AAC wall panel system installed as per this manual is able to withstand up to VH wind zone described in NZS 3604:2011.

### 2.3 B2 DURABILITY

Clad-X wall panel fixing's used in accordance with this manual will meet the requirements of NZBC Clause B2.

The nominal 20mm or 40mm cavities are provided to:

- Allow moisture to run down the inside of the Clad-X AAC panel and escape through the vents/vermin tray without bridging the cavity.
- Provide sufficient air space permitting air to circulate within the cavity and dry the AAC wall panels.

## 2.4 E2 EXTERNAL MOISTURE

The Wattyl Granosite plaster system used on Clad-X AAC wall panel system contributes to the requirements of NZBC E2 relating to the resistance of water penetration, provides the integrity of the specified external system is maintained.

## 2.5 F2 HAZARDOUS BUILDING MATERIALS

In reference to NZBC Clause F2 regarding Hazardous Building Materials, Clad-X AAC wall panels are non-hazardous, all safety precautions adhered to are provided in this technical manual.

# **3 LIMITATIONS & CONSIDERATION**

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## 3.1 LIMITATIONS

Clad-X AAC wall panel cladding system is applied to residential housing and light commercial buildings complying with NZS 3604 or NASH 3405. If specifiers require additional or modified details please contact Clad-X.

## 3.2 CONSIDERATIONS

Clad-X AAC panels must be installed by trained installers as per the details shown in this manual to ensure the quality of the cladding system. They must not be installed in any situation where they will come into contact with the ground, and cannot be used as retaining walls.

Clad-X AAC panels are Autoclaved Aerated Concrete, same with all concrete and fiber cement products, the dust produced when cutting or grinding them contains crystalline silica, is irritating to the eyes, skin and respiratory system. Inhalation of this dust can cause irreversible damage to health. Wear suitable protective clothing and gloves at all times. When cutting, drilling or grinding panels do so in an open air environment or areas that are well ventilated and wear approved safety glasses and dust mask.

All aspects of cutting, drilling or grinding must comply with the latest regulations of the Occupational Safety and Health division of the labour department.

Clad-X AAC panels should be stored on site on the pallets which they were delivered on and kept covered & free of dampness until required. Care should be taken to limit damage to edges or corners when handling.

Any damage incurred to the coating or the AAC panels must be addressed immediately. The panel is not to be left exposed through damage to the coating.

The Watty Granosite plaster system must be maintained annually, to ensure the integrity of the whole system. (Refer to Watty Granosite Maintenance Schedule)

### 3.3 CONSTRUCTION REQUIREMENTS

Steel and timber framed wall studs should be placed at not more than 600mm crs. Framing strength must comply with relevant NZ Standards for general framing construction suitability for the building.

Steel and timber framed walls are to be braced in accordance with wall claddings shown in NZS 3604: 2011 and are to be based on the combined weight of the AAC panel and the coating system used.

Prior to installation of Clad-X AAC panels and battens. The wall underlay/ building paper compliant with NZBC E2/AS1 table 23 must be fixed to the exterior wall framing and dressed into all openings with flexible flashing tape. Ensure wrap is continuous around corners, installed horizontally, and has its edges and laps taped.

Internal and external corners as per details following, if the distance between corners exceeds 8.0 meters, then extra control joints at a maximum of 8.0m centers are formed as per details. Responsibility for the locations of these control joints is with the designer.

### 3.4 CONSTRUCTION GUIDANCE

3.4.1 Pre-installation check: ensure the builder has completed items set out in the pre-cladding check list. (See section 7 for details)

3.4.2 Installation:

- Cavity battens: the EPS 20 x 40 (or 40 x 40) cavity battens are attached to the framing element using PB Nailbond adhesive or nails, the typical batten layout refer to the detail drawing 1.
- Cutting: AAC panels are cut using a metal cutting blade. Zinc rich primer compliant with AS/NZS 2311:2009 is to be applied to all exposed reinforcing in the panels.
- Fixing: AAC panels are fixed using min. 14x100 bugle head type 17 class 4 screws which are to be embedded 10mm max. A minimum of 6 screws are required per AAC panel. Where 40mm cavity is used, min. 14x120 bugle head type 17 class 4 screws shall be used.
- Laying: Once the cavity batten are fixed to the studs, fix the bottom row of Clad-X AAC panel, AAC panels are placed in a stretcher bond pattern as per the typical layout detail on drawing 2. Any imperfections on the face of the panels and the screws hole can be repaired and filled with the panel adhesive MCB A20, which is a rigid, high strength cement based adhesive.

- Corners: at this point check the level and alignment of the panels, all internal & external corners shall be installed as per detailed in drawing 10&11. Corners should be placed with an overhang to line up flush with the connecting corner panel while making sure the control joint can be achieved.
- Flashings: Ensure all flashings have been placed correctly as per the details in this manual, cut the panels to suit the openings.
- Plastering & coating: Ensure the panels are dry, clean and free of any dirt, dust or foreign matter before carrying out any plastering work, Watty Granosite plaster system is the only approved system for application over the Clad-X AAC panel system, and it must be applied by LBP. For more information, see the manufacturer's specifications.

## 4 LISTS OF NOMINATED COMPONENTS

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Panel Size:	2200mm x 600mm x 50mm		
Batten:	20 x 40mm EPS cavity batten, 40 x 40mm EPS cavity batten		
Screws:	min. 14 x 100 bugle head galvanized screws; class 4 type 17 for 20mm cavity min. 14 x 120 bugle head galvanized screws; class 4 type 17 for 40mm cavity all screws shall comply with compliance document E2/AS1 table 20.		
Panel adhesive:	MCB A20, high strength cement based adhesive		
Sealants:	BOSTIK SAFE-TECH (BRANZ approved)		
Anti-corrosion paint:	Zinc Rich primer compliant with AS/NZS 2311:2009		
Vents:	30x30mm Clad-X vent		
Tapes:	Approved flexible flashing tape (refer to a product that complies with the performance requirements of the NZBC)		
Adhesive:	PB NailBond SIKA		
Flashings:	Clad-X PVC sill flashing Powder coated aluminum head flashing (installed by others) Clad-X PVC jamb flashing Clad-X PVC corner soaker Clad-X PVC base cap flashing		
Plaster system:	First Coat:	Grano Adhesive Mortar Coarse @	5mm (mesh embedded)
	Second Coat:	Grano Adhesive Mortar Coarse @	2mm
	*Third Coat:	GranoSponge 1mm @	1mm
	Primer:	GranoPrime	
	Coatings:	GranoImpact x 2 coats	
	Others:	Granobond Keycoat	
	Notes:	* Different textures are available, more details refer to Watty website: <a href="http://www.watty.co.nz">www.watty.co.nz</a> .	

## 5 MAINTENANCE AND WARRANTY

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### 5.1 MAINTENANCE

The Wattyl Granosite plaster system should be regularly cleaned, at least annually, with chemical / detergent wash. Have the entire coated area inspected by a person with sufficient experience to identify any maintenance requirements to ensure weathertightness. Undertake all necessary repairs immediately. For more information, please refer to Wattyl Maintenance Schedule.

Inspections of the complete cladding surface must be carried out at least annually at the end of summer. Because of settling after disturbances to the ground during construction, and the slow moisture-loss shrinkage of concrete slabs, it is recommended that six-monthly inspections be made for the first three years.

Any cracks or damaged areas, including flashings and seals that have deteriorated, must be repaired immediately to ensure the integrity of the building envelope is maintained.

Any damage to the substrate must be repaired in accordance with the substrate manufacturer's instructions followed by re-plastering and recoating to the same standard as the original Granosite Plaster System installation.

If chemical free framing timber has been used, it is imperative that the maintenance of the cladding system is followed rigorously to ensure the minimum moisture ingress takes place to prevent expensive and extensive structural repair work.

As part of the Warranty conditions the finish coat(s) will need to be re-applied between years seven and eight as specified by Wattyl (NZ) Ltd. For exposed locations washing and re-painting may be required more frequently.

***For hard to remove stains, refer to the Wattyl Granosite stain removal guide.***

Failure to correctly maintain the system may void any long term warranties offered with the system

### 5.2 WARRANTY

Clad-X Panel and associate materials, when installed as per this manual, are guaranteed for a minimum life period of 15 years (from date of completion).

The Wattyl Granosite plaster system is guaranteed a period of 15 years (from date of completion) to perform and meet the requirements of NZBC, where all material components of the plaster system have been prepared and installed in accordance with this manual, technical specifications and carried out by trained contractor, and where the system has been properly maintained.

***For more condition and details please refer to Wattyl website.***

## 6 CHECKLISTS OF CLAD-X PANEL WALL SYSTEMS

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6.1 PRE-CLADDING CHECKLIST

6.2 PRE-PLASTERING CHECKLIST

6.3 WATTYL GRANOSITE QUALITY ASSURANCE CHECKLIST



# PRE-CLADDING CHECK LIST

For builders, trained installers and building inspectors

Consent No: \_\_\_\_\_

Commence Date: \_\_\_\_\_

Client Name: \_\_\_\_\_

phone: \_\_\_\_\_

Builder: \_\_\_\_\_

phone: \_\_\_\_\_

Architect: \_\_\_\_\_

phone: \_\_\_\_\_

**Owner/Builder must have the framing and other components of the building correctly installed to enable the installation of the Clad-X AAC wall panel**

## Floor slab lay out

- In the case of over-hanging slab, the framing should be flush with the slab  Yes or  No
- In the case of rebated slab, ensure distance from outside of framing to outside of concrete footing is exactly 70mm or 90mm (when 40mm cavity system is designed) on all sides of building  Yes or  No
- Ensure approved DPC is installed as per manufacturer's specification  Yes or  No
- Ensure minimum 300mm out around the base to allow for plastering  Yes or  No
- Ensure the surface of rebated slab are smooth and level  Yes or  No

## Framings

- All straight and level  Yes or  No
- Studs straightened for wall lining before Clad-X AAC panels are installed  Yes or  No
- Internal corners-supply and install 1 stud or full length H3.2 batten, 200 from internal corner.  Yes or  No

## Wall underlay

- Exterior timber framed walls must be wrapped with wall underlay that complies compliance document E2/AS1 table 23.  Yes or  No
- Wall wrap must be fixed to the exterior wall framing and dressed into openings with flexible flashing tape, prior to installation of AAC panel battens.  Yes or  No
- Ensure wall wrap is continuous around corners and installed horizontally and has its edges and laps taped.  Yes or  No
- Ensure that all penetrations such as waste water pipes and the like have been flashed to the building wrap using flexible flashing tape.  Yes or  No

## Windows

- Window distance from framing –5 mm from outside of framing to inside flange of windows.  Yes or  No
- The manual states throughout that continuous support bars are to be used on all windows, however if for any reason there is a requirement to use short support bars then approved DPC must be placed underneath the bottom of the windows.  Yes or  No

**Joinery:**

- All joinery must be set into openings minimum 30mm from outside of framing to inside flange of window. These allow 10mm of the joinery bearing over the AAC panels. Where the 40mm cavity batten system is designed, 50mm offset shall be set.  Yes or  No
- The builder is also responsible for the application of approved flexible flashing tape around openings and all other penetrations prior to the installation of any joinery.  Yes or  No

**Plumbing**

- All plumbing including gas lines need to be pressure tested prior to installation of internal and external linings.  Yes or  No

**Variables/ Concerns/ Comments:**

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**Builder/ Owner:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

# PRE-PLASTERING CHECK LIST

## For trained installers and building inspectors

Consent No: \_\_\_\_\_  
Commence Date: \_\_\_\_\_  
Client Name: \_\_\_\_\_ phone: \_\_\_\_\_  
Builder: \_\_\_\_\_ phone: \_\_\_\_\_  
Architect: \_\_\_\_\_ phone: \_\_\_\_\_

### Clad-X recommends an inspection by Building Inspector prior to plastering

- Panels must be flat and straight with min. 6 screws per sheet, countersunk 10mm and no closer than 50mm from edge of panel  Yes or  No
- Ensure all exposed steel ends are treated with CRC zinc it anti corrosion paint  Yes or  No
- All external and internal corners and vertical control joints are installed as required in this technical manual  Yes or  No
- Ensure that sill and jamb flashings are in place and sealed with corner soakers as required in this technical manual  Yes or  No
- Ensure window head flashing is fixed in place, level and straight  Yes or  No
- Cavity closer should be adhered with BOSTIK sealant and fixed in a straight line to bottom edge of panel where required  Yes or  No
- Sill and base shoe flashings keycoated with Watty products  Yes or  No
- Ensure roof lashing are in place and checked by builder and building inspector prior to plastering where relevant  Yes or  No
- All pipe work/penetrations through cladding are filled with low expandable foam and sealed flush with surface nominated sealant  Yes or  No

### Variables/ Concerns/ Comments:

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TRAINED INSTALLER: \_\_\_\_\_ Signature: \_\_\_\_\_  
Approved by: \_\_\_\_\_ signature: \_\_\_\_\_

## Wattyl Granosite Plaster Quality Assurance Checklist

Specification No.: \_\_\_\_\_ Building Consent No.: \_\_\_\_\_  
 Site Address: \_\_\_\_\_ Area: \_\_\_\_\_  
 Owner: \_\_\_\_\_ Phone: \_\_\_\_\_  
 Builder: \_\_\_\_\_ Phone: \_\_\_\_\_  
 Architect: \_\_\_\_\_ Phone: \_\_\_\_\_  
 Applicator/Co: \_\_\_\_\_ Phone: \_\_\_\_\_  
 Project Start Date: \_\_\_\_\_ Project Finish Date: \_\_\_\_\_ Area Mz: \_\_\_\_\_  
 Rep: \_\_\_\_\_

### PRE INSTALLATION

	YES	NO	COMMENTS
Has building paper been installed correctly	<input type="checkbox"/>	<input type="checkbox"/>	_____
Flashing tape used at edges, laps and openings	<input type="checkbox"/>	<input type="checkbox"/>	_____
Penetration flashed	<input type="checkbox"/>	<input type="checkbox"/>	_____
Windows head flashing installed correctly	<input type="checkbox"/>	<input type="checkbox"/>	_____
Has a 25mm gap been left for windows flashing	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is the base of cladding 50mm below the bottom plate	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is there ground clearance for foot flashings	<input type="checkbox"/>	<input type="checkbox"/>	_____
All ground clearance meet building requirements	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is wall framing within tolerance	<input type="checkbox"/>	<input type="checkbox"/>	_____
Control joints installed where specified	<input type="checkbox"/>	<input type="checkbox"/>	_____

Framing type: \_\_\_\_\_ Moisture content: \_\_\_\_\_ %

Builders Signature: \_\_\_\_\_ Territorial Authorities Signature: \_\_\_\_\_

### SYSTEM TO BE APPLIED : Granosite

**SUBSTRATE: AAC**

1st coat: \_\_\_\_\_ Batch No. \_\_\_\_\_ 2nd coat: \_\_\_\_\_ Batch No. \_\_\_\_\_

3rd coat: \_\_\_\_\_ Batch No. \_\_\_\_\_ 4th coat: \_\_\_\_\_ Batch No. \_\_\_\_\_

5th coat: \_\_\_\_\_ Batch No. \_\_\_\_\_

Type of Batten used: cavitybat:  Polystyrene  other, please state: \_\_\_\_\_

### APPLICATORS CHECKLIST

	YES	NO	COMMENTS
Battens installed correctly	<input type="checkbox"/>	<input type="checkbox"/>	_____
Flashings installed correctly	<input type="checkbox"/>	<input type="checkbox"/>	_____
Flashing keycoated	<input type="checkbox"/>	<input type="checkbox"/>	_____
Control joint installed where specified	<input type="checkbox"/>	<input type="checkbox"/>	_____
Colour specified with LRV restrictions	<input type="checkbox"/>	<input type="checkbox"/>	_____

Application Method: Pump  Trowel  Roller  spray

Texture Type: \_\_\_\_\_ Paint/Colour \_\_\_\_\_ LRV % \_\_\_\_\_

Paint Contractor: \_\_\_\_\_ Phone: \_\_\_\_\_ Rep: \_\_\_\_\_

### TYPE OF WARRANTY REQUIRED

Ten Years over Solid Substrate

Fifteen years renewable

Product Producer Statement only

other: Please state: \_\_\_\_\_

Applicator: \_\_\_\_\_

Signed: \_\_\_\_\_

Painter: \_\_\_\_\_

Signed: \_\_\_\_\_

License # \_\_\_\_\_

Signed: \_\_\_\_\_

## **7 CONSTRUCTION GUIDANCE AND DETAIL DRAWINGS**

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