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Subject:
WinKlik FibreCrete Windows

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Certificate holder:
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Validity

Users of any Agrément certificate should check its status: all currently valid certificates are listed on the website. In addition, check whether the certificate is [Active](#) or [Inactive](#).

The certificate holder is in possession of a confirmation certificate attesting to his status.

SANS 10400 –The application of the National Building Regulations

Quick guide

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Use

The certificate covers the WinKlik FibreCrete Window frames in conjunction with aluminium sashes and glazing for use in buildings of all occupancy classes (**SANS 10400**: Table 1 of regulation A (20) (1)) in all areas of South Africa.

This certificate and Agrément South Africa's assessment apply only to the WinKlik FibreCrete Windows that are manufactured and installed as described and illustrated in this certificate, and where the terms and conditions of certification are complied with.

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General description

Wispeco (Pty) Ltd –Supplier of aluminium extrusions, Die manufacturing, finishing and aluminium systems.

AAAMSA –Association of Architectural Aluminium Manufacturers of South Africa.

SANS 727 –Windows and doors made from rolled mild steel sections.

SANS 135 –Metallic coatings- Electroplated coatings of nickel plus chromium and of copper plus nickel plus chromium.

The WinKlik FibreCrete Windows comprise a combination of fibre cement frames (mullions and transoms), aluminium sashes with monolithic or laminated glazing and ancillary components, viz, lugs (see figure 1), bolts, nuts and screws.

The frames are manufactured from a homogeneous blend made up of graded sand, cement, chemical admixtures and polypropylene fibres to provide ductility and to avoid brittleness.

The aluminium sashes are standard Casement 30.5 Window System and are supplied by **Wispeco (Pty) Ltd**, a member of **AAAMSA**, which are then assembled by Cipco (Pty) Ltd at their factory.

Glazing for opening sections less than 0.25 square metres is 3 mm thick and 4 mm thick for bigger opening sections. Maximum sizes for opening sections are 0.75 square metres.

The window frames are installed in buildings, left unpainted (bare concrete appearance) or painted before being fitted with aluminium sashes and glazing.

The windows are available in side-hung and top-hung ventilators. Overall dimensions, unless specified by the purchaser and subject to a tolerance of ± 3 mm, shall conform to the relevant values specified in **SANS 727** or as illustrated in the *WinKlik 55 Series Window Catalogue* available from the certificate holder.

Fittings such as locking handles, hinges and peg stays shall be of brass or other corrosion resistant material and, if so specified by the purchaser, shall be chromium plated in accordance with **SANS135**.



Figure 1: WinKlik FibreCrete Window frame with lugs in position

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PREAMBLE

This certificate is issued by Agrément South Africa in terms of the powers granted to it by the Minister of Public Works. This certificate:

- has been granted after a technical appraisal of the performance of WinKlik FibreCrete Windows for the [uses](#) covered by the certificate
- is independent of any patent rights that may or may not subsist in the subject of the certificate
- does not relieve the certificate holder from the obligation to obtain the prior approval of the building authority concerned for the use of the subject.

Agrément South Africa considers that the quality and performance of WinKlik FibreCrete Windows will be satisfactory provided that the requirements stipulated in this certificate are adhered to. However, Agrément South Africa does not on behalf of itself, or the State, or any of its employees or agents guarantee such quality or performance.

Responsibility for compliance with the requirements of this certificate and the quality of the finished window installations, when installed by approved installers, resides with the certificate holder.

No action for damages, or any other claim whatsoever, lies against Agrément South Africa, its members, the State or any of its employees should the said components and materials fail to comply with the standard set out in this certificate.

Interested parties or users, who are in any doubt about any detail or variation, should contact [Agrément South Africa](#).

The validity of this certificate is reviewed every three years. The certificate shall remain valid as long as Agrément South Africa is satisfied that:

- the certificate holder complies with the general and specific conditions of certification and the technical requirements stipulated in the certificate
- the performance-in-use of the subject is acceptable, and
- any changes in building legislation, regulations, relevant standards or Agrément performance criteria have not invalidated the technical assessment which formed the basis of certification.

Agrément South Africa reserves the right to withdraw the certificate at any time, should reasonable cause exist.

Notices affecting the validity of this certificate will be published in the *Government Gazette*.

PART 1: CONDITIONS OF CERTIFICATION

The WinKlik FibreCrete Windows as described in this certificate must:

- be manufactured by the certificate holder
- be installed by approved installers in accordance with certificate data sheet and:
 - the technical description set out in [Part 3](#)
 - the certificate holder's installation manual
 - good building practice
- comply with the Conditions of Certification.

Good building practice as discussed in:

- the supplement to certificates, by [Agrément South Africa](#)
- The *Home building manual parts 1, 2 & 3* issued by the National Home Builders Registration Council (NHBC)

Any change to the material formulation, production process, or the installation techniques set out in the certificate holder's brochure could result in various aspects of the performance of the WinKlik FibreCrete Windows no longer complying with Agrément South Africa criteria. Any change not authorised by Agrément South Africa in writing prior to its implementation will invalidate this certificate and the certificate can then not be used to demonstrate compliance with the National Building Regulations.

General conditions

Marking

The WinKlik FibreCrete Windows packaging and promotional literature should be marked with Agrément South Africa's identification logo and number as illustrated in this certificate.

Validity

The validity of this certificate is subject to the continued participation of the certificate holder in Agrément South Africa's post-certification and quality management system.

Quality monitoring

The certificate holder is required to participate in Agrément South Africa's post-certification quality management scheme, which requires:

- that the certificate holder shall continue to implement and manage the quality system approved by Agrément South Africa in the assessment of WinKlik FibreCrete Windows
- the co-operation of the certificate holder in facilitating post-certification quality monitoring by Agrément South Africa or its authorised agents.

Reappraisal

- must be requested by the certificate holder before making changes to the product.

WinKlik FibreCrete Windows

Tested and approved fit for purpose when manufactured and installed as specified in

CERTIFICATE
2010/374



- will be required by Agrément South Africa if there are changes to the National Building Regulations or the Agrément criteria.

This certificate may be withdrawn if the certificate holder or a registered licensee fails to comply with these requirements.

Requirements of *Supplement to certificates that must be met*

The [Supplement to certificates: good building practice](#) (revised 2001) applies to those conventional aspects of WinKlik FibreCrete Windows that have not been specifically assessed (see Part 2: *Scope of assessment* on next page). Cognisance should be taken of the recommendations contained in the *Supplement to certificates* to ensure that an acceptable standard of construction is consistently maintained.

On behalf of the Board of Agrément South Africa

Signed

Chairperson
23 June 2010

PART 2: ASSESSMENT

Scope of assessment

The conventional aspects of construction are subject to the rules of good building practice (typically as described and illustrated in Agrément South Africa's [Supplement to certificates](#) and in the *Home building manual Parts 1, 2 & 3* issued by the National Home Builders Registration Council), and must comply with the National Building Regulations.

This assessment applies to those innovative aspects of the WinKlik FibreCrete Windows as described in [Part 3](#) of the certificate. These aspects have been assessed as an integral part of a product that comprises both innovative and conventional aspects.

The innovative aspect referred to are

- the combination of sand, cement and fibres to form frames, including mullions and transoms.
- the shape of the frame profile which is compatible with the profile of the sashes

The assessment is based on:

- the documentation provided by the certificate holder
- the tests carried out on the product
- the inspection of the certificate holder's factory and
- site visits

Assessment

In the opinion of Agrément South Africa, WinKlik FibreCrete Windows as described in the certificate are suitable for the use [specified](#) (see page 1).

The performance in use of the window installations will be such that the WinKlik FibreCrete Windows will satisfy:

- Agrément South Africa's performance criteria.
- the relevant requirements for safety and performance prescribed by Agrément South Africa.
- where stated in Table 1, the requirements of the National Building Regulations

Agrément South Africa's detailed comments on the various aspects are set out in Tables 1 and 2 below. Each aspect of performance was assessed by experts in that field.

Republic of South Africa. *National Building Regulations*, Government Notice R. 2378, Government Gazette No 12780, Pretoria, South Africa, 12 October 1990

Compliance with National Building Regulations

The innovative aspects of WinKlik FibreCrete Windows relate to the National Building Regulations as set out in Table 1. Any regulation not specifically referred to is considered to be outside the scope of this certificate and must be applied by the local authority in the normal manner.

Table 1: Compliance with National Building Regulations

| Aspects of performance | Opinion of Agrément South Africa | National Building Regulations satisfied |
|--|--|---|
| <i>Fitness-for-purpose of materials used</i> | Satisfactory. The quality and suitability of the materials as described in Part 3 meet the requirements of the regulations. | Regulation A13(1)(a) <i>Materials</i> |
| <i>Structural strength and serviceability</i> | Satisfactory, provided the technical specifications addressed in this certificate are adhered to. SANS 613 – Fenestration products- Mechanical performance criteria. | Meets the requirements of section 5.3 of SANS 613. |
| <i>Water penetration</i> | Satisfactory. No water leakage was visible on the room-side of the window after being subjected to a pressure difference of 200 Pa with a simultaneous spray of water at a water flow rate of 0.05l/s.m ² for 15 minutes. | Meets the requirements of section 5.4 of SANS 613. |

Table 2: Assessment

| Aspects of performance | Opinion of Agrément South Africa | Explanatory notes |
|---------------------------------|--|--|
| <i>Durability</i> | Satisfactory, given normal use and regular maintenance. ASTM B117 – Salt spray (fog) testing. Accelerated corrosion testing. | Agrément’s assessment is based on knowledge of the materials used, the inspection of samples when exposed to the salt fog environment and on the results of tests carried out in accordance with ASTM B117. |
| <i>Behaviour in fire</i> | Satisfactory, WinKlik FibreCrete Windows are classified as non-combustible. | Agrément’s assessment is based on knowledge of the materials used and provided the windows are used as specified in this certificate, the windows will be suitable for the intended purpose. |

Table 2: Assessment (continued)

| Aspects of performance | Opinion of Agrément South Africa | Explanatory notes |
|---|--|--|
| <p>Quality management system</p> | <p>Satisfactory. The certificate holder’s quality management system complies with Agrément South Africa’s requirements. Properly applied, it will ensure that good quality in the manufacture and installation of the WinKlik FibreCrete Windows is consistently maintained.</p> | <p>Agrément South Africa’s requirements, based on SANS 9001.</p> <div data-bbox="975 483 1361 607" style="border: 1px solid green; padding: 5px; margin: 10px 0;"> <p>SANS 9001. Quality management systems- Requirements</p> </div> |

PART 3: TECHNICAL DESCRIPTION

General description

The WinKlik FibreCrete Windows comprise a combination of fibre cement frames (mullions and transoms), aluminium sashes with monolithic or laminated glazing and ancillary components, viz, lugs, bolts, nuts and screws.

The frames are manufactured from a homogeneous blend made up of graded sand, cement, chemical admixtures and polypropylene fibres to provide ductility and to avoid brittleness.

The aluminium sashes are standard Casement 30.5 Window System and are supplied by **Wispeco (Pty) Ltd**, a member of **AAAMSA**, which are then assembled by Cipco (Pty) Ltd at their factory.

Glazing for opening sections less than 0.25 square metres is 3 mm thick and 4 mm thick for bigger opening sections. Maximum sizes for opening sections are 0.75 square metres.

The window frames are installed in buildings, left unpainted (bare concrete appearance) or painted before being fitted with aluminium sashes and glazing.

The windows are available in side-hung and top-hung ventilators. Overall dimensions, unless specified by the purchaser and subject to a tolerance of ± 3 mm, shall conform to the relevant values specified in **SANS 727** or as illustrated in the *WinKlik 55 Series Window Catalogue* available from the certificate holder.

Fittings such as locking handles, hinges and peg stays shall be of brass or other corrosion resistant material and, if so specified by the purchaser, shall be chromium plated in accordance with **SANS135**.

Materials

It is a pre-requisite that all the materials used in the manufacturing of the WinKlik FibreCrete Window frames comply with the latest relevant South African Bureau of Standard's codes and standards.

Cement used is either CEM 1 or CEM IIA and meets the requirements of **SANS 50197-1** and fibres used are **Geotex 500 Series** manufactured from natural Polypropylene homo polymers.

Sand meets the requirements of **SANS 1083** or is blended to meet these requirements. It is tested at regular intervals and when the source of the sand changes.

Potable water and chemical admixtures (plasticizers) are also added to increase the plasticity of the concrete mixture.

The extruded aluminium sections and sashes are supplied by **Wispeco (Pty) Ltd**, a member of **AAAMSA**, which are then assembled by Cipco (Pty) Ltd at their factory.

Glazing has to be in accordance with **SANS 10400 Part N**.

SANS 50197-1: *Cement Part 1: Composition, specifications and conformity criteria for common cements.*

GEOTEX 500 Series
Fibres: *Synthetic Fibres for Concrete. Reinforcement- 500 Series.*

SANS 1083: *Aggregates from natural sources - Aggregates for concrete.*

Potable water: *The water should be clean and preferably drinkable. Water that may be made potable by boiling may be used in its natural state.*

In terms of occupational health and safety legislation it is vital that the equipment and infrastructure used for these activities, fully comply. This includes the training and awarding of certificates to certain key personnel and workers.

Manufacturing requirements

The WinKlik FibreCrete Windows shall adhere to the following:

- overall dimensions shall be subject to a tolerance of 2 mm for lengths of less than 1 500 mm and 3 mm for lengths exceeding 1 500 mm
- any out-of-squareness of the frames measured in accordance with part 6.2 of **SANS 1311**, shall not exceed 3 mm per metre length of the average of the diagonals
- any concavity or convexity of a member of a unit intended to be straight and measured in accordance with part 6.3 of **SANS 1311**, shall not exceed 2 mm for lengths up to and including 1 500 mm and 3 mm for lengths exceeding 1 500 mm.

SANS 1311: Metal clisco windows.

Description of manufacturing process

The WinKlik FibreCrete Windows are manufactured in the factory at Airport Industria, Western Cape. The production process is fully automated and it involves the mixing of all the above mentioned ingredients in a pan-mixer.

The resultant mixture is then cast into steel moulds and moulded into specific window sizes. The fibre cement window frames with pre-moulded plugs are then compacted on vibrating tables and the first phase of curing under mist sprays begins.

Hereafter the window frames are carefully de-moulded and cured for the second time in a regulated steam room. The edges are then smoothed off with a grinder.

Standard 30.5 Casement aluminium sashes with bubble seals are supplied by Wispeco. Cutting, assembly and glazing is conducted at the factory and made per order.

Handling and storage

The window frames are stored and stacked in piles of similar size configurations, off the ground and on wooden slats and transported to sites in an upright position.

The aluminium sashes and all the ancillary components are stored in a dispatch store room. The non-frame components are stored fully complete, with special friction stays and purposely designed handles attached.

Installation requirements

The WinKlik FibreCrete Windows installations shall adhere to the following:

- glazing for opening sections less than 0.25 square metres shall be 3 mm thick and 4 mm thick for bigger opening sections
- Use safety glass where required by national building regulations
- maximum sizes for opening sections shall be 0.75 square metres.
- masonry over windows, 890 mm wide and above shall always be supported with a pre-cast concrete lintel
- the window frames shall always be built into walls.

Installation

The window frames are delivered to site during the construction phase of buildings and built into walls as construction progresses.

Once all the construction works are complete, glazing and aluminium sashes are installed and fastened with screws in pre-cast plugs. The window frames can be installed in conjunction with conventional window sills or with **Quick Sill** (see figure 3).

Ancillary components are factory fitted and lugs are built into the walls as construction progress.

Glazing installation has to be in accordance with **SANS 10137**.

All installations must be carried out in accordance with good building practice.

Quick Sill: Agrément Certificate 2005/317.

SANS 10137: The installation of glazing in buildings.

Finishes

The installed window frames may be finished with two coats of an exterior acrylic paint with SABS or Agrément South Africa accreditation.

Painting work, where required, is done before installation of the aluminium sashes and ancillary components.

Maintenance requirements

The WinKlik FibreCrete Window frames are maintenance free. However:

- the cementitious portion of the window can easily be dusted off or repainted when necessary.
- the aluminium sashes can be cleaned with a wet rag or sponge with soapy water and rinsed off with potable water. They can then be dried with a dry cloth.
- if repairs are required at a later stage, the aluminium extrusions and ancillary components can be purchased from any aluminium extrusion supplier.

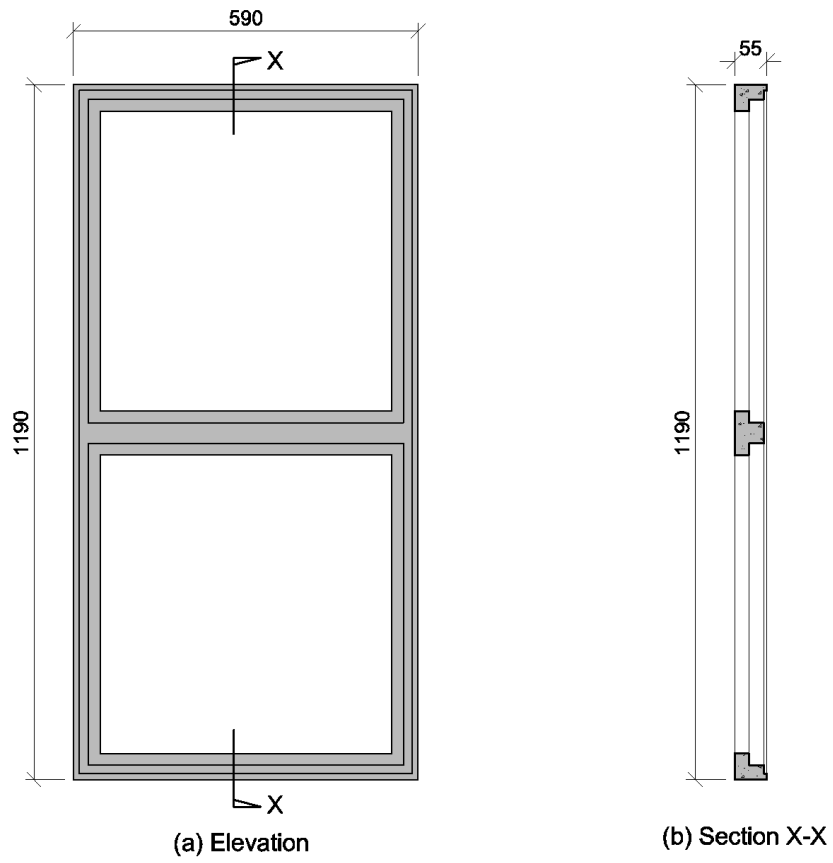
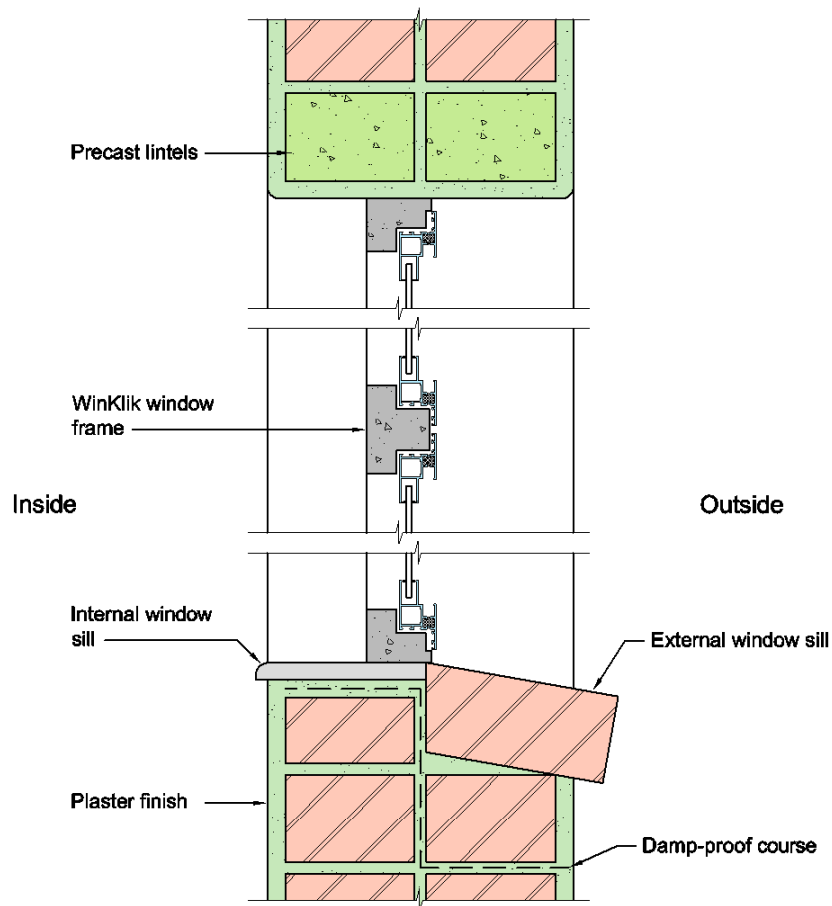
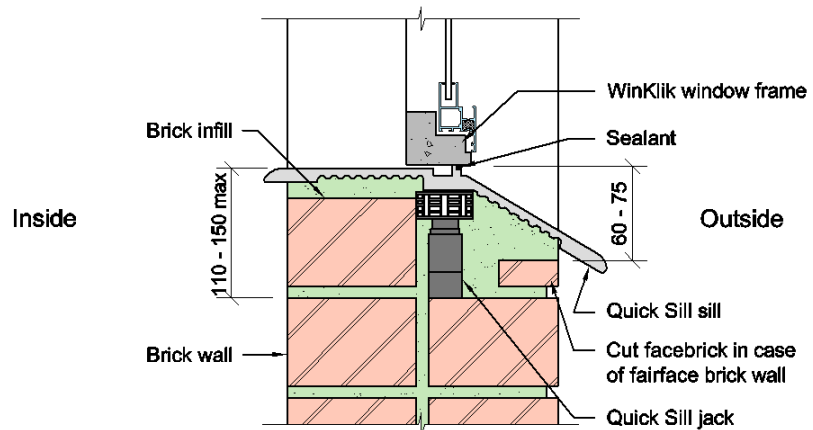


Figure 2: Typical elevation and section through window frame (without aluminium sashes)



(a) Conventional window sill



(b) Quick Sill

Figure 3: WinKlik FibreCrete window in conjunction with different window sills