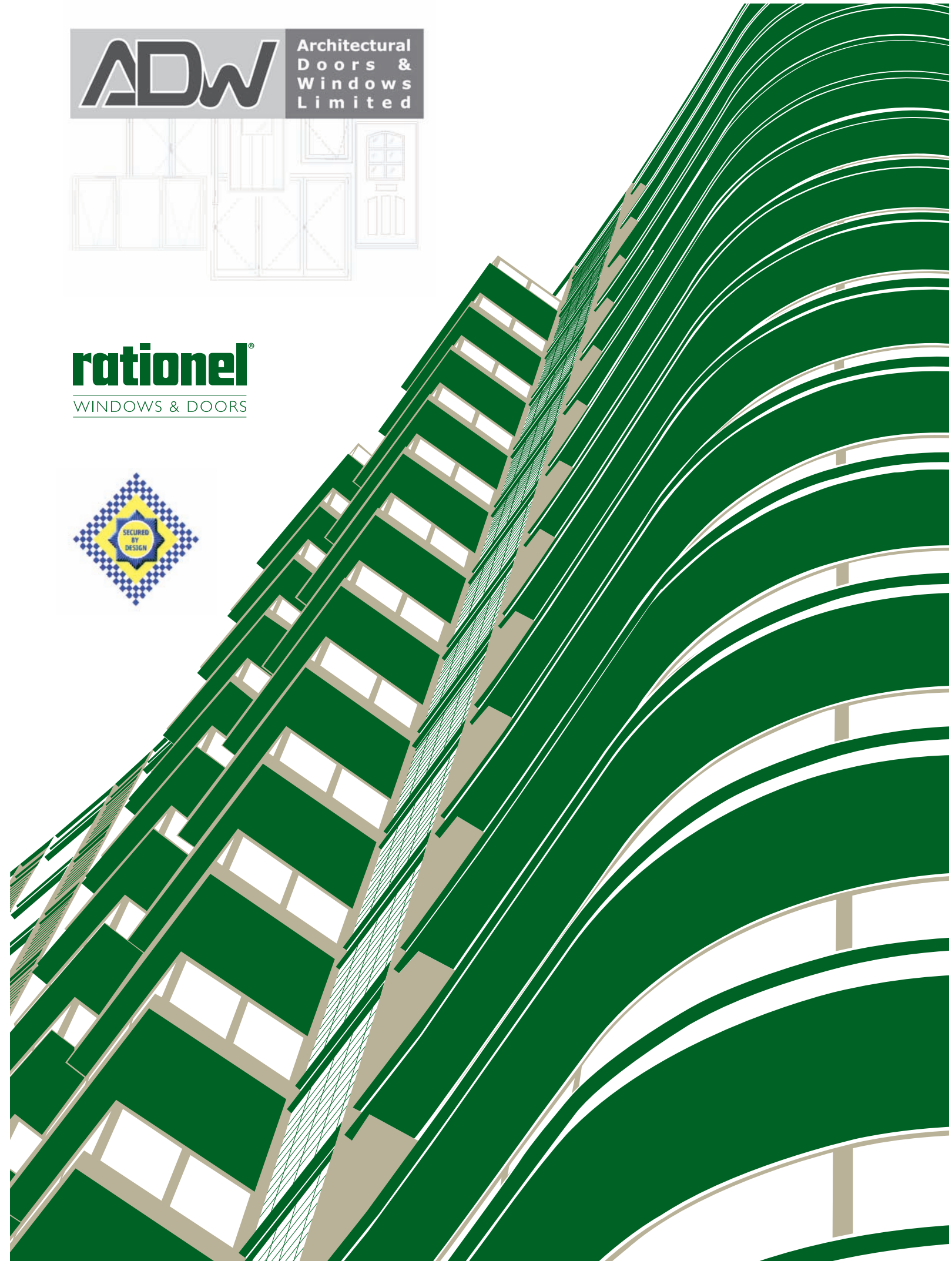


ADW Architectural
Doors &
Windows
Limited



rational[®]
WINDOWS & DOORS



SUSTAINABILITY

COMMITMENT TO THE ENVIRONMENT

REPLANT, RECYCLE, REDUCE CO₂



However high your environmental standards, Rationel have creative and effective measures in place to meet them.

Replant

Our timber is consequently concentrated on suppliers producing in accordance with the high standards for sustainable forestry as defined by the Programme for the Endorsement of Forest Certification scheme (PEFC). Replanting guarantees the number of trees planted exceeds the number removed (felled). In addition, to our environmental demands, we purchase wood and produce in accordance to the rules given by the Danish Association of Window Manufacturers. Among a number of issues, the rules outline high technical demands on the wood and forbid the use of harmful preservatives in the entire chain of custody from forest to production.

Recycle

In our factories, we have a waste sorting policy. Spare and broken glass is reprocessed, timber waste is used in the factory CHP (Combined Heat and Power) or in timber pellet production. Our spray booths collect and recycle residue.

Our surface treatment is performed in accordance with DS/EN 927-1. This new European regulation requires manufacturers follow a new treatment process that does not use any of the toxic chemicals used previously. Water based preservative treatments, stains and high build microporous paint are applied in spray booths that collect over-spray and waste and recycle it. This is an efficient eco-friendly process that protects our products and the environment.

Reduce CO₂

When installed, Rationel windows also increase sustainability. In the winter, argon-filled energy-efficient glass units maximise thermal gain. This reduces thermal loss and reflects heat back into the room, drastically reducing the need for heating and the release of CO₂. In the summer, Rationel windows can reduce solar gain and increase natural ventilation thus reducing the need for air conditioning.

In all these ways, Rationel are working to create imaginative and effective responses to the environmental challenges we all face today.

RATIONEL SECURED BY DESIGN PEACE OF MIND

Security performance will be a significant factor when it comes to selecting your windows. Rationel's experience with Housing Associations, community developments and commercial projects, means that the security and safety of our windows is second to none.

Our enhanced windows and doors have been tested and marked according to several national and European standards, including the police-initiated scheme 'SECURED BY DESIGN'. This has been introduced to encourage the adoption of crime prevention in the design of new developments and renovations.

To be certified under the initiative, a particular window frame or door frame and corresponding lock and hardware set has to withstand a series of physical tests based on common burglary methods. Rationel now has a range of products available to 'SECURED BY DESIGN' specification.

Laminated and toughened glass

All Rationel windows and doors can be fitted with Rationel SAFETY and Rationel SECURE glass. Single sheets can be either laminated or toughened. Both are difficult to break. If laminated glass is broken it remains in one piece held together by an inner layer. If toughened glass is broken, it shatters into small, harmless pieces. For security, Rationel use a combination of laminated and toughened glass.

The properties of the glass can also be combined with other specifications, for example, low energy SECURE glass or solar shielding SAFETY glass.



WINDOWS DOMUS® FINE TIMBER



Your project might require the beauty that only timber windows can offer or regulations might specify an environmentally sustainable solution. You might require simple opening windows or more complex window screens. Whatever your project, if the solution you require is timber based, the DOMUS range will work for you.

All DOMUS windows are made-to-measure, and can be fitted with a complete range of opening and closing solutions. Their bespoke nature allows you to combine units to create more complex constructions such as curtain walling, screens, patios, bays and oriels, all created to your exact specifications.

DOMUS is designed to marry the natural advantages of wood – its warmth and beauty. The way it moves and breathes with a range of measures to increase its longevity and performance.

Typically, the timber we use is Coniferous from Northern European forests. The harsh weather and the absence of fertiliser means that the trees grow slowly with a denser grain. This gives a compact structure to the wood and results in a strong, moisture resistant timber.

To increase strength further, all DOMUS windows contain a minimum of 60% heartwood – the strongest part of the tree found at its centre. We use 100% heartwood for all external facing components.

This timber is then seasoned slowly under careful control and handled throughout the manufacturing process with the respect an organic material deserves.

After the manufacturing process, surfaces are laminated and treated against fungus and rot, and then finished in a choice of traditional woodstains or a wide range of RAL colours.

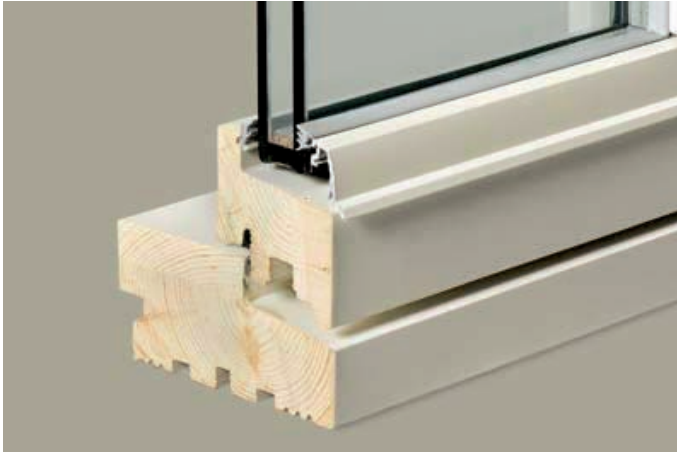


Denholm Primary School
Architects : Scottish Borders Council

WINDOWS

DOMUS[®]

FEATURES



Laminated frame and sash



Non degradable PVC free weather strip & aluminium glazing bead

Elegant and long lasting

All DOMUS sashes are built into the frame and flush with the external surface to give a clean elegant appearance and repel even the harshest North European weather conditions. They are manufactured from high quality heartwood (moisture content 12% +/- 3%) and have a minimum of two laminations of Coniferous timber from Northern European forests to prevent twisting and warping.

Sashes and frames

These undergo a three-stage, 100% water-based protection process, carried out in a continuous cycle:

- Impregnation with a fungicide-containing agent applied by flow coating
- Application of a primer by flow coating
- Application of a top lacquer by spray

Total dry film thickness is a minimum of 80u.

Sashes are certified to meet the requirements of the 'SECURED BY DESIGN' BS 7950:1997 specification for enhanced security performance of casement and Tilt & turn windows for domestic applications.

Sealed units

The 18 mm depth of the glazing rebate gives better protection and increases the durability of the double-glazed sealed unit. All four corners are bonded with an adhesive that requires a force of at least 60kgf to break.

Double-glazed units and infill panels are dry glazed, supported directly by the internal timber frame and protected from the weather using EPDM gaskets.

Energy efficient panes have a thin metal coating that reflects heat back into the room whilst enabling sunlight transference. The cavity airspace in our standard panes contains inert argon gas to allow a mid-pane U-value as low as 1.1 W/m²K to be achieved.

Smooth finish

The nails of the glazing beads are hidden to create an unbroken surface and ensure an elegant and durable finish that prolongs the lifetime of the glazing. Bottom glazing beads are made from painted aluminium.

Double-glazed units have an overall thickness of 26 mm.

Strong hardware

Hardware is concealed to allow a more uniform appearance and a longer lifespan.

Ironmongery for sashes is concealed espagnolettes with at least two closing bolts operated on a single handle on each sash. Handles are lever type with a locking facility. All keeps have at least two positions to enable crack ventilation. When fitted, trickle ventilators vent into the free zone between sash and frame which requires no external canopy (with a few exceptions).

Low maintenance

The DOMUS range is fitted with grey thermoplastic PVC free weather strips fitted in one continuous piece that does not degrade with cleaning. They are fully ventilated and drained by concealed drainage channels.

Paint

A wide range of RAL colours are available in addition to traditional stain finishes.

WINDOWS

ALDUS®

TIMBER/ALUMINIUM COMPOSITE



If you require a highly durable product with low maintenance then ALDUS is ideal; especially for high rise developments where access to the window is impaired and harsh weather conditions occur.

All ALDUS windows are made-to-measure, and can be fitted with a complete range of opening and closing solutions. Their bespoke nature allows you to combine units to create more complex constructions such as curtain walling, screens, patios, bays and oriels, all created to your exact specifications.

ALDUS combines the beauty of DOMUS timber windows inside with an aluminium cladding to provide protection from the elements outside. The timber and cladding are available in a wide range of RAL colours, in addition to traditional wood stains for the timber.

The wooden profiles are made from the same high quality materials as the DOMUS range, and treated with the same respect for the timber's need to move and breathe. The cladding is attached with invisible clips to allow proper ventilation and drainage, and to ensure the aluminium does not come into direct contact with the timber.

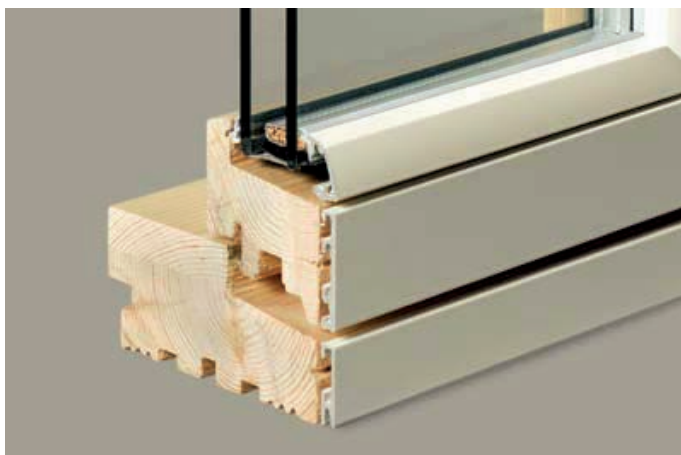


Dunning Primary School
Architects : Perth & Kinross Council

WINDOWS

ALDUS®

FEATURES



Laminated frame and sash & external aluminium cladding



Non-degradable PVC-free weather strip & aluminium glazing bead

Aluminium cladding

An aluminium facing protects all external surfaces. It is fixed by means of synthetic clips to ensure that it is not in direct contact with the timber and to allow ventilation and drainage to all necessary areas.

Aluminium sections undergo a three-stage process of preparation, before being yellow-chromatised (DIN 50939) and polyester powder coated to a layer thickness of 60-80 microns (dry).

ALDUS windows are as simple and easy to fit as DOMUS windows.

Elegant and long lasting

Frames and sashes are externally clad with pre-assembled aluminium sections held clear of the timber surface to allow drainage and ventilation. Sashes are inboard, and externally flush with the frame to cope with the harshest North European weather conditions. Timber facings are manufactured from high quality heartwood (moisture content 12% +/- 3%) and have a minimum of two laminations of Coniferous timber from Northern European forests to prevent twisting.

Sashes and frames

These undergo a three-stage, 100% water-based protection process, carried out in a continuous cycle:

- Impregnation with a fungicide-containing agent applied by flow coating
- Application of a primer by flow coating
- Application of a top lacquer by spray

Total dry film thickness is a minimum of 80u.

Sashes are certified to meet the requirements of the 'SECURED BY DESIGN' BS 7950:1997 specification for enhanced security performance of casement and tilt & turn windows for domestic applications.

Sealed units

The 18 mm glazing rebate depth gives better protection and improves the durability of the double-glazed sealed unit. At all four corners the glass unit is bedded onto an adhesive that requires a force of at least 60kgf to break. It is further secured by bead restraining clips and security screws.

Double-glazed units and infill panels are dry glazed, supported directly by the internal timber frame and protected from the weather using EPDM gaskets.

Energy efficient panes have a thin metal coating that reflects heat back into the room whilst enabling sunlight transference. The cavity airspace in panes contains inert argon gas to allow a mid-pane U-value as low as 1.1 W/m²K to be achieved.

Elegant and durable finish

Aluminium glazing beads are fitted to all four sides incorporating weather proofing of the drained and ventilated system.

Double-glazed units have an overall thickness of 32 mm.

Strong hardware

Hardware is concealed to allow a more uniform appearance and a longer lifespan.

Ironmongery for sashes is concealed espagnolettes with at least two closing bolts operated on a single handle on each sash. Handles are lever type with a locking facility. All keeps have at least two positions to enable crack ventilation. When fitted, trickle ventilators vent into the free zone between sash and frame and require no external canopy (with the Topswing and Tilt & Turn windows being the only exception).

Paint

A wide range of RAL colours are available in addition to traditional stain finishes.

GLASS

PERFORMANCE

NEW POSSIBILITIES

Today's glazing solutions offer you incredible potential to create environments that are comfortable, cost-effective and sustainable. Rationel offer a range of glass with performance characteristics that make it possible to specify the amount of sunlight, heat or sound that enters a room, and how much heat is retained.

Reduce solar gain

Rationel SOLAR panes make it possible to design large glass facades even South or West facing with no concerns about overheating.

SOLAR glass works by limiting the amount of sunlight and heat that can pass through the glass. Five different pane types are available depending on the degree of shielding required.

SOLAR 70, 51 and 40 are coated with a thin metallic film. This form of shielding is transparent to the eye so that colours seen through the window appear exactly as they would outside the window.

SOLAR Green and SOLAR Grey work in a different way with through-coloured glass. As a result, they reduce the heat and light just as effectively, but colours seen through the glass have a slight colour tint.

Increase sound proofing

With today's emphasis on building on Brownfield sites, noise levels are an increasingly significant factor in any design. In this environment you may choose to specify windows with noise reduction properties.

Sound moves through the air as waves. Such waves pass virtually unimpeded through a single pane of glass, but not through two layers as in a modern double-glazed unit. The larger the difference in thickness between the two glass sheets and the larger the distance between them, the better they will function as sound insulation. These effects apply irrespective of whether the glass is coloured, toughened or coated.

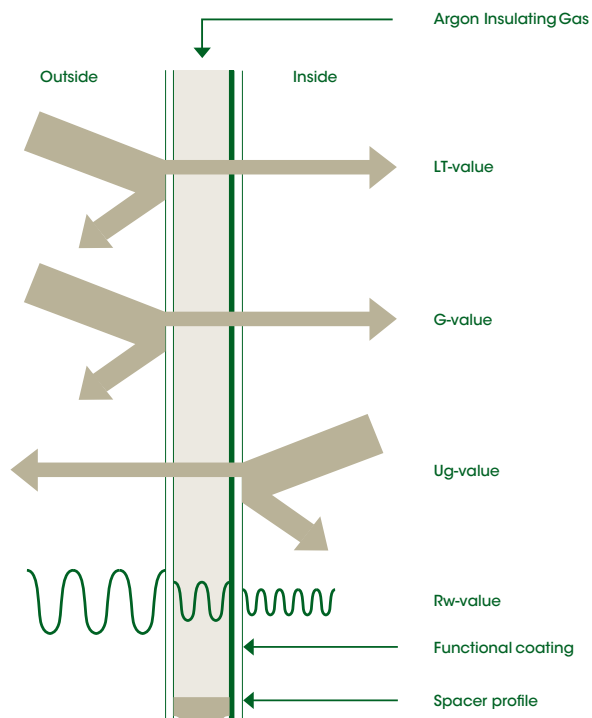
Improve insulation

Energy saving can be optimised by the use of two-layered low-energy double-glazed panes. These are filled with Argon, an inert gas, that is an excellent insulator. These panes are standard for Rationel Windows and are available as an option on all window ranges, and can be provided to a maximum U-value of 1.1 W/m²K.

Even further optimisation is possible by using the exclusive high performance triple-layer glass with a U-value of 0.6W/m²k.

The insulation properties of the pane are also important to the living conditions in a room. The larger the difference in temperature between the surface of the window pane and the surface of the adjacent walls, the more uncomfortable conditions will be for the people inside. When the difference between the two surfaces is above 6°C, condensation appears on the glass surface and conditions begin to feel uncomfortable. Rationel windows are properly insulated to ensure this does not occur.

Rationel's Glass Structure



LT-value

An expression of the light transmission rate. The higher the LT-value, the more sunlight passes through the glass into the house (EN 410). Min. 38,0; Max. 80,1

G-value

An expression of free, added solar energy. The higher the G-value, the more solar heat passes through the glass into the house (EN 410). Min. 23,6; Max. 66,3.

Ug-value

An expression of the thermal loss through the centre part of the pane. The lower the Ug-value, the less heat is lost (EN 673). A value of 1.1 W/m²K can be achieved as part of the Rationel system.

Rw-value

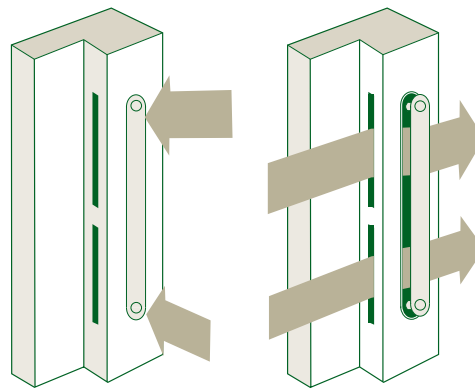
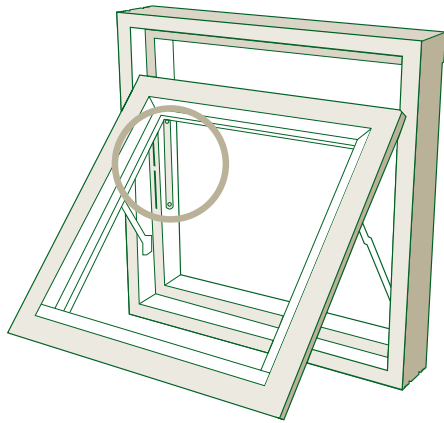
An expression of the noise reduction effect of the pane. The higher the Rw-value, the better the noise reduction. For the human ear, a noise reduction of 8–10 dB is experienced as a 50% reduction of noise. However, a noise reduction of no more than 3 dB reduces the damaging load on the ear by 50%. Rationel is an experienced supplier and with our comprehensive range of products we are able to meet most requirements of sound reduction.

RATIONEL VENTILATION CONTROL

Ventilation

To ensure adequate ventilation, permanent controllable ventilation systems should be built into a construction. Rationel offers a unique solution – a vent that is easy to operate yet does not disturb the overall harmony of the window.

As no cover hood is required the vent is invisible from the outside. All that can be seen is an elegant flush-fitting aluminium plate in the side frame that allows the amount of ventilation to be controlled with a gentle push. The only exception is the Topswing and Tilt & Turn window that requires an external canopy.



Rationel's unique optional user friendly push vent fitted into the side jamb on outward opening units offers controllable trickle ventilation

Mechanical window controls

For automatic ventilation and smoke extraction. Rationel provides a complete range of window control products.

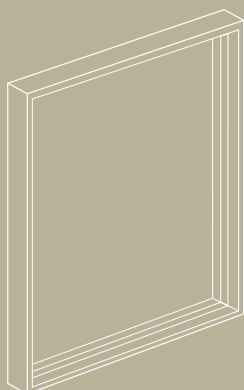
The automated control system is a uniquely discreet solution that gives you the option of automatic, programmable or manual window operation. A compact motor and chain unit is built directly into a rebate in the bottom sill framework. Only the countersunk aluminium top is visible when the window is closed.

A manual operating panel is also available. This allows the window to be operated by pressing an open/close button or with the normal window handle. This construction, which works by releasing the sash from the chain, allows the window to be used as a fire escape.



Rationel's mechanical window control contains a compact motor and chain unit, concealed within a rebate.

WINDOWS OPENING TYPES SYSTEM WITH POSSIBILITIES

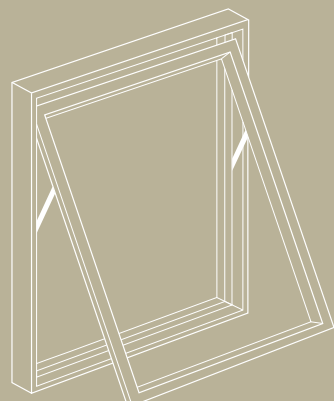


Fixed light

All Rational windows can be fitted with modern energy efficient double glazed units. This makes it possible to design buildings with large sections of glass, whilst keeping energy use and costs to a minimum.

Our Fixed light windows are ideal wherever maximum internal light is required or for glass sections overlooking gardens or attractive views.

	DOMUS	ALDUS
Minimum frame width	228 mm	303 mm
Minimum frame height	254 mm	308 mm
Maximum frame width	2388 mm	2388 mm
Maximum frame height	2388 mm	2388 mm
Total Maximum width & height	3760 mm	3760 mm



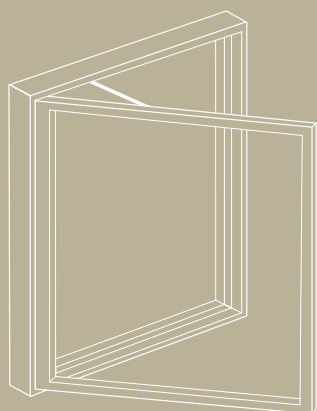
Topguided

Topguided windows are a simple, elegant and user-friendly design.

Opening is controlled by tracks and slides. As the window opens, the top of the sash slides downwards as the bottom opens outwards.

Adjustable friction ironmongery allows an infinite choice of open positions.

	DOMUS	ALDUS
Minimum frame width	352 mm	352 mm
Minimum frame height	536 mm	536 mm
Maximum frame width	1608 mm	1608 mm
Maximum frame height	1588 mm	1588 mm
Total maximum width & height	2876 mm	2876 mm



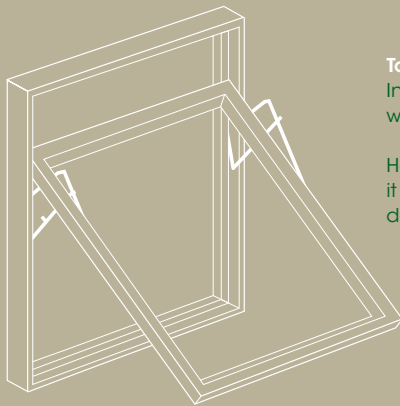
Sidehung

Like Topguided windows, Sidehung windows are also controlled with tracks and slides.

On windows over 588 mm wide, the handle controlled friction brake allows the window to be fixed in any open position up to 90°.

Sidehung windows can also be used for emergency exits.

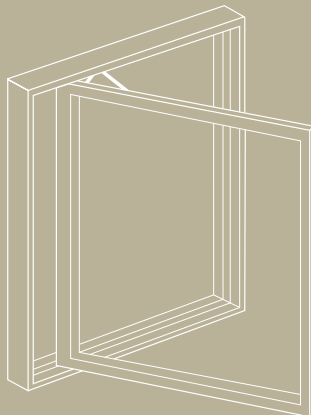
	DOMUS	ALDUS
Minimum frame width	388 mm	388 mm
Minimum frame height	352 mm	352 mm
Maximum frame width	948 mm	948 mm
Maximum frame height	1788 mm	1788 mm
Total maximum width & height	2676 mm	2676 mm



Topswing

In everyday operation the Topswing window functions as a Topguided window.

However, an ingenious mechanism makes it possible to turn the sash through 180 degrees to clean the glass from the inside.



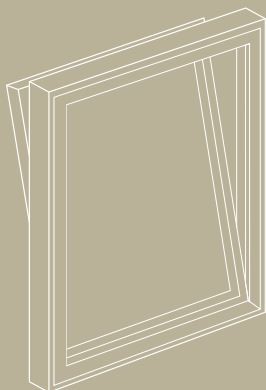
Sideguided

Sideguided windows are also controlled by tracks and slides. This allows the window to be fixed in any open position when fitted with a friction break.

However, when opened, the hinge side of the sash moves toward the middle to create an opening that allows the glass to be cleaned from the inside.

Windows over 743 mm wide are fitted with an adjustable handle controlled friction brake.

Sideguided windows can also be used for emergency exits.



Tilt & turn

Tilt & turn windows function in two ways.

For ventilation the sash is tilted in at the top. To open, the sash is Sidehung and opens inwards.

Tilt & turn windows can be cleaned from the inside and can also be used as emergency exits.

	DOMUS	ALDUS
Minimum frame width	352 mm	352 mm
Minimum frame height	488 mm	488 mm
Maximum frame width	1608 mm	1608 mm
Maximum frame height	1588 mm	1588 mm
Total maximum width & height	2676 mm	2676 mm

	DOMUS	ALDUS
Minimum frame width	408 mm	408 mm
Minimum frame height	388 mm	388 mm
Maximum frame width	1188 mm	1188 mm
Maximum frame height	1788 mm	1788 mm
Total maximum width & height	2676 mm	2676 mm

	DOMUS	ALDUS
Minimum frame width	536 mm	536 mm
Minimum frame height	588 mm	588 mm
Maximum frame width	1488 mm	1488 mm
Maximum frame height	1833 mm	1833 mm
Total maximum width & height	3276 mm	3276 mm

DOORS

OPENING TYPES

SLIDE/INWARD OR OUTWARD OPENING



Entrance doors

These are available as inward or outward opening. They are hung on grey powder coated adjustable hinges and fitted with a three point espagnolette bolt locking system.

	DOMUS	ALDUS
Minimum frame width	648 mm	648 mm
Minimum frame height	1708 mm	1708 mm
Maximum frame width	1188 mm	1188 mm
Maximum frame height	2388 mm	2388 mm



Stable doors

These are available as outward opening only. The top half of the door opens independently or together with the bottom half.

They are hung on grey powder coated adjustable hinges and fitted with a two point espagnolette bolt locking system.

	DOMUS	ALDUS
Minimum frame width	648 mm	648 mm
Minimum frame height	1908 mm	1908 mm
Maximum frame width	1068 mm	1068 mm
Maximum frame height	2388 mm	2388 mm



Sliding patio doors

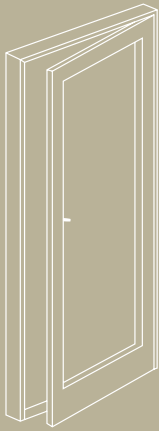
Rational patio doors are designed to be as beautiful as the views they frame.

Sliding patio doors, where one half slides and the other is fixed, are ideal when space is at a premium.

The sliding part lifts easily and glides in front of the fixed section to create an opening of up to 1.55 metres.

*Sizing restrictions apply

	DOMUS	ALDUS
Minimum frame width	1788 mm	1788 mm
Minimum frame height	1888 mm	1888 mm
Maximum frame width	*3588 mm	*3588 mm
Maximum frame height	*2188 mm	*2188 mm



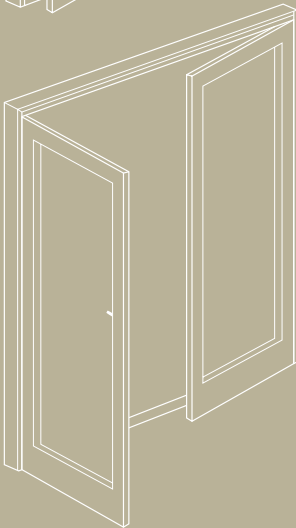
Terrace doors

Terrace doors are available as either inward or outward opening and are ideal for access to balconies, gardens and patios.

Doors which open outwards have an inbuilt friction brake, operated by turning the handle down in any given position.

They are hung on grey powder coated adjustable hinges and fitted with a minimum three point locking espagnolette bolt.

	DOMUS	ALDUS
Minimum frame width	648 mm	648 mm
Minimum frame height	1708 mm	1708 mm
Maximum frame width	1188 mm	1188 mm
Maximum frame height	2388 mm	2388mm

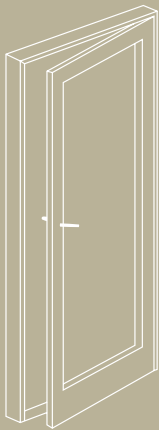


Double terrace door

As with single variation, double terrace doors that open outwards have an inbuilt friction brake, operated by turning the handle down in any given position on the main leaf.

They are hung on grey powder coated adjustable hinges and fitted with a minimum three point locking espagnolette bolt.

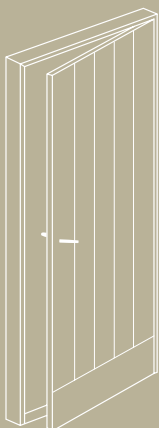
	DOMUS	ALDUS
Minimum frame width	1188 mm	1188 mm
Minimum frame height	1708 mm	1708 mm
Maximum frame width	2388 mm	2388 mm
Maximum frame height	2388 mm	2388 mm



Tilt & turn door

Tilt & turn doors function in two ways. For ventilation the door is tilted in at the top. To open, the sash is Sidehung and opens inwards.

	DOMUS	ALDUS
Minimum frame width	538 mm	538 mm
Minimum frame height	1838 mm	1838 mm
Maximum frame width	1008 mm	1008 mm
Maximum frame height	2208 mm	2208 mm



Plank door/panelled door

These are available as inward or outward opening, hung on grey powder coated adjustable hinges and fitted with a minimum three point locking espagnolette bolt.

	DOMUS	ALDUS
Minimum frame width	648 mm	648 mm
Minimum frame height	1708 mm	1708 mm
Maximum frame width	1188 mm	1188 mm
Maximum frame height	2388 mm	2388 mm

All doors can be used as emergency exits.

DOORS

DOMUS AND ALDUS

TIMBER OR TIMBER/ALUMINIUM

For beauty, performance and security, few solutions can match Rationel's range of doors. DOMUS and ALDUS ranges are both available. So whether you are looking for the pure beauty of timber or the additional longevity of timber and aluminium, we can supply the ideal entry solution.

Our range includes entrance doors, patio doors and terrace doors in both single and double variants. These are available as sliding, or inward or outward opening.

For stability and security they are hung on at least three hinges and, where requested, can be provided with double-glazing panel cassettes, kick plates and handles to meet 'SECURED BY DESIGN' specifications.

All doors are delivered fully finished. For a paint finish the doorplate on panelled doors is covered with veneer, or for a transparent surface treatment, pine veneer.



BESPOKE WINDOWS COMBINATION UNITS SOLUTIONS FOR INDIVIDUAL NEEDS

Whatever your design requirements, original or intricate, we can help you achieve them.

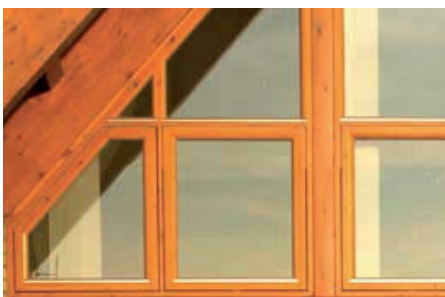
At Rationel we enjoy a challenge. In addition to our broad range of products, we can also work with you to produce different shapes, screens and special units.

Our project department has a wealth of experienced and highly motivated team members. This is complemented by a consulting service that can provide expert design drawings and structural calculations for even the most complex window or facade installations.

Here you can see only a small selection of the bespoke units we have created. For further information contact Rationel.



For in-depth technical details and specifications please visit the Rationel website at www.rationel.com

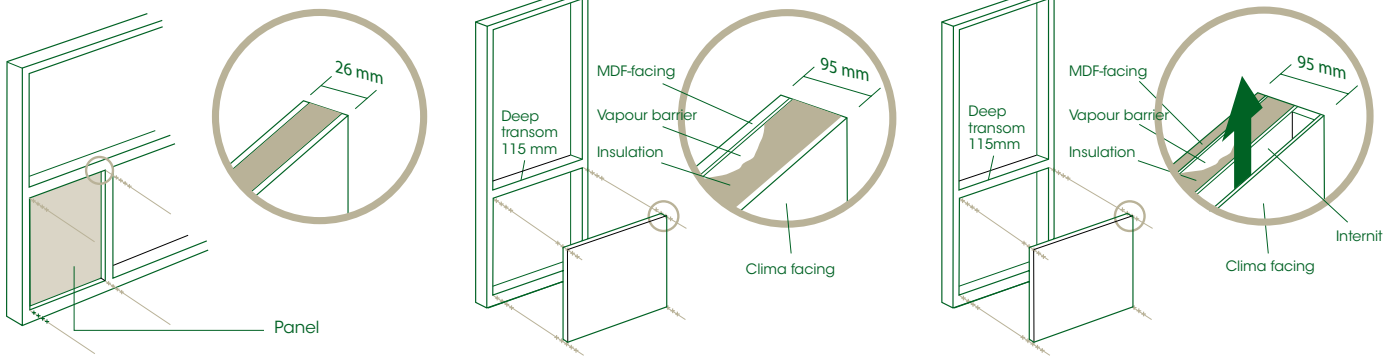


PANELS

CORNER/LINKING POSTS

FACADE CONNECTING SYSTEM

Linking posts increase the flexibility you have to create the designs you want.



Insulated panels

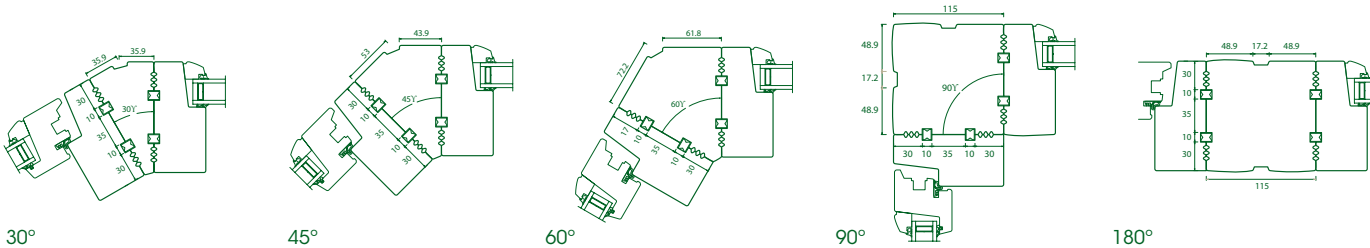
Insulated panels are a sandwich construction of an insulating layer between facings of different thicknesses. Such panels can be fitted as an alternative to glass in all sashes - doors and windows.

Non-ventilated panels

Non-ventilated 26/32 mm panels can be built into 115 mm frames. The panel is fitted with wooden glazing beads in the sides, aluminium beads in the bottom and a drip-sill in the top. Such a construction is based on a single layer defusing facing externally with an internal facing of 16 mm edge-profiled MDF.

Ventilated panels

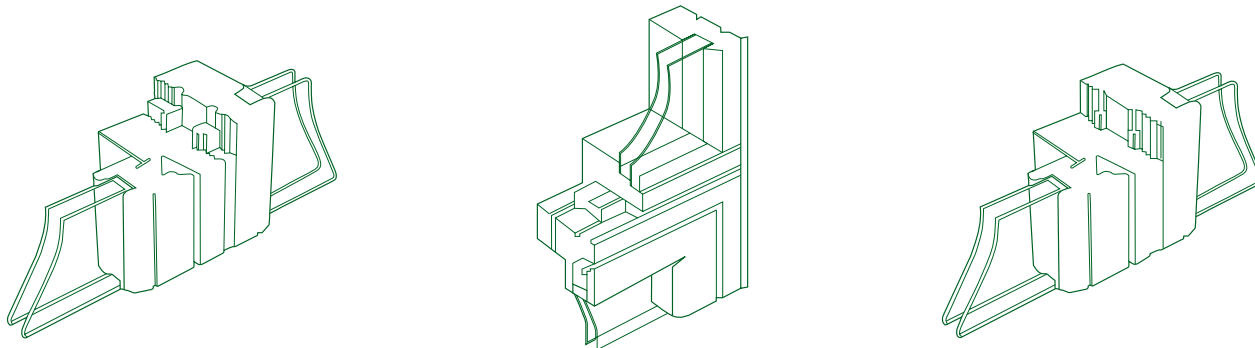
Ventilated 26/32 mm panel can also be built into 115 mm frames. The construction is based on a sandwich of two layers - an inner internal sheet (8 mm) and an external defusing facing (max. 12 mm) - enclosing a ventilation void. The panel is fitted with wooden glazing beads in the sides, aluminium beads in the bottom and a drip-sill in the top.



Linking posts

Linking posts, strips and mullions are an ideal solution for the construction of bays, conservatories and large glass facades.

The low U-value and high insulation ability of glass allow it to play a prominent role in such constructions.



Vertical linking with 12 mm linking strip/joint

Horizontal linking with 12 mm linking strip/joint

Vertical linking with hidden linking strip/joint

RATIONEL

Rationel Windows & Doors are supplied by :
 Architectural Doors & Windows Ltd
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