Uniclass	EPIC
L381+L41:P43	C42+D1:X421
CI/SfB	
(21.4)+(31) Xh4	

comar

ARCHITECTURAL ALUMINIUM SYSTEMS



complementing architecture

company overview...

The Parkside Group

The Parkside Group incorporates Comar Architectural Aluminium Systems, Alu-Timber, AXIM and DUCO.

This provides a unique opportunity for specifiers and fabricators to rely on a single source for architectural aluminium systems, hardware and ventilation control products.

Comar

Comar Architectural Aluminium Systems is the largest British, privately owned aluminium systems company in Europe.

Comar designs, extrudes and distributes over 700 integrated profiles to a nationwide approved fabricator network for use in aluminium ground floor treatment, window, door and curtain walling applications.

Comar has built its reputation on delivery, over £5m of mill, white polyester powder coating, silver, bronze and anodised profiles are kept in stock. This means that 99% of orders are fulfilled by our customers weekly delivery.

Alu-Timber

Alu-Timber is a range of aluminium/timber windows, doors, framing and curtain walling that combines sustainably grown FSC or PEFC timbers with 100% recyclable aluminium.

The Alu-Timber range merges material solutions, timber providing thermal efficiency, aluminium the protection.

Axim

As part of the The Parkside Group, AXIM supply a full range of architectural hardware including: concealed transom closers, floor springs, surface mounted closers, flush bolts, panic exit devices, handles, letter plates and other ancillary items.

Solar Shading

Solar Shading provides architects and specifiers with the opportunity to create facades of distinction.

Solar Shading integrates fully with Comar 6 Curtain Walling and can also be hung from the building envelope to provide shading over windows and doors.

Three systems are available which include under-slung, over-slung, inframe , pitched, aero-foils, moveable blades and aero-foils that follow the path of the sun.

Ventilation

A range of trickle vents with acoustic options and in-frame window ventilators that provide maximum air-flow, directed upward to avoid draughts and discomfort and weather rating of up to 900 pa. All provide vandal resistance.

Grilles & Louvres

Grilles and Louvres allow air flow through walls, partitions, ducts or doors and to fully co-ordinate with the project can be finished in a variety of colours. Grilles & Louvres can also provide directional air flow and volume control. The Comar-DUCO range includes a variety of bespoke shapes and sizes for different conditions such as offices, high abuse and exposure areas. The range expands to large scale projects such as continuous louvre walls and doors.

comar
ARCHITECTURAL ALUMINIUM SYSTEMS

AXIM
ARCHITECTURAL HARDWARE

the Parkside group

DUCO
Ventilation & Sun Control

Alu-Timber

Nationwide Architectural Specification Team

Comar Architectural Aluminium Systems have a Nationwide team of architectural advisors, who specialise in providing architects and specifiers with project support and NBS specifications.

Nationwide Approved Fabricator Network

Once Comar has been specified, a Nationwide network of approved fabricators ensures the successful completion of projects. Your Comar architectural advisors can provide fabricators who specialise in commercial, new, refurbishment or public building work.

Technical Back-up & Training

At every stage of the tender process, Comar's Technical Department provide support and advice. Staffed by CAD design engineers, new profiles, design drawings and calculations can be obtained.

To ensure the highest levels of fabrication and installation expertise, Comar offer a range of industry accredited and in-house training courses.

Groundfloor Framing	
Comar 1 & 3	Single & Double Glazed GFT
Comar 4	Single Glazed GFT
Comar 8	Fin/Bead GFT
Curtain Walling	
Comar 6	Curtain Walling, Stick Build & Ladder frame, Square Cut & Step Cut.
Comar 6 & 6EFT	Capped, 2sided S.G. & 4sided S.G.
Doors	
Comar 7	Doors, Folding, Sliding, Swing, Rebated & P.i Thermally efficient doors.
Windows	
Comar 5	Windows, 45mm, 50mm.
Comar 5Pi	Thermally efficient 60mm.
Comar 5Pi Eco	55mm & 75mm Casement Window.
Window Walling	
Comar 2	Window Walling, Thermally Broken.
Comar 9Pi	Advanced Window Walling.

...comar reassurance

commercial

Statement of function is the key element of commercial building design. From designing industrial units to corporate headquarters the flexibility of Comar Aluminium Systems allows integration with panel systems and provides curtain walling with opening vents and windows in a variety of configurations. Comar can powder coat the aluminium system to your RAL, BS or Syntha Pulvin colour to complement the façade.

Project:	Kings Point Complex
Architect:	Sheppard Robson & AEW Architects
Contractor:	Caddick Construction Ltd
Fabricator:	K2 Aluminium System Ltd
System Used:	Comar 6 EFT, Comar 7P.i Doors
Location:	Oldham, Lancs

Project:	Saville House
Architect:	Archial Architects Ltd (Leeds)
Contractor:	Tolent Construction
Fabricator:	APIC (UK) Ltd
System Used:	Comar 6 EFT
Location:	Sheffield

retail

Inherent strength and slim sight-lines make Comar aluminium the specification product of choice for all retail outlets. Comar offers extensive systems which integrate to provide aesthetic appeal to potential retail customers.

Step through Comar 7, an extensive range of sliding, automatic, folding or swing doors. Overhead Comar 6 creates sloped, pitched or barrel vaults which cast light throughout the retail complex or outlet. Comar 1, 3, 4 & 8 integrate with Comar 7 to provide ground floor framing with various angle returns and height capability. Comar 6 curtain walling houses the envelope with a variety of cover caps which complement panels and glazing.

Project:	Killingworth Centre
Architect:	W.C.E.C Architects
Contractor:	Kier Northern
Fabricator:	North Eastern Glass
System Used:	Comar 1, 3, 6 & 7
Location:	Killingworth, Newcastle

Project:	Marks & Spencer
Architect:	Holder Mathias Architects
Contractor:	Mowlem
Fabricator:	RPM Shopfronts
System Used:	Comar 6 & Comar Brise Soliel
Location:	Brigend, Wales

education & public buildings

Comar have worked in conjunction with Local Authorities to design specific products for use in the education and public building sector. The nature of public building construction demands cost effective, robust solutions. Comar 2 is a cost saving alternative to curtain walling, creating glazed façades for medium rise buildings, stairwells and entrances. Comar 2 integrates with Comar 5 windows with espagnolette locking handles to provide security and Comar 7 Doors with anti-finger traps to provide safety. Comar's integrated systems ensure a cost effective, aesthetic façade with security and safety as standard.

Project:	Somerset College
Architect:	Lacey, Hickie & Caley
Contractor:	Rokbuild
System Used:	Comar 2, 5P.i, 5lt, 6 and 7
Location:	Taunton

Project:	Barking Town Hall, London
Architect:	Allford Hall Monaghan Morris
Contractor:	Ardmore Construction
Fabricator:	Barking Shopfronts Ltd
System Used:	Comar 6EFT & 7
Location:	Essex

leisure

The pursuit of leisure activities is now a major part of British culture. Buildings for leisure, such as sports stadia, leisure centres and community centres, must attract all sections of the public; providing accessibility, function and visual appeal. Comar's aluminium systems, due to their inherent integration, provide comprehensive façade solutions as well as robust sections for high usage leisure facilities.

Project:	Fistral Beach
Architect:	Ponyton Bradbury Wynter Cole.
Contractor:	Mowlem
System Used:	Comar 2, 5 & 7
Location:	Newquay

Project:	Cambridge City Football Club
Architect:	Sharman Knowles Partnership
Contractor:	Carlton Builders
Fabricator:	P.A.G.E. Group (Peterborough) Ltd
System Used:	Comar 5lt
Location:	Cambridge

window walling

Comar 2 Window Walling was developed in conjunction with Local Authorities to provide a cost effective alternative to low rise curtain walling. The close development of Comar 2, with Local Authorities, has resulted in over £100m of completed projects and the system is now the market leading window walling system in the UK. Comar 2 is a versatile window walling system, which provides slim sight lines for use in entrances, stairwells and medium rise applications.

comar2

For the most demanding design briefs, profiles are designed for maximum strength to weight ratios and special high span mullions are available. Comar 2 is available in a two part channel and plate mullion which clip together to form 100mm x 45mm or 100mm x 30mm box section, with co-ordinating 98mm transoms.

The versatility of Comar 2 includes 3-way glazing profiles, 90° and 135° corners and variable angle façades.

Comar 2 incorporates a wide range of beads which means that panels and glass from 4mm to 71mm can be glazed, either internally or externally.

Thermally broken, Comar 2 integrates with Comar 5 to provide tilt and turn, pivot, side hung, top and bottom hung opening vents. For a full façade solution the comprehensive range of Comar 7 doors can be incorporated. Doors can be operated by overhead, concealed closers incorporating an anti-finger trap for protection. If automatic doors are required, Comar's unique door beams offer aesthetically pleasing finished applications.

Performance & Standards

In absence of a British Standard for framing systems, Comar 2 conforms to industry standards adopted by trade associations such as CWCT & elements of BS 4873.

curtain walling

Creating façades of distinction, coupled with design reassurance from the first stroke of the pencil, is often the desire of even the most innovative practice. Comar 6 and Comar 6EFT deliver thecapability.

With an extensive range of profiles and accessories, Comar 6 and Comar 6EFT is one of the most comprehensive curtain walling ranges on the market today.

Minimalist lines through sheer glazed façades is a design requirement. Comar 6 and Comar 6EFT have been developed to provide specifiers with a range of transoms and mullions with a 50mm sight-line. Where the façade demands multi-storey spans and performance, a range of high Ixx value mullion and transoms achieve the design brief, keeping the same 50mm sight-line.

Comar 6EFT suite includes options for 4-sided structural glazing; 2-sided structural glazing with horizontal or vertical capping and concealed vents.

Performance & Standards

Air permeability:	Pass 750Pa
Water tightness:	Pass 750Pa
Wind resistance:	Pass 2400Pa Safety 3600Pa
Tested to BS 6375 Part 1	
Tested to CWCT Standards	

comar6EFT

For facetted curtain walls, corner mullions are adjustable from 15° to 145° in Comar 6 and from 7.5° to 165° in Comar 6EFT. This means that roof-glazing applications, such as barrel vaults, pyramids and sloped glazing, can be achieved.

Two forms of constructions are available: stick and ladder frame.

The transoms can be square cut or step cut, the latter providing atrue mullion drained system.

Glass, mirrored, tinted or opaque, provides the façade with feature and distinction; incorporating panels can also add to the façade. To allow panels and glass of different widths to integrate into the same curtain wall, without the need to step-cut, Comar have specifically designed a range of gaskets and pressure plates to provide glazing options from 3mm to 50mm.

Comar 6 and Comar 6EFT develop with the demands of design: new profiles are continually added and tested to the highest standards. This approach delivers the most innovative design brief coupled with reassured performance.

windows

The Comar 5 aluminium window range is designed to take into account the needs of the users of aluminium window systems now and in the future.

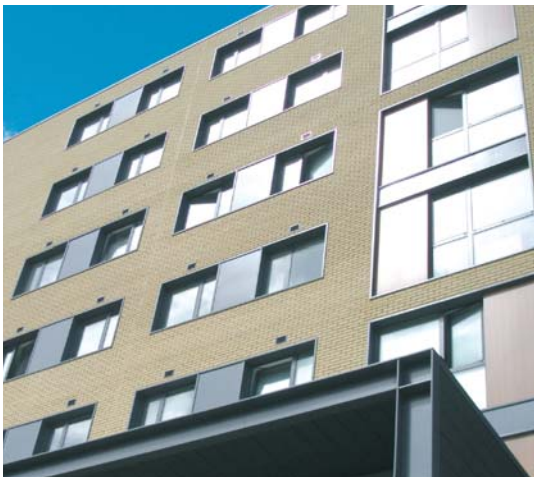
The users are the designing specifiers and architects who care about delivering an aesthetic solution with long term performance, the fabricator who wants systems that are economical, easy to fabricate and delivered on time and, finally, the end user who wants a building that will stand the test of time.

Comar 5 has three high performing suites, ensuring that even the most demanding project can be completed from a single source.

The Comar 5 range includes all window configurations, such as: side-hung, bottom-hung, top-hung, horizontal and vertical pivot, tilt and turn, top-swing reversible and sliding windows. Comar 5 integrates with all Comar products to provide doors and opening vents to window walling, curtain walling and ground floor treatment.

Comar 5 is Document L compliant and available in 5 profile widths: 45mm, 50mm, 55mm, 60mm, 75mm withglazing options from 4mm to 45mm.

The 60mm system, Comar 5Pi, is a polyamide system that provides exceptional thermal efficiency for applications where accurate U-value trade-offs are required.



Comar 5Pi keeps a building warmer for longer as it actively reduces heat loss. This provides an intrinsic benefit for clients due to the long term reduction in energy costs.

Comar 5 offers outstanding weather performance, exceeding the requirements of the very latest weather tightness tests: BS ENs 1026, 1027 & 12211.

Performance & Standards

Comar 5Pi	
Air permeability:	Pass 600Pa
Water tightness:	Pass 600Pa
Wind resistance:	Pass 2400Pa
Tested to BS 6375-1	

comar5

Comar 5Pi ECO	
Air permeability:	Pass 600Pa
Water tightness:	Pass 750Pa
Wind resistance:	Pass 2400Pa
Tested to BS 6375-1	

Def:- P.i./n/ :- (1) Polyamide Insulation. (2) Comar Architectural Aluminium's new range of thermally efficient polyamide insulated windows and doors. (3) Architectural aluminium products with added P.i to achieve the requirements set out in documents L1 & L2. (4) The ability of suppliers to provide accurate u-Value calculations, to perform trade-offs for whole building thermal efficiency. (5) Environmentally friendly product, incorporating all the recyclable and sustainable elements of aluminium. (6) Trade-mark The Parkside Group.

doors

Comar 7 is the specifier and installer preferred aluminium commercial door system throughout the UK.

The extensive profile range, designed specifically for ease of fabrication and installation and developed for bespoke projects, provides combinations such as sliding, folding, rebated, swing, Armoured Glass (A.G.) and pivot doors.

Four ranges are available: Comar 7, Comar 7 high performance Tempest, Comar 7Pi and Comar 7Pi ECO polyamide doors. Comar 7Pi provides durability and maximum thermal efficiency that exceeds the requirements of Document L.

Comar 7 is face drained and has a variety of drained or non-drained thresholds, including low ramp thresholds to comply with the latest building regulations such as the Disability Discrimination Act (D.D.A.).

With an extensive range of door stiles with sight lines rangingfrom 28mm to 110mm and rails from 10mm to 200mm, that can be internally or externally beaded, Comar 7 provides the capability to achieve durability, performance and visual appeal.

These profile options allow construction of combinations of single leaf doors up to 1200mm wide and 2400mm high. However, dependent on the location, glass type, hardware and door type larger configurations, such as vehicle access, sliding doors can be manufactured. Please contact Comar's Technical Department for advice on specific projects.

Doors can be glazed with panels or glass up to 51mm.

Comar 7 has developed over 30 years to provide solutions; evidence of this lies in it's unique Automatic Door Beams. These door beams are a single extrusion that support automaticdoor gearing. They offer maximum strength whilst enhancing the appearance of sliding or swing doors by reducing the need for unsightly aluminium panels and timber packing. Comar 7 Auto Door Beams have been designed to accept virtually all types of bolt-on operating gear.

Comar 7 integrates into Comar's ground floor framing, curtain walling suites and couples to window suites to provide fixed and opening fan and side light options.

Comar 7Pi doors have exceeded the requirements of PAS 23 reporting no water leakage at 600pa. Security concerns are alleviated with the knowledge that Comar 7 has passed PAS 24 and LPS 1175 enhanced security test.

Comar 7 utilises AXIM architectural hardware. The AXIM range includes transom closers, panic devices, flush bolts, letter-plates, locks, paddle handles, lever handles which can be delivered in avariety of finishes, including co-ordinating polyester powder coating. Therefore, from a single source, Comar 7 offers a complete solution.

Performance & Standards

Air permeability:	Pass 600Pa
Water tightness:	Pass 600Pa
Wind resistance:	Pass 2400Pa
Tested to PAS 23, 24 and LPS 1175	

comar7

ground floor framing

Comar's four integrated suites of ground floor framing provides distinctive single storey framing to schools, retail outlets, shopping centres and corporate headquarters.

Whether it's a single storey building that's curved and angled, with large expanses of glazing, such as a car showroom or an entrance to provide a focal point to the building, Comar's extensive range of ground floor framing systems contain variable angle corners and three way glazing options with high Ixx value transom and mullions to ensure that maximum spans can be achieved.

To complete the envelope the four suites integrate with Comar 7 high performance doors and Comar 5 windows to provide opening lights.

Comar 1 and Comar 3 are single and double glazed ground floor framing suites. A two part channel and plate mullion clip together to form a 100mm x 45mm box section enabling modular sash construction. Both systems include 3-way glazing option, corner profiles to allow 90°and 135°returns, variable angle corners with special beads and carriers to accommodate glass and panels from 4mm to 36mm.

Comar 4 is a 45mm x 45mm system which integrates fully with Comar 1 and is often the perfect solution for partitions or less demanding façade work. Glazing pockets suit 4mm to 13.5mm glazing and a wide range of profiles and components are available to support aluminium or timber doors.

For traditional fin and bead systems, Comar 8 provides a fast and cost effective store frontage.

Performance & Standards

In absence of a British Standard for framing systems, Comar 1, 3 ,4 and 8 conforms to industry standards adopted by trade associations such as CWCT and elements of BS 4873

comar 1 ,3,4,8

window walling advanced

After extensive research and consultation with key supply partners, Comar Architectural Aluminium Systems unveil the new Comar 9Pi High Performance Framing, Window and Door System.

Market research indicated that a thermally efficient future-proof facade system was required, with off-site manufacture and value engineered solutions that actively seek to reduce material content.

There are two levels of thermal performance: Standard Pi and Enhanced Pi, creating U-values between 1.6 and 1.0 for a typical grid size with opening vents.

Comar 9Pi high performance framing offers two options of construction: ladder frame or mitre frame. 9Pi windows and 9Pi doors hang directly from the frame, reducing the need for additional outer frames, creating a truly integrated solution.

Building typologies differ from refurbishment to new build, so Comar 9Pi has profile widths of 80mm or 120mm creating greater design flexibility.

Comar 9Pi has slim 65mm sight lines to ensure that architecturally demanded aesthetics are achieved. Glazing lines are flush, maintaining consistent lines for a sleek external facade that provides straight interfacing for walls, internal floors and partitions. Consideration is also given for plaster lines with profiles to cater for differing situations.

Comar 9Pi windows can be open-in or open-out; side, top or bottom hung; or tilt and turn offering unobtrusive top light ventilation. Comar 5Pi Vertical Sliding Windows and Horizontal Windows can be integrated into the Comar 9Pi framing. All window configurations have passed BS7950 and BS6375.

Comar 9Pi doors can be open-in, open out, single or double rebated doors. With options for anti-finger trap stiles and low-rise thresholds the door-sets have passed PAS 23 and PAS 24.

Glazing sizes have been catered for up to 62mm. This means that future requirements for high performing acoustic or triple glazed solutions can be specified.

On test, Comar 9Pi windows and doors exceeded the requirements of BS6375 Part 1 and PAS 23

2400Pa	Special Resistance to wind load
600Pa	Water tightness
600Pa	Air tightness

Security is assured with Comar 9P.i. The system on test has exceeded the standards:

Comar 9P.i Casement Tilt & Turn	BS7950
Comar 9P.i Door	PAS 24

comar9Pi

standards

BS EN ISO 14001 :	Comar is an ISO 14001 registered firm, certificate number: EMS 555373
BS EN ISO 9001 :	Comar is an ISO 9001 registered firm, certificate number: BSI: FM553615
BS-EN 755:	Aluminium alloy extrusion
BS EN 485:	Aluminium alloy sheet
BS-EN515:	Aluminium and aluminium alloys – Wrought products temper designations
BS 4255 Part-1 :	Gaskets
BS-EN573-3:	Aluminium and aluminium alloys – Chemical composition – Wrought products – part3
BS-EN755-2:	Aluminium and aluminium alloys – Extruded profiles – part 2: Mechanical properties.
BS-EN755-9:	Aluminium and aluminium alloys – Extruded profiles – part 9 : Profile tolerances.
BS-EN12020-1 :	Aluminium and aluminium alloys – Extruded precision profiles – part1 : inspection and delivery
BS-EN12020-2:	Aluminium and aluminium alloys – Extruded precision profiles – part 2 : tolerances on dimension and form.
BS 4873:	Specification for aluminium alloy windows.
BS6375 Part 1 :	Classification for weather tightness.
BS368:	Method of testing windows
BS 5713:	Hermetically sealed flat double glazed units
BS6262:	Code of practice for glazing of buildings
BS6496:	Specification for powder organic coatings to aluminium alloys for external architectural purposes
BS1615:	Method of specifying anodic oxidation coatings on aluminium and its alloy
BS3987:	Specification for anodic oxide coatings for external architectural purposes
BS6399 Part 2:	Code of practice for wind loads
C.W.C.T.	(Centre for Window & Cladding Technology)

Comar Approved Fabricator

The Parkside Group Ltd
Unit 5, The Willow Centre
17 Willow Lane, Mitcham
Surrey CR4 4NX

Tel: 020 8685 9685
Fax: 020 8646 5096
Email: sales@parksidegroup.co.uk
Web: www. parksidegroup.co.uk

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Council for Aluminium in Building

BSI: ISO 14001

BSI: ISO 9001

Contents

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ARCHITECTURAL ALUMINIUM SYSTEMS

Introduction

This operation and maintenance (OM) manual is your guide to ensure the longevity of your Comar aluminium systems.

Your Comar Approved Fabricator has installed the following products in your building:

The name of the Comar Approved Fabricator and contact is:

Comar Architectural Aluminium Systems is part of The Parkside Group Ltd and the contact address is:

Comar Architectural Aluminium Systems
Unit 5
17 Willow Lane
Willow Centre
Mitcham
Surrey
CR4 4NX

Tel: 020 8685 9685
Fax: 020 8646 5096

Email: sales@parksidegrp.co.uk
Web: www.comar-alu.co.uk

Tilt\Turn Windows-Operation.

Tilt and Turn windows have two opening options:

1. Tilt, the top of the window will open towards you, leaving the bottom closed
2. Turn, opens the window fully into the room, allowing cleaning of the window from the inside.

To tilt the window, the handle should be grasped and turned to the horizontal, the handle part pointing towards the hinge at 90 degrees, then pull the handle towards yourself to open. This opening method is designed to provide ventilation only, as the window will tilt inward from the bottom (sill), leaving a restricted opening at the head (top).

Figure 1: Tilt Mode

To fully open the window, the window should then be pushed into its closed position and the handle closed. The handle is then turned through 180 degrees, until it points vertically upwards. The window will then open fully to 90 degrees, in order to allow cleaning to take place.

Figure 2: Turn Mode

Closing of Tilt and Turn Windows

The window should then be pushed closed once more, and the handle rotated back to its vertical position, pointing downwards. This will render the window closed and return it to its original position. For additional security the handle may have a key locking facility, which should be locked, removed and stored in safe location.

It is imperative that the window is returned to its closed position between each operation, as damage will be caused to the window mechanism if forced through the process while open. There is also a possibility of personal injury if the above instructions are not followed.

Figure 3: Closed Position

Tilt/Turn Hardware/Gearing Maintenance

A 6 monthly check of all operations should be carried out.

1. The gearing around the sash should be thoroughly cleaned with a damp cloth and soapy water and wiped dry.
2. Fixings should be tightened as necessary.
3. Moving parts to be lubricated with resin free grease or oil.
4. A qualified technician MUST carry out all major adjustments or replacements. Any attempt to complete repairs without correct tools or knowledge could result in personal injury or damage to the mechanism.

Figure 4: Restrictor

The hardware used generally on Comar 5, 5P.i. Tilt & Turn is from two different manufacturers, as specified by the fabricator or installer.

1. Sobinco gearing is constructed from black nylon components, and has no aluminium link bars operating the system.
2. Siegenia gearing utilises silver aluminium link bars.

The difference is seen when viewing the gearing mounted in the sash stile when in the window is in the open position.

Replacement parts for both systems are available from Comar. Only Comar approved parts can be fitted. Replacement parts to be fitted only by competent, trained personnel.

Casement Windows-

Operation

Casement windows can be:

1. Top-hung: the vent open out at the bottom of the window
2. Bottom hung: the vent opens at the top of the window
3. Side-hung – opening the vent along the side of the window

Hinge Types

The window will be hung on friction stays or butt hinges, which support the weight of the window through open and closing cycles.

Friction Hinge Operation

The friction hinge can be restricted to an opening size. If a restricted hinge is fitted, there is a button in the friction hinge. Depression (or lifting, depending on hinge type) of the button will allow the sash to open fully for cleaning purposes, and as the sash is closed the restrictor will re-engage. The window may alternatively have additional restrictors fitted, which may or may not be removable, depending on the original specification.

There is a small adjusting screw, mounted in a nylon block in the hinge, which can be used to adjust the operation of the window. Tightening the screw will increase the friction, thereby increasing the resistance to wind and operating forces, while loosening the screw will have the adverse effect.

Butt Hinges Operation

Butt hinges have no adjustment, and will be visible from the external at the junction between frame and sash. There will be a requirement for a window restrictor with this type of hinge, which may or may not be removable, depending on specification.

Locking

Casement Windows, whether bottom, side or top hung can have three main methods of locking mechanism.

1. Espagnolette Locking
2. Shoot-bolt Locking
3. Cockspur Locking

Espagnolette Locking

Espagnolette locking systems, have a single handle mounted in the centre of the horizontal rail or vertical stile, which operates sliding gearing located within the window section. When the handle is closed mushroom heads move into recesses and engage, increasing the locking points on the window. Certain hardware will incorporate a black button, which will not allow the handle to be operated unless pushed with the thumb. The handle is turned through 90 degrees to the open position. The handle will sit in line with the rail when closed. The sash can be locked securely with a key (supplied by

installer) or can also be locked with the same key, partially open, in order to provide trickle ventilation.

Cockspur Locking

Cockspur Locking is surface mounted, and engages against a nylon wedge on the visible upstand of the frame. There is no adjustment possible to this part, and the window, when set correctly should work perfectly. There may be two handles on a sash with an open edge over 900mm in width. The handle is again rotated through 90 degrees to the open position.

There is no lockable trickle ventilation when this type of handle is used, the window is either open or closed.

Shoot-bolt Locking

Shoot-bolt locking has the mushroom heads of espagnolette locking but also incorporates shoot-bolts at the corners of the opening vent of the windows that locate into keeps on the outer frame of the window. This is an enhanced security option. Again in the closed position, move the handle through 90 degrees and the vent will open.

Folding Openers (cam stays)

Alternatively, a folding opener may be employed, which are commonly used on high-level windows. This system will have a 'folding cam' system, often linked by rods. There may be a ring fitted to the rod in order to accept a hook, which in turn is fitted to a wooden pole, to ease operation should the window be located in a high position.

The rod or cam should be lifted up, and the cam will fold outwards, pushing the sash forward. To close the window the rod or cam is lifted again, and pushed downward to its original position. There is no adjustment, and no need for lubrication for this type of operator.

Teleflex Operation

'Teleflex' type system employs a 'winder' cable, concealed within either the cavity of the building/screens, or a conduit fixed to the surface. The operating handle will be mounted on the surface of the wall at a lower level, and maintenance of this system needs to be carried out by a competent contractor.

The opening sash elements will be hung on either friction stays, or butt hinges.

Replacement parts are available from Comar and their approved dealers. Only Comar approved parts can be fitted. Any replacement work to be undertaken by competent, approved personnel.

Casement Windows-Maintenance & Cleaning

When set correctly, the handle and locking mechanism will need no adjustment, apart from occasional lubrication with resin free grease or oil.

A 6 monthly check of all operations should be carried out.

1. The hardware around the sash should be thoroughly cleaned with a damp cloth and soapy water and wiped dry.
2. Fixings should be tightened as necessary.
3. Moving parts to be lubricated with resin free grease or oil.
4. A qualified technician MUST carry out all major adjustments or replacements (especially in the case of Teleflex gearing. Any attempt to complete repairs without correct tools or knowledge could result in personal injury or damage to the mechanism.

Pivot Windows-

Operation

The function of a pivot window is to provide maximum ventilation as well as allow the external face of the window to reverse through 180 to allow for cleaning. For safety the pivot function is restricted through a storm catch or a lockable key.

Windows can be fastened using cockspur handles or multi-point locking.

Horizontal or vertical pivot windows, have the pivot mechanism located horizontally or vertically. Horizontal pivots open at the top and bottom and vertical pivots left side and right side.

To open the window the handle should be rotated through 90 degrees and pushed. This will open the window in a restricted position. To release the restriction, there is a storm catch fitted at the opposite side to the handle, which is then pulled, either down or across, depending on whether it is a vertical or horizontal pivot.

The catch can be pulled outward, and twisted towards the inside of the building This will allow the window to rotate fully through 180 degrees and lock in position for cleaning purposes. The operation is then repeated to close the window. The storm catch can be spring loaded, and will therefore engage as the window is closed, but can be manually operated.

Pivot Windows-Maintenance & Cleaning

They can have multi point locking or cockspur handles. Under both options, the gearing maintenance regimes are the same.

The hinges on pivot windows are generally fully visible from the internal. The hinge can be adjusted in order to make operation easier, or tighter. There is an Allen bolt positioned in the centre on the internal side of the pivot, which can be tightened or loosened with an Allen key. This bolt applies pressure to the mechanism, thereby introducing more or less friction.

DO NOT LUBRICATE PIVOT HINGES.

A 6 monthly check of all operations should be carried out.

1. The hardware around the sash should be thoroughly cleaned with a damp cloth and soapy water and wiped dry.
2. Fixings should be tightened as necessary.
3. A qualified technician MUST carry out all major adjustments or replacements. Any attempt to complete repairs without correct tools or knowledge could result in personal injury or damage to the mechanism.

Comar Pivots are either, Sobinco, Winlock OR Caldwell and are only available direct from Comar Approved Fabricators.

Replacement parts are available from Comar or their approved dealers. Only Comar approved parts to be fitted. Any replacements work to be undertaken by competent, approved personnel.

Top-swing (Fully Reversible) Windows - Operation

Function of a Top-swing Window

The function of a top-swing window is to create ventilation with the ability to swing or reverse the external face of the window to the internal to allow for cleaning in high or difficult locations.

Operation

The top-swing window can have cockspur or concealed locking systems. To open the window, turn the handle through 90 degrees and reverse the operation to secure the sash in a closed position.

The top-swing hinge mechanism differs from any other window:

The first stage opens the sash to a restricted position. (PN UNI Gearing ONLY Grorud gearing does not restrict at this point). Opening the window will reveal a button to the left hand hinge in the outer frame. Depressing the button will allow the sash to rotate through 180 degrees. There will be a need to hold the top of the window and pull downwards, the window will then lock in position to allow cleaning of the outside of the pane. The button can then be depressed once more, the top of the window lifted, and the sill grasped in order to re-position the opening vent in its original position.

Maintenance & Cleaning

There is no adjustment available to this window, and only periodic lubrication is necessary, with resin free grease or oil. The hinges are supplied as a finished article, and no further maintenance is necessary or advisable. Care should be taken to avoid any contamination by grit or dirt.

Replacement parts are available from Comar, or their approved installers. Only Comar approved parts to be fitted. Any replacement parts to be fitted by competent, trained personnel.

A 6 monthly check of all operations should be carried out.

1. The gearing around the sash should be thoroughly cleaned with a damp cloth and soapy water and wiped dry.
2. Fixings should be tightened as necessary.
3. Moving parts to be lubricated with resin free grease or oil.
4. A qualified technician MUST carry out all major adjustments or replacements. Any attempt to complete repairs without correct tools or knowledge could result in personal injury or damage to the mechanism.

Comar 5Pi Vertical Sliding Windows

Function

The vertical sliding window is designed to allow maximum ventilation through two opening sashes without projecting either inward or outward. The sashes can also be tilted inwards for cleaning purposes. There may be an approved restrictor fitted which can be over-ridden for cleaning or access purposes

Operation

The windows have either one or two catches, depending on frame width, mounted on the central rails. The catches will normally have a key locking facility.
Simply grasp the catch between finger and thumb and rotate anti-clockwise to disengage. The lower sash will then slide upwards, or the upper sash will slide downwards, under light hand pressure.

There will be two buttons, positioned on the top rails of each sash. Coloured either white or gold, these buttons slide inward when pulled with the fingers. To tilt the sash for cleaning, simply release the catch, and operate the button as detailed. The sash will then tilt inward, to a restricted position to allow the external pane to be cleaned, and inspection of seals etc. The sash can then be pushed back into the frame, where the sprung-loaded guides will re-engage into the frame.

The restrictors are located on the vertical stile part of the top sash. These are sprung loaded, and can be depressed to allow the sashes to ride over and open fully. As the sashes close again, the spring loaded catch will re-engage to its' original position.

Maintenance & Cleaning

The sashes are retained into the frame by a spring balance. This unit is sealed and requires no maintenance. The spring is pre-tensioned by the supplier and therefore cannot be adjusted. Should the sash not remain in position without the catches being engaged, it will be necessary to replace the balance, which is best undertaken by a qualified engineer.

There is no adjustment available to this window, and only periodic lubrication is necessary, with resin free grease or oil. Care should be taken to avoid any contamination by grit or dirt.

Replacement parts are available from Comar, or their approved installers. Only Comar approved parts to be fitted. Any replacement parts to be fitted by competent, trained personnel.

A 6 monthly check of all operations should be carried out.

1. The gearing around the sash should be thoroughly cleaned with a damp cloth and soapy water and wiped dry.
2. Fixings should be tightened as necessary.
3. Moving parts to be lubricated with resin free grease or oil.

A qualified technician MUST carry out all major adjustments or replacements. Any attempt to complete repairs without correct tools

or knowledge could result in personal injury or damage to the mechanism.

Comar 5Pi Horizontal sliding window

The horizontal sliding window utilises the same hardware and gearing as the sliding door noted above. It will use either a single point or multi-point lock system, in both cases operated by the flush pull described previously.

Maintenance

The installer will set the position of the lock keep and will adjust the wheels to the optimum working position. However, they may require small adjustment. The leaves can be adjusted in height with a 4mm Allen key, which can be inserted into a hole at the bottom of the sliding leaf. It should be remembered that any adjustment carried out here will have an immediate and adverse effect on the locking points, so the height adjustment is best carried out prior to fitting the lock keeps.

Replacement parts are generally available from Comar or their nominated dealers. Any replacement works to be carried out fitted by competent, trained personnel. Only Comar approved parts to be used.

Glazing Gaskets And Weather Seals

Glazing Gaskets and weather seals are generally manufactured from E.P.D.M, and as such require very little maintenance, other than cleaning in conjunction with glass, and periodic inspection for deteriation. Broken or poor fitting gaskets will affect the weathering of the product, and should therefore be replaced. Gaskets and other weathering parts are purpose made items and cannot be replaced with standard items. If replacement gaskets are required they can be obtained from Comar Their approved installers.

Perimeter Seals

Silicone mastics and sealants generally have a shorter lifespan than that of the aluminium frames and finishes, and therefore require periodic inspection. Where the seal has broken on down or parted company with the structure it should be raked out and replaced using the same or superior product which is compatible with the surrounding material. Advice on suitable sealants should be obtained from a sealant manufacturer or applicator.

Comar 7 Commercial Doors-Operation & Maintenance

Comar 7 commercial doors can be in a number of different configurations as follows:

- Rebated door – opens inwardly or outwardly, in one direction only with a rebate which creates high weather proof seal.
- Swing doors – opens/closes inwardly and outwardly, single or double action
- Sliding – slides open along a track
- Sliding/folding – slides along a track, and has a number of hinged doors which fold back against the jamb to maximise the opening

Rebated Doors – Comar 7 Tempest, Comar 7P.i. Thermally Efficient, Comar 7P.i. Thermally Efficient, Comar 9Pi High Performance Doors

Operation

Rebated doors will be single action, opening either outward or inward only.
Comar 7 Tempest doors locking options can be a lever handle and latch lock or dead-lock and pull handle. Comar 7P.i. are locked by multi-point latch lock roller bolt or dead bolt.

Lever handles are depressed and pushed (open-in) or pulled to operate (open-out).

There will be a need to turn the key in the cylinder to secure the door in a locked position. Alternatively the lock can be operated by means of combination lock, which works only on the entry of the correct combination from the external.

Emergency exit devices may be fitted to the interior. This is either a push bar or a paddle handle. When the device is depressed, and the door is pushed, the door will open. As the door closes the locks will automatically re-engage, locking the door.

Maintenance
A 6 monthly check of all operations should be carried out.

1. Door frame and leaf should be thoroughly cleaned with a damp cloth and soapy water and wiped dry.
2. Fixings should be tightened as necessary.
3. Locks should be inspected and be lubricated with resin free grease or oil.
4. No lubrication required to the hinges.
5. A qualified technician MUST carry out all major adjustments or replacements. Any attempt to complete repairs without correct tools or knowledge could result in personal injury or damage to the mechanism.

Over time the doors opening performance may need adjustment. To ensure correct door action i.e. closing correctly or not scraping the floor, rebated doors have surface mounted hinges, which can be adjusted. The hinge pin is located into a nylon bush, which can be

removed and rotated to give 1-2 millimetres of adjustment within the opening.

Swing Doors

Swing doors hung on concealed closers hang centrally within the frame. This allows the door to be dual action opening-in or opening-out. However, a swing door can be restricted in either direction with a door stop.

Comar 7 swing door locking options can be a lever handle and latch lock or dead-lock and pull handle

In the case of dead-lock the door will be simply pushed or pulled to operate. For a latch lock the lever handle is depressed and the door pushed or pulled to open, when released, the latch lock will re-engage in and turning the key in the cylinder will secure the door in a locked position. Alternatively the lock can be operated by means of combination lock, which works only on the entry of the correct combination from the external.

Maintenance

A 6 monthly check of all operations should be carried out.

1 Door frames and leaves should be thoroughly cleaned with a damp cloth and soapy water and wiped dry.
2 Fixings should be tightened as necessary.
3 Locks should be inspected and be lubricated with resin free grease or oil.
4 Lubrication is not usually required to the hinges.

A qualified technician MUST carry out all major adjustments or replacements. Any attempt to complete repairs without correct tools or knowledge could result in personal injury or damage to the mechanism.

Sliding Doors

Comar 7 sliding commercial doors, operate on wheels at the bottom of the door which slide across an aluminium track, all wheels have a sealed bearing, which cannot be adjusted. The doors will be supplied with a 'flush pull', and when the hand is inserted into the pull, the door can be slid open, or closed as required.

Sliding doors, two main methods of locking mechanism.

1. Sliding door cross lock
2. Hook lock

Sliding door cross lock

Sliding door cross lock, is mounted on the inside face of the door stile and enables the door stiles on the sliding doors to interlock together. The lock incorporates a hook that interlocks with the opposite face plate and is locked in position by a key and cylinder mechanism.

Hook lock

Hook lock operates in the same way as the sliding door cross lock but is mounted on the closing door stile and locks into the outer frame.

Flush pull handle

Flush pull handle, is mounted on the inside or outside face of the door stile to facilitate the manual sliding of the doors.

Maintenance

The tracks need to be kept clean and clear of debris. The application of any grease to the tracks will only retain dirt and dust, and shorten the lifespan of the wheels, so it is best avoided.

A 6 monthly check of all operations should be carried out.

1 Door frames and leaves should be thoroughly cleaned with a damp cloth and soapy water and wiped dry.
2 Fixings should be tightened as necessary.
3 Locks should be inspected and be lubricated with resin free grease or oil.
4 Wheels should be lubricated through oil parts in the door

A qualified technician MUST carry out all major adjustments or replacements. Any attempt to complete repairs without correct tools or knowledge could result in personal injury or damage to the mechanism.

Sliding/Folding Doors

Comar 7 sliding/folding doors, sometimes referred to as bi-fold doors, are an effective way of providing an unobstructed opening. They have a concertina operation, with the door leaves usually folding against a wall.

Providing the doors are installed in accordance with Comar manuals and maximum sizes, the doors will work perfectly. The doors must never be taken past 90 degrees, or damage will occur. Care must be taken to avoid the catching of fingers in operation.

Maintenance

The tracks need to be kept clean and clear of debris. The application of any grease to the tracks will only retain dirt and dust, and shorten the lifespan of the wheels, so it is best avoided.

A 6 monthly check of all operations should be carried out.

1 Door frames and leaves should be thoroughly cleaned with a damp cloth and soapy water and wiped dry.
2 Fixings should be tightened as necessary.
3 Locks should be inspected and be lubricated with resin free grease or oil.
4 Wheels should be lubricated through oil parts in the door.

A qualified technician MUST carry out all major adjustments or replacements. Any attempt to complete repairs without correct tools or knowledge could result in personal injury or damage to the mechanism.

Electronically Operated Doors (Auto-doors)

The doors will open by making use of one of the following: laser beam sensor, pressure sensor, swipe card or push pad. The electric system will normally incorporate a 'fail-safe' mechanism, which will allow the doors to be opened in the event of mechanical breakdown. i.e. during a fire. They could also have a 'fail secure' system, which would leave the building secure in the case of breakdown. i.e. A Bank or Supermarket entrance. They may also be a 'breakout facility'. The doors will normally be locked with dead locks.

Maintenance

As the opening and closing actions are both controlled by the electric gearing, further explanation or lubrication is not necessary.
Doors operated by electric mechanisms require very little maintenance, and as the gearing can be complex Comar advise only competent personnel should carry out repairs to automatic doors.

Replacement parts are generally available from Comar or their approved dealers. Only Comar approved parts are to be fitted to Comar products. All replacements to be fitted by competent, trained personnel.

Comar does not supply auto-door gearing therefore in the event of failure or advice on maintenance the auto-door gear manufacturer or original installer/fabricator should be contacted

Comar 7P.i. Sliding Doors

Comar 7P.i. sliding doors incorporate a multi point locking system, and run on wheels with a sealed bearing. It is imperative that the tracks are kept clear and clean. There is a requirement for periodic inspection and cleaning of all visible locking points.

Many types of locking mechanisms and handles are available to suit the application. If clarification on operation required please phone Comar's Technical Department quoting the manufacturer.

Replacement parts are generally available from Comar or their nominated dealers. Any replacement works to be carried out by Comar Approved fabricators. Only Comar approved parts to be used.

Maintenance

The installer will set the position of the lock keep and will adjust the wheels to the optimum working position. However, they may require small adjustment. The doors can be adjusted in height with a 4mm Allen key, which can be inserted into a hole at the bottom of the sliding door stiles. It should be remembered that any adjustment carried out here will have an immediate effect on the locking points, so the height adjustment is best carried out prior to fitting the lock keeps.
Replacement parts are generally available from Comar or their nominated dealers. Any replacement works to be carried out fitted by competent, trained personnel. Only Comar approved parts to be used.

Locking

Sliding doors, three main methods of locking mechanism.

1. Single-point
2. Multi-point , 3-point lock
3. Multi-point, 5 point

Using the following levers and handles

1. Dummy lock lever
2. D Handle
3. Flush pull handles
4. External locking handles
5. Internal pull handle

Multi-point Locks

Multi-point, 3 point locking systems, has a single handle mounted in the centre of the vertical jamb, which operates sliding gearing located within the door section. When the handle is closed the 2 mushroom heads and hook lock move into recesses and engage, increasing the locking points on the door. The handle or lever is turned through 90 degrees to the open position. The handle will sit in line with the jamb when closed, or will be visible from outside, through the glass, when opened.

comar
ARCHITECTURAL ALUMINIUM SYSTEMS

LIFE EXPECTANCIES / WARRANTIES BS 7543:2015

Component	Primary / Secondary	Material	Design Life (BS 7543) Table 2	Warranty	Life Expectancy	Maintenance Level (BS 7543) Table 4	Effects of Failure (BS 7543) Table 5	Comments
Aluminium Extrusions	Primary	Aluminium	40	10 Years	Indefinite	1	F & G	
Anodised Finish	Secondary	Surface Oxidisation of Aluminium	60	30 Years	Over 50 Years	2	D	Maintain in accordance with anodisers instructions
Assembly Sealants	Primary	Silicone	30	10 Years	Indefinite	1	D & F	
Fixing Brackets	Primary	Aluminium	30	10 Years	Indefinite	1	A, B, D, F & G	Inspect periodically
Fixing Screws	Primary	Stainless Steel	30	10 Years	Indefinite	1	A, B, D, F & G	Inspect periodically
Inner Gasket	Secondary	EPDM	40	10 Years	Over 10 Years	2	D & F	Clean with soapy water when glass is cleaned
Outer Gasket	Secondary	Nitrile	40	10 Years	Over 25 Years	2	D & F	Clean with soapy water when glass is cleaned
Panel Joint / Seal Extrusions	Primary	Dual Hardness PVC	30	To be agreed	To be agreed	1	D & F	
Powder Coating	Secondary	Polyester	60	25 Years (matt)	Over 25 years (matt)	2	D	Maintain in accordance with coating manufacturer's instructions
Thermal Break	Primary	Polyamide	30	10 Years	Over 30 Years	1	A, B, D, F & G	
Weatherseals	Secondary	Silicone Rubber	40	10 Years	Over 25 years	2	D & F	Inspect periodically

SUSTAINABILITY STATEMENT

Today's world calls for us all to be more conscious of our environment. In 1998 the world recognized this by signing the Kyoto Agreement. The Kyoto Agreement directly affected the construction industry by demanding that buildings become more thermally efficient. With these demands longevity, thermal efficiency, sustainability and recyclability are now critical factors in construction.

Why Aluminium...

Aluminium provides a unique solution for today's construction needs. Aluminium is light, strong, durable and flexible which provides tremendous potential for achieving even the most demanding design brief. Two-thirds of the energy required to extract aluminium is supplied by environmentally friendly, hydroelectric power. Couple this with the recyclability of aluminium and aluminium is the ideal choice for Windows, Doors and facades.

Longevity

Unlike some alternative building materials, aluminium offers an almost unlimited life expectancy. A notable example of this is the Statue of Eros in London's Piccadilly Circus, which has only just been cleaned and renovated, and The Empire State Building, the latter being the first building to use anodised aluminium. Aluminium does not age like other organic materials and needs no protection from ultra-violet light. Aluminium can be polyester powder coated or anodised to a variety of colours, which enhances the materials natural durability. Comar's powder coater's guarantee their finishes for 25 years and anodiser's for 30 years.

Sustainability...

The recycling process now produces high quality aluminium, which is very cost effective and can be carried out on an indefinite number of occasions without impairing the quality in any way. It is a very durable material and has very low maintenance requirements, therefore reducing the whole-life cost. It is long lasting and can withstand the ravages of the most extreme conditions. Aluminium is an excellent material to use in marine and coastal environments, as the effect of sodium chloride is minimal.
Sustainability concerns are alleviated by the knowledge that we have at least 300 years of known reserves of the raw material, Bauxite, and this does not allow for the fact that 75% of all aluminium used construction is from recycled sources.
Thus with ever increasing proportion of re-cycled material in use, aluminium can be accurately described as the ultimate sustainable material.

Choosing Aluminium...

The reason for specifying aluminium, as compared to other building materials, lay in its unique properties. No other building material can be re-used again and again in the same form. Its overall life-cycle is more environmentally friendly due to the minimum energy required in maintenance and the well established, proven design life of aluminium. Other materials will require replacement sooner and require more in-depth environmentally harmful maintenance. The longevity and proven design life of aluminium assures the specifier that aluminium will provide a long term solution year-on-year with the guarantee of 100% re-cyclability at the end of the buildings life.

Recycling Check List

"The recyclability of aluminium – one of its unique properties along with strength, durability and corrosion resistance – has led to its increased use in construction over recent years. Used aluminium is valuable and is easily and endlessly recycled without quality loss. The material is very rarely 'lost' entirely because of this."

At end of life, for Building Owners, please contact us for re-cycling options to preserve this precious material.

Important issues to note are:

- The quality of aluminium is not impaired by endlessly recycling.
- Re-smelting aluminium saves up to 95% of the energy needed to produce the primary product.
- It is the most cost-effective material to recycle.
- The recycling rate of used aluminium products in building is over 85% (over 95% in transportation and 30% in packaging).
- 30% of the 1.9 million tonnes of aluminium used in Europe in 1997 came from recycling.