

MATERIAL & FINISHES REPORT

Document No. 1CP01-MDS_PML-AR-REP-SS08_SL23-000004

Work Package No. A1200S03

Revision	Author	Checked by	Approved by	Accepted by (Not HS2)	Date approved	Revision Details
C01	Karl Pearson	Terry Clark	Darren Brooks		11/05/22	First Issue

STAKEHOLDER REVIEW REQUIRED (SRR)
<input type="checkbox"/> COUNTY/DISTRICT/LONDON BOROUGH COUNCIL <input type="checkbox"/> LOV <input type="checkbox"/> LUL <input type="checkbox"/> NRL <input type="checkbox"/> TFL <input type="checkbox"/> UTILITIES COMPANY <input type="checkbox"/> OTHER

PURPOSE OF SRR
<input type="checkbox"/> ACCEPTANCE <input type="checkbox"/> APPROVAL <input type="checkbox"/> NO OBJECTION <input type="checkbox"/> CONSENT

1. Contents

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1. Cladding – Page 4-6







2. Final Elevations – Page 8-9



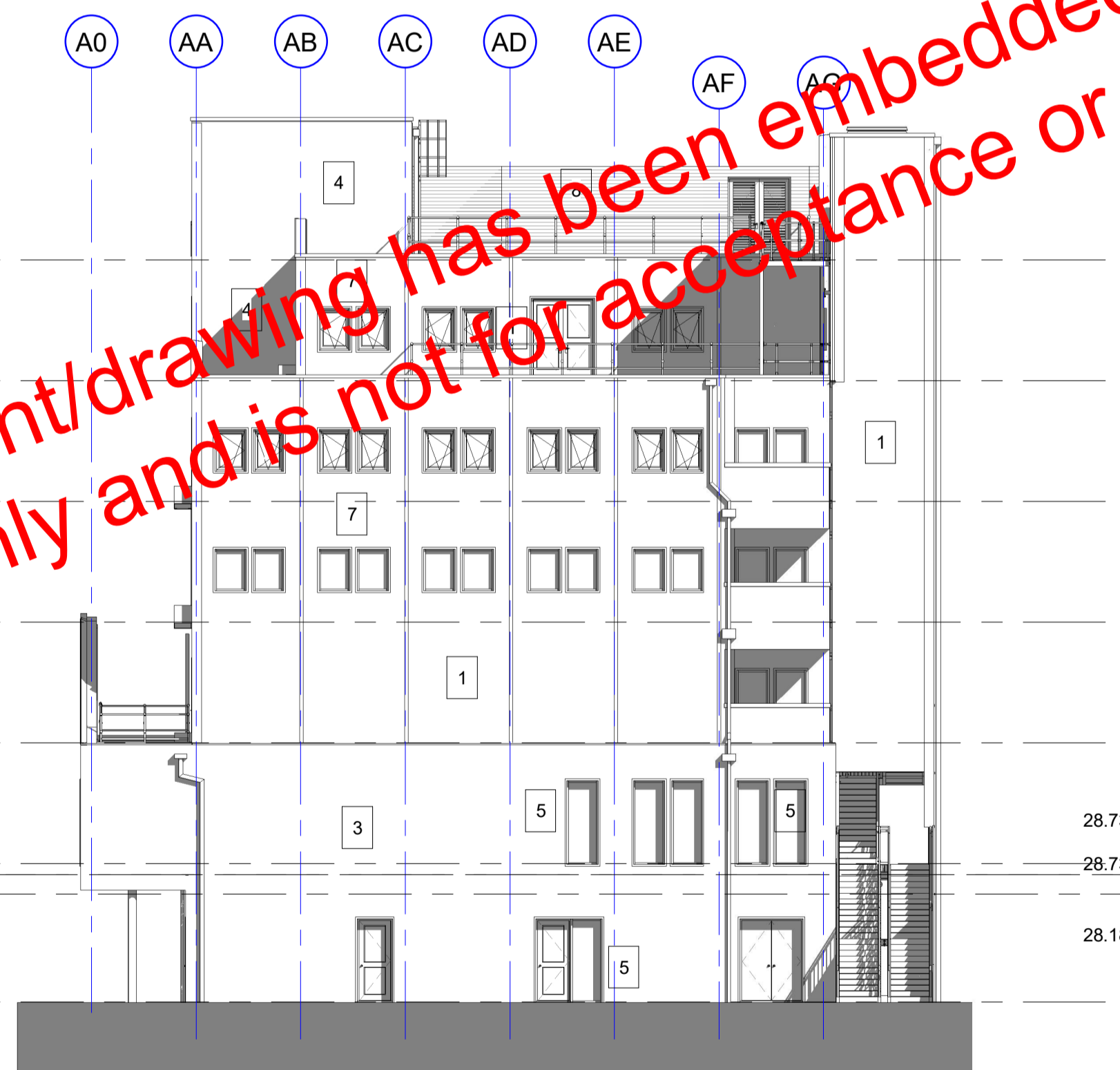
2. NORTH
1 : 150

SAFETY, HEALTH AND ENVIRONMENT INFORMATION	
THE RISKS LISTED BELOW ARE IN ADDITION TO THE RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORK DETAILED ON THIS DRAWING.	
CONSTRUCTION	MOVING OF MODULES INTO PLACE ON SITE WORKING AT HEIGHT WORKING IN CLOSE PROXIMITY TO EXISTING BUILDINGS EXISTING SERVICES ON SITE TO BE LOCATED DELIVERIES AND MOVEMENT OF MATERIALS ON SITE GROUND WORKS DURING FORMATION OF BUILDING PADS INSTALLATION OF HOT & COLD WATER SERVICES
OPERATIONS	RPE TO BE WORN ON SITE RISK OF INFECTION - COVID 19 ACCESS AT HEIGHT - FALLS FROM HEIGHT & INJURIES MAINTENANCE OF MATERIALS PAINTS & SOLVENTS (INHALATION, FUMES)
MAINTENANCE	CLEANING OF GUTTERS AND HIGH LEVEL WINDOW CLEANING TO BE CONSIDERED LOWERING OF MODULES TO BE CONSIDERED REMOVAL OF MODULES VIA CRANE CLOSE PROXIMITY TO EXISTING BUILDINGS NOISE DURING OPERATIONAL HOURS MAKING SAFE SERVICES
THE ABOVE RISKS ARE LISTED IN THE DESIGN RISK REGISTER REFERENCE:	

WINDOWS
ALL WINDOWS EXCEPT AS NOTED BELOW AND GROUND FLOOR WITHIN BLACK CLADDING TO BE RAL 7039
ALL WINDOW & DOOR LINERS TO BE RAL 7035

WINDOWS
ALL GROUND FLOOR WINDOWS WITHIN BLACK CLADDING RAL 8022 BLACK
ALL WINDOW & DOOR LINERS TO BE RAL 7035

This document/drawing has been embedded within 1CP01-MDS_PML-AR-DEL-SS08_SL23-000002 for information purposes only and is not for acceptance or implementation



1. EAST
1 : 150

WINDOWS
ALL WINDOWS EXCEPT AS NOTED BELOW AND GROUND FLOOR WITHIN BLACK CLADDING TO BE RAL 7039
ALL WINDOW & DOOR LINERS TO BE RAL 7035

WINDOWS
ALL GROUND FLOOR WINDOWS WITHIN BLACK CLADDING RAL 8022 BLACK
ALL WINDOW & DOOR LINERS TO BE RAL 7035

NOTE:
AWAITING MACE INPUT & DETAILS REGARDING ANCHOR POINTS TO ELEVATIONS

Rev	Description	Drawn	Checked	Approved	Con App	Scale with caution as distortion can occur.
C06	ADDITIONAL 3NO WINDOWS ADDED TO NORTH ELEVATION AS CLOUDED	DRP	TC	KP		
C05	ADDITIONAL FIRE ESCAPE DOOR ADDED TO LEVEL 1 DINING ON NORTH ELEVATION	DRP	TC	KP		
C04	REVISED TO FBM COMMENTS FOR REVISED PLANNING SUBMISSION	DRP	TC	KP		
C03	COLOURED REMOVED FROM DRAWING, NEW KEY ADDED AND WINDOWS W-514&515 REMOVED	DRP	TC	KP		
C02	REVISED TO SUIT MACE COMMENT LOG	DRP	TC	KP		

Legends/Notes:

- 1 VINYL WRAPPED CLADDING - BY SPECIALIST REFER TO SAMPLE 1 & DAS FOR VINYL COLOURING & LAYOUT
- 2 CHESTNUT BROWN CLADDING - RAL 8015
- 3 BLACK CLADDING ON TOP HATS TO MODULES SPEC: EUROCLAD 32/1000 R PROFILE - RAL 9017
- 4 MODULE EUROCLAD CLADDING TYPICAL - RAL 7035
- 8 ACOUSTIC ROOF TOP LOUVRE SCREEN

WINDOWS

- 5 ALL WINDOWS AT GROUND FLOOR WITHIN BLACK CLADDING = RAL 8022 BLACK
- 6 WINDOWS AT FIRST FLOOR BETWEEN GL 1J & 1I TO BE RAL 8015 BROWN
- 7 ALL OTHER WINDOWS RAL 7039

ALL WINDOW & DOOR LINERS TO BE RAL 7035

HS2

OFFICIAL

Registered in England
Registration No. 06791686
Registered office:
2 Snow Hill, Queensway,
Birmingham, B4 6GA

Stage	Project/Contract	Creator/Originator	Sub-Originator
5	EUSTON STATION	PREMIER MODULAR	
Drawing Title	Work Package Description	Discipline/Function	System Description
	1200S03	ARCHITECTURAL	
Drawing Title	PROPOSED ELEVATIONS SHEET 1		
Drawn by	Checked by	Approved by	Date
DRP	TC	KP	04.08.21
Scale	Size	Suitability	Rev.
1:150	A1	S3	C06
Drawing No.	1CP01-MDS_PML-AR-DEL-SS08_SL23-000001		



1. SOUTH
1 : 150



2. WEST
1 : 150

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OPERATIONS	PPE TO BE WORN ON SITE RISK OF INFECTION - COVID 19 WORKING AT HEIGHT - FALLS FROM HEIGHT & INJURIES ACCESS FOR DELIVERIES MAINTENANCE OF MATERIALS PAINTS & SOLVENTS (INHALATION, FLAMES)
MAINTENANCE	CLEANING OF GUTTERS AND OUTLETS HIGH LEVEL WINDOW CLEANING - WORKING AT HEIGHT CONSIDERED REPLACEMENT OF FALLS GENERAL ROOF INSPECTION USE OF LIFELINES
THE ABOVE RISKS ARE LISTED IN THE DESIGN RISK REGISTER REFERENCE:	

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Rev	Description	Drawn	Checked	Approved	Con App	Scale with caution as distortion can occur.
C04	REVISED TO FBM COMMENTS FOR REVISED PLANNING SUBMISSION	11.03.22 DRP	11.03.22 TC	11.03.22 KP		
C03	COLOUR REMOVED AND KEY ADDED	05.03.22 DRP	05.03.22 TC	05.03.22 KP		
C02	REVISED TO SUIT MACE COMMENT LOG	21.01.22 DRP	21.01.22 TC	21.01.22 KP		
C01	ISSUED FOR CONSTRUCTION	06.12.21 DRP	06.12.21 TC	06.12.21 KP		
P12	SUB-CONSULTANT EXTERNAL STAIRS AND WALKWAY REVISED	16.11.21 DRP	16.11.21 TC	16.11.21 KP		

Legends/Notes:

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5	EUSTON STATION	PREMIER MODULAR	
Drawing Title	Work Package Description	Discipline/Function	System Description
	1200S03	ARCHITECTURAL	
Drawing Title	PROPOSED ELEVATIONS SHEET 2		
Drawn by	Checked by	Approved by	Date
DRP	TC	KP	04.08.21
Scale	Size	Suitability	Rev.
1:150	A1	S3	C04
Drawing No.	1CP01-MDS_PML-AR-DEL-SS08_SL23-000002		

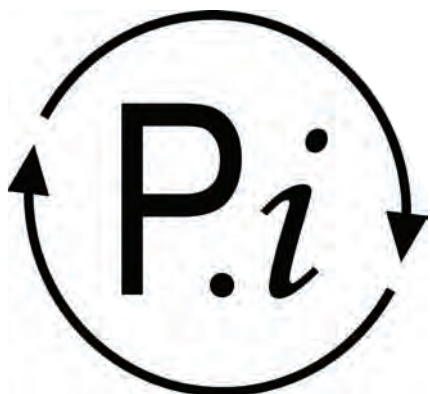
3. Window Specification – Page 11-26

Uniclass	EPIC
L41:P43	D1:X46
CI/SfB	
(31) Xh4	



comar9P.i

Comar 9Pi High Performance Framing, Windows and Doors.
Value engineered solutions and fast-track off-site modular manufacture.



complementing architecture

Design

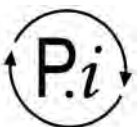
Solution

Perform

Deliver

On time

Sustainable



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, standard white polyester powder coating, silver and bronze anodised profiles are kept in stock. This means that 99% of orders are fulfilled by our customers next weekly delivery. Single and dual colour polyester powder coating can be delivered in 15 working days. For architects and specifiers, a nationwide team of architectural advisors provide project-by-project advice on design, building regulations, U-value and wind loading calculations as well as NBS specifications, budget pricing and approved fabricators. This service to specifiers ensures that projects run smoothly from concept to installation.

Comar Architectural Aluminium Systems is an ISO 9001 registered company. Comar is a member of the Council for Aluminium in Building, (C.A.B) and is a Technical Committee member. Comar provides CPD seminars to architects and designers through the RIBA CPD network and offers CWCT training courses and seminars through its own Training Centre at Mitcham in Surrey.

Comar is a sponsor member of the C.W.C.T.

Membership with these Associations ensures that customers are kept up-to-date with the very latest in building technology and regulations.

Comar 9Pi features:

- New Comar 9Pi High Performance Window, Door and Framing system.
- Fast track fabrication, off site construction.
- Value engineering is achieved with the windows and doors hanging directly from the Comar 9Pi framing reducing metal content
- British Standards BS 6375 & PAS24:2012
- Dual colour options with all finishes: anodising with a 35 year guarantee, polyester powder coating, a 25 year guarantee with RAL colours from Interpon and Syntha Pulvin
- Value engineering creating cost efficiencies
- Low-rise thresholds and wide doors to cater for DDA
- Up to two storey facades, with 3000mm spans at 1500mm centres
- Low U-values 1.6 – 1.0
- High span mullions and transoms
- Slim 65mm sight lines
- Flexibility: Profile width 80mm, 100mm & 120mm
- Three options of thermal performance: standard, multi-chambered, thermal foam
- Flush glazing seamless opening vents
- Integrates with existing Comar 5Pi. windows and Comar 7 doors
- Flexible fabrication: mitre frame construction or ladder frame construction

Comar: Designed for Performance, Backed by Delivery.



design

New System: Comar 9Pi High Performance Framing, Windows and Doors

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.

The extensive market research indicated that a thermally efficient future proof facade system was required, with off site manufacture and value engineering solutions that actively seek to reduce material content.

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, 100mm or 120mm creating greater design flexibility.

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

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 providing straight interfacing with 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 and a tilt and turn option offering unobtrusive top light ventilation. Comar 5Pi Vertical Sliding Windows and Horizontal Sliding Windows can be integrated into the Comar 9Pi framing.

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.



Thermal Performance

Comar 9Pi offers exceptionally low U-values. Supporting this thermally broken suite is Comar's Technical Department who offer advice to architects, specifiers and fabricators on U-value calculations, wind loading and integration. This service is offered on a project-by-project basis.

Genesis

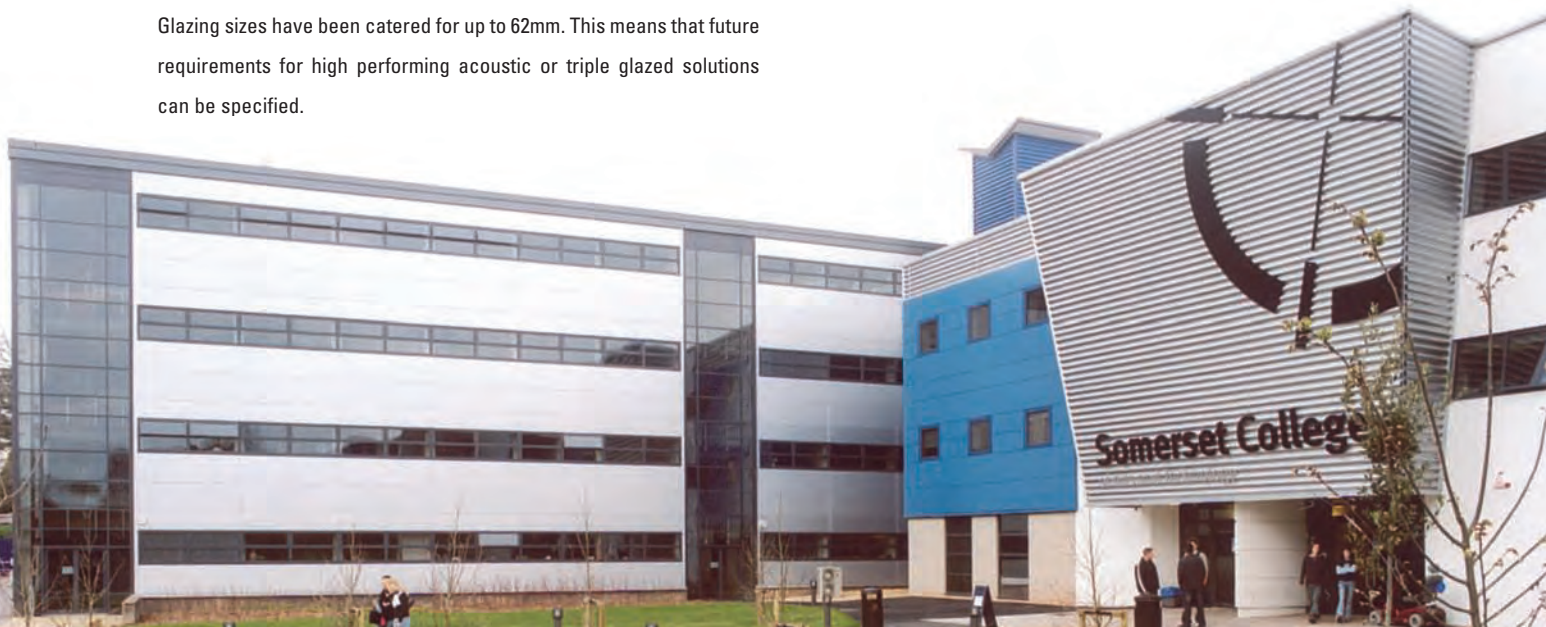
To our nationwide network of approved fabricators, Comar supplies Genesis estimating software. Genesis is a powerful estimating tool; it provides fast, accurate pricing from plans and tenders for the entire Comar product range.

Genesis includes the facility to provide section through details which can be exported to CAD so Comar approved fabricators can add detail to design drawings.

All approved fabricators are trained in Genesis, ensuring Comar approved fabricators provide accurate budget pricing and tender returns.

Research and Development

Comar 9Pi has been continuously developed to ensure it can be used to complete the most demanding façade. New profiles are regularly introduced. If your project requires new extrusions, Comar's Technical Department will discuss individual projects and develop new profiles to achieve the design brief.



design

Comar 9Pi High Performance Systems

All windows, doors and framing systems have two options of thermal efficiency Standard Pi and Enhanced Pi with Thermal Foam, 65mm sight lines and 80mm profile widths. All systems have a heavy duty 100mm or 120mm profile option for larger sizes or spans. All systems have options for dual colour.

Comar 9Pi Framing Systems

Framing systems have two options of construction: mitre frame and ladder frame. Ladder frame offers modular off-site construction, where frames can be quickly assembled together to form glazed facades. Mitre frame offers fast modular construction for ribbon windows, reducing the need for additional profiles.

Comar 9Pi Casement Windows

Opening vents can be hung directly from Comar 9Pi framing with no need for additional outer frames creating a value engineered solution. Comar 9Pi Casement windows can also be installed as standard windows, composites or ribbon windows.

Types

Fixed, open-out side or top projected and bottom hung casement windows.



Comar 9Pi Tilt & Turn Windows

Opening vents can be hung directly from Comar 9Pi framing with no need for additional outer frames creating a value engineered solution. Comar 9Pi Tilt & Turn windows can also be installed as standard windows, composites or ribbon windows.

Types

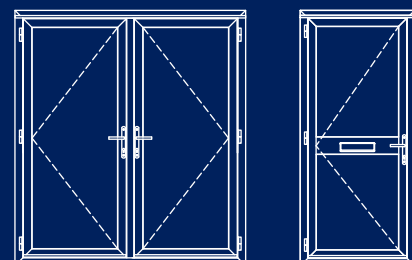
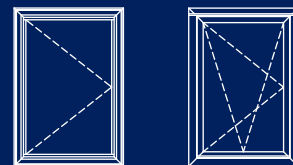
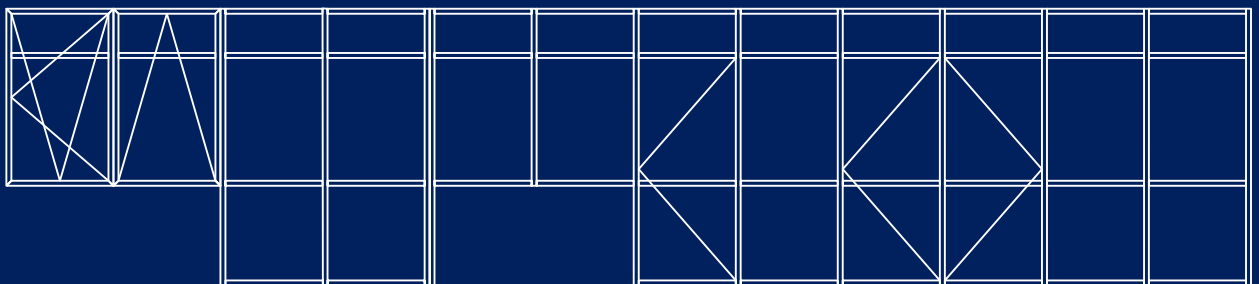
Tilt and turn, bottom hung open-in and side hung open-in.

Comar 9Pi Doors

Single and double doors can be hung directly from Comar 9Pi framing systems with no need for additional door stiles creating a value engineered solution. Comar 9Pi doors can also be installed as standard door sets. Comar 9Pi Rebated doors now have an anti-finger trap option.

Types

Single or double doors, open-in or open-out.



solution

Specification

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

The relevant NBS clauses are:

- H11 Curtain Walling
- L10 Windows/Rooflights/Screens
- L20 Doors/Shutters/Hatches

Nationwide Approved Fabricator Network

Once Comar 9Pi has been specified, a nationwide network of approved fabricators ensures the successful completion of projects. Your Comar architectural advisor can provide fabricators who specialise in commercial, new, refurbishment or public building work.

Calculation

Calculations, such as wind-loading, U-values, size and weight limitations for projects, can be obtained from Comar's Technical Department.

Finishes

Comar 9Pi finishes are available in all RAL, Syntha Pulvin, and BS colours. Aluminium profiles are finished to the following specifications: silver, bronze and black anodising AA 25 to BS EN 12373-1 : 2001 or BS 3987. Liquid organic coating to BS 4842 : 1984. Polyester powder coating to BS 6496 : 1984.

Size and Weight Limitations: Comar 9Pi High Performance Windows, Doors and Framing

Comar 9Pi Windows	Maximum Width	Maximum Height	Weight
Tilt & Turn	1700mm	2400mm	115kg
Bottom Hung Open-in	1740mm	2400mm	115kg
Side Hung Open-in	1700mm	2400mm	115kg
Top Projected	-	2500mm	115kg
Side Projected	1000mm	-	40kg

Weather Performance

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

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

Comar 9Pi Casement Tilt & Turn	BS7950
Comar 9Pi Door	PAS 24



Comar 9Pi Doors	Maximum Width	Maximum Height	Weight
Single Door Open-in or out	1100mm	2400mm	90kg
Double Doors Open-in or out	2200mm	2400mm	180kg

solution

U-Values: Comar 9Pi High Performance Windows, Doors and Framing

Comar 9Pi Doors	Size	Glass Centre Pane U-value	U door Standard Pi	U door Enhanced Pi with Thermal Foam
Single Door Open-in	1000mm x 2100mm	1.0	1.67	1.38
		0.5	1.31	1.02
Single Door Open-out	1000mm x 2100mm	1.0	1.68	1.39
		0.5	1.32	1.03
Double Door Open-in	2000mm x 2100mm	1.0	1.65	1.37
		0.5	1.28	1.00
Double Door Open-out	2000mm x 2100mm	1.0	1.65	1.38
		0.5	1.29	1.01

Comar 9Pi Casement Windows	Size	Glass Centre Pane U-value	U window Standard Pi	U window Enhanced Pi with Thermal Foam
Fixed Light	1200mm x 1200mm	1.0	1.38	1.24
		0.5	0.93	0.79
Fixed Light Cen Sized Window	1230mm x 1480mm	1.0	1.34	1.22
		0.5	0.89	0.76
Side, Bottom or Top Hung	1200mm x 1200mm	1.0	1.72	1.58
		0.5	1.33	1.20
Cen Size Window	1230mm x 1480mm	1.0	1.65	1.53
		0.5	1.26	1.13

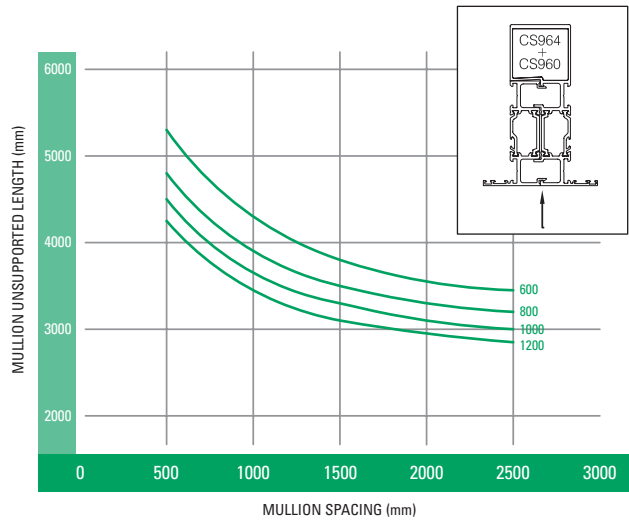
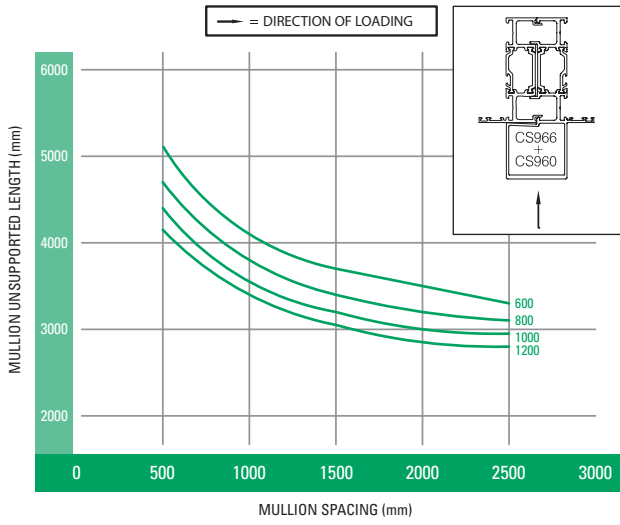
Comar 9Pi Tilt Turn Windows	Size	Glass Centre Pane U-value	U window Standard Pi	U window Enhanced Pi with Thermal Foam
Tilt Turn	1200mm x 1200mm	1.0	1.60	1.43
		0.5	1.21	1.04
Cen Sized Window	1230mm x 1480mm	1.0	1.54	1.39
		0.5	1.14	0.99

Comar 9Pi High Performance Framing	Size	Glass Centre Pane U-value	U screen Standard Pi	U screen Enhanced Pi with Thermal Foam
Mitre Frame	3000mm x 3000mm (1000mm Centres)	1.0	1.30	1.19
		0.5	0.83	0.72
Ladder Frame	3000mm x 3000mm (1000mm Centres)	1.0	1.34	1.23
		0.5	0.88	0.77

perform

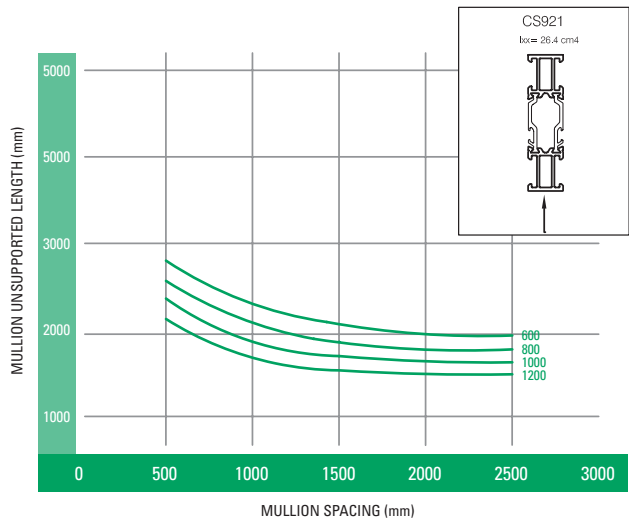
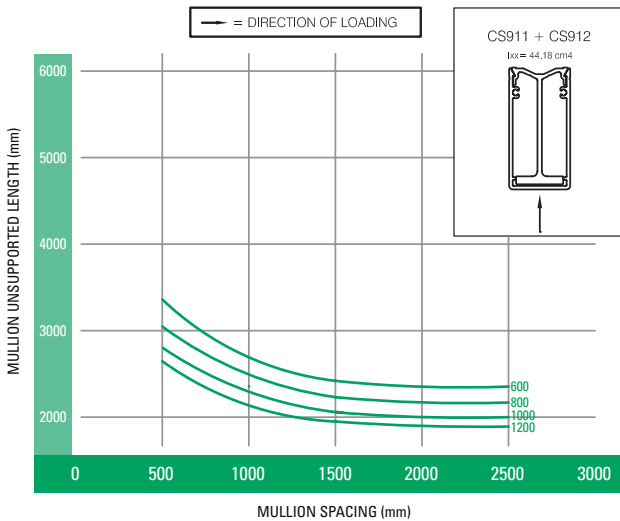
Ladder Frame - Size Limitations

Deflection Limits -
UP TO 3m L/200 OVER 3m SPAN (L/300) +5 - Double Glazed



Mitre Frame - Size Limitations

Deflection Limits -
UP TO 3m L/200 OVER 3m SPAN (L/300) +5 - Double Glazed



perform

Hardware, Glazing & Gaskets

Hardware

Comar 9Pi utilises a range of hardware such as handles, locks, friction stays and restrictors. All Comar window systems utilise hardware selected from standard catalogue items for Euro-groove fitting.

Glazing

Generally, all glazing shall comply with the requirements of BS 6375 and BS 6262: 1982, British Standard Code of practice for Glazing in Buildings.

Glazing beads and gaskets allow for an exceptional range of glazing thickness from 17mm to 62mm, dependent on the system specified (see below). For commercial applications, glazing beads are fitted internally. Drainage of glazing and opening lights is an important aspect of design. Profiles have drainage slots in the glazed recess and rebated areas to ensure ventilation and drainage of the rebates as well as providing a water barrier.

Where specified, hermetically sealed double glazed units shall comply with the requirement of BS 5713 : 1979. The specification of hermetically sealed double glazed units shall be as stated in the works section.

Comar 9Pi	Minimum Glazing	Maximum Glazing
Ladder Frame	17mm	62mm
Mitre Frame	17mm	62mm
Casement	17mm	62mm
Tilt/Turn	17mm	62mm
Door	17mm	62mm

Gaskets

Glazing materials are high performance pre-formed non-structural gaskets complying with the requirements of BS 4255, Part 2.

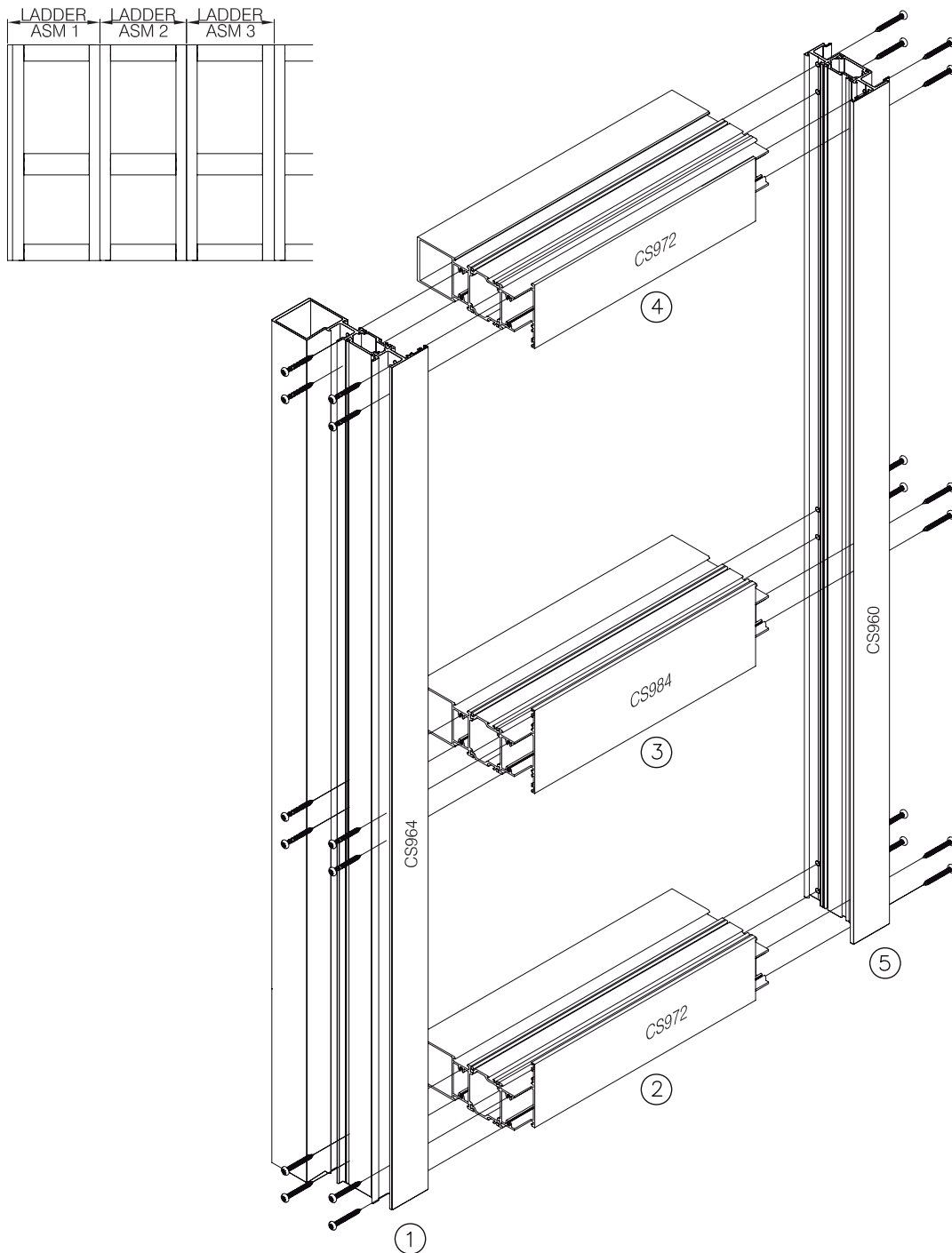
Materials

Extruded aluminium profiles are of aluminium alloy 6063 T5, T6 to BS EN 12020 and BS EN 755-1 : 1997. Comar 9Pi has a thermal barrier 34mm polyamide strip.



deliver

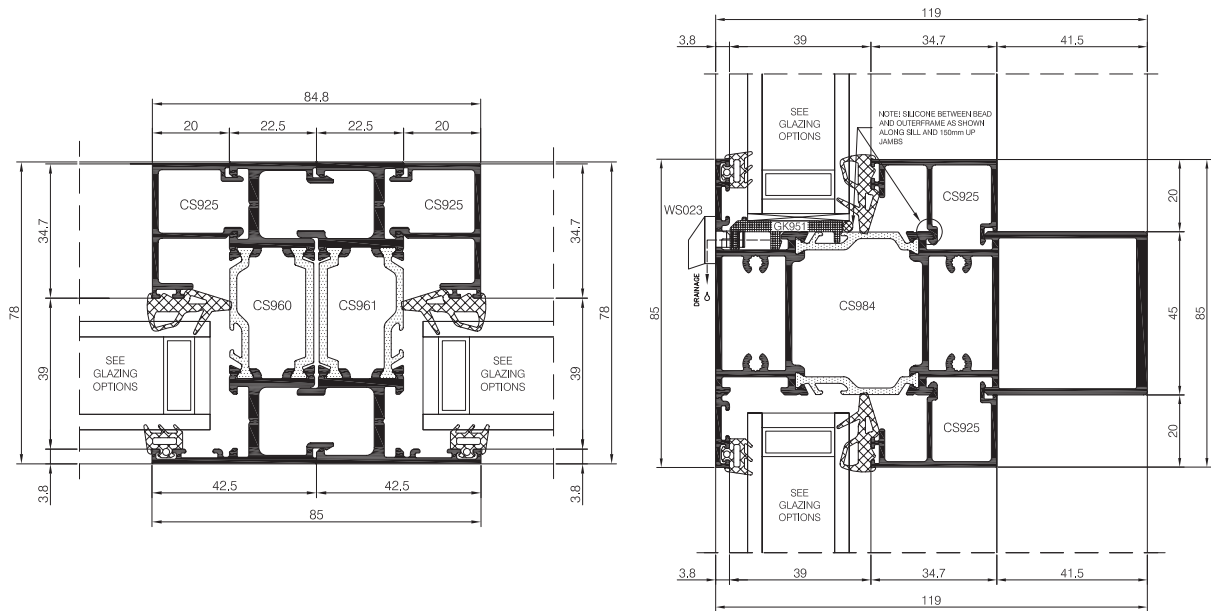
Comar 9Pi Ladder Frame



General arrangement showing Ladder Frame typical assembly details. Off site manufacture into ladder frame modules ready for transport and fast track assembly on site.

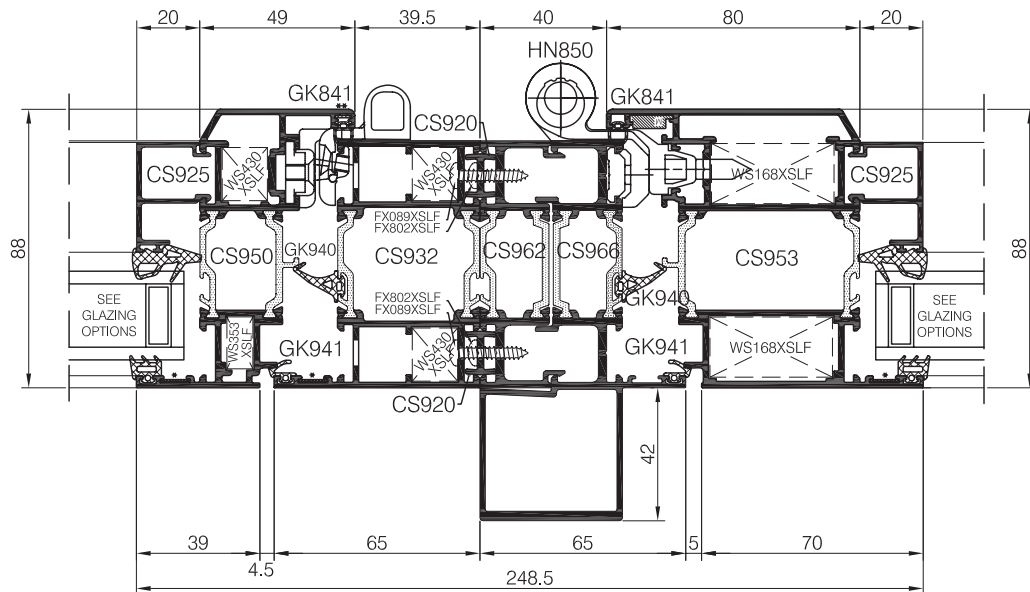
deliver

Comar 9Pi Ladder Frame



General arrangement showing Comar 9Pi Ladder Frame mullion detail.

General arrangement showing Comar 9Pi Ladder Frame transom detail.



General arrangement showing Comar 9Pi Ladder Frame integrated with Comar 9Pi Tilt & Turn Windows and Comar 9Pi Doors.