smart
architectural aluminium

Ref:	KJC00229
Title:	Five Acres
Client:	TBA
Date:	04/08/2021

E&OE

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EXECUTIVE SUMMARY

This proposal document has been prepared by Kevin Cole of Smart Architectural Aluminium for Project Five Acres Reference KJC00229. This specification is produced in good faith and should be checked to confirm details herein are as per project requirements. E & OE

PRO JECT

Smarts Reference: KJC00229
Project: Five Acres
Revision: 04/08/2021

ARCHITECT/SURVEYOR

Company: Stace LLP

MAIN CONTRACTOR

Company: TBA

NOMINATED SMARTS FABRICATOR

Company: TBA

SMARTS ARCHITECTURAL ADVISOR CONTACT DETAILS

Name: Kevin Cole
Address: Smart Systems Limited
BS49 4QN
United Kingdom
Tel: [redacted]

NBS SPECIFICATION

Smart Systems Ltd
Arnolds Way
Yatton
North Somerset
BS49 4QN
Tel: 01934 876 100

L10 WINDOWS/ROOFLIGHTS/SCREENS/LOUVRES

L20 DOORS/SHUTTERS/HATCHES

280 DOORS

Smart Systems are a major supplier to the window and door fabrication industry and are active members of The Council for Aluminium in Building (CAB) and members of CWCT.
Smart Systems aluminium and composite profile product range includes, doors, windows, glazed screens, curtain walling, roof glazing and conservatories, for both the commercial and domestic markets. An extensive range of ancillary items such as balustrades is available to complement each product range.
Door and door frames are manufactured from grade 6060/6063 T5/T6. Size tolerances are in accordance with DIN and BS standards.
Co-extruded profiles and EPDM seals are tested in accordance with DIN 7863, TV 110, NFP 85301, and ISO 3994. Thermal breaks are formed with polyamide strips PA 6.6 25 reinforced with glass fibre, fitted between aluminium extrusions.
Profiles can be Electrostatic powder coat finished in a range of RAL colours to APA Qualicoat guidelines with the option of BI-colour, different internal and external colours. Other finishes include anodised in satin with EWAA/EURAS-Qualanod quality label. Powder-coated woodstructure finishes are available on request.

SMARTWALL DOOR

Can be security rated to LPS1175 Level 2, EN1627 Level 3 or PAS 24-2016

BSI Kitemarked to PAS24: 2016- KM530838 –includes, standard swing, maglock, electronic V lock, concealed panic bar, auto-slide and auto-swing options.

Designed for use as thermally broken open out or open in, single or double doors, internally and external beaded, with sidelight options, for domestic and light / medium / heavy commercial applications.
Door and door frames are extruded from aluminium alloy 6060/6063 T5/T6 and comply with the recommendations of BS EN 12020-2; 2001/BS 755-9: 2001. Profiles can be Electrostatic powder coat finished in a range of RAL colours to APA Qualicoat guidelines. Other finishes include anodised with EWAA/EURAS-Qualanod quality label. All doors are hung on aluminium butt / face hinges or transom / floor closer and fitted with hook bolt or roller latch locking mechanisms.
Centre pivot doors are available with an anti-finger trap device.
Glazing conforms to the requirements of BS 6262 and Part 'N' of the Building Regulations for both thickness and type. Weatherseals are EPDM set in undercut channels.
Product tested to BS6375: Part 1. Weathertightness classification:

Air Permeability - Class 2 300Pa (Door) & Class 4 600Pa (Screen).
Water Tightness - Class 7A 150pa (Door) & Class 9A 600Pa (Screen).
Wind resistance - Class A5 2000Pa (Door) & Class A4 1600Pa (Screen).

Double glazing profiles accommodate 23mm to 32mm units.
Doors are manufactured according to customer requirements from a range of standard profiles and are designed to incorporate a range of options, therefore it is advisable to contact Smart Systems technical design department early in the design process.
Doors are manufactured to the required design to within the following maximum limitations (subject to location).
Single door –Max sash width 1150mm. Max height 2500mm.
Double door –Max width 2415mm (overall frame). Max height 2500mm.
Subject to agreement it is possible to exceed these limitations depending on design criteria, contact Smart Systems Technical Department for details.
Consult Smart Systems Ltd technical literature for details. Smart Systems Ltd can also provide design and specification guidance and it is recommended that they are consulted early in the design process.

Manufacturer: Smart Systems Ltd., North End Road, Yatton, North Somerset. BS49 4AW. Tel: [redacted]

Product reference: **Smart Wall** Door.

Materials: All profiles are extruded from aluminium alloy 6060/6063 T5/T6 and comply with the recommendations of BS EN 12020-2; 2001/BS 755-9:2001.

Exposure: Design Wind Pressure **TBA**

Thermal: All doors, in conjunction with a suitable glazing specification, to achieve an average project U-value to meet the current requirements of the approved Building Regulation Document L1/L2 for England and Wales. Target window U-value **1.8W/m²K**

Structure: All structural profiles to be designed so as the maximum deflection of any glass edge into a framing member under wind load shall not exceed L/175 of its span with no evidence of any permanent deformation once the load has been removed. All horizontal framing members to restrict dead load deflection to L/400, up to a maximum of 3mm.

Construction: All doorsets shall be manufactured, installed and glazed in strict accordance with Smart Systems instructions and guidelines as set down in the appropriate technical literature, details and specifications. **Smart Wall** outer frame sections shall be 53mm width with a depth of 100mm. Door profiles are square cut and a suitable small gap sealer is applied to abutments and joined using mechanical corner cleats. Drip bar shall be used to all doors. Fixed framing thermally broken can be Pocket or Bead glazed. Main framing

profiles are square cut. A suitable small gap sealer is applied to abutments prior to joining with self-tapping screws driven into integral screw ports within the sections. Door profiles are square cut and joined using mechanical corner cleats with a suitable small gap sealer applied to abutments.

Finish as Delivered: Internal Colour: **TBC** External Colour: **TBC**

Glazing details: Unit thickness. Overall thickness of 23 to 32 mm. All doors to be dry glazed using 'snap in' or shuffle extruded aluminium beads and EPDM extruded gaskets.

Target window u value based on a double glazed unit having a centre pane u value of 1.0W/m^{2}K and including a suitable warm edge spacer such as Swisspacer Ultimate or better.

Ironmongery / Accessories: TBA- Current doors do not lock. Smart Wall to include concealed overhead door closers. Open-inwards only with no locking unless advised otherwise.

Fixing: All fixings to be in strict accordance with the relevant British Standards, including BS 6262 and BS8213 Part 4: 2007, and shall ensure the door frame is retained securely within the opening without incurring any damage or distortion to the frame. Generally, fixings to be positioned 150mm from each corner and each mullion/transom and at centres not exceeding 600mm. Fixing lugs/straps only to be used where they can be suitably concealed to approval. All fixing of door frames to the supporting structure to be achieved using a suitable lug and/or frame anchor fixing method capable of accommodating all applicable loads, deflection, tolerances and expansion expected on site. Details of the proposed fixing method shall be submitted to the project engineer for approval prior to installation.

APPENDIX

SMART ARCHITECTURAL ALUMINIUM

Smart Architectural Aluminium has grown over the past 40 years to become one of the UK's leading suppliers of aluminium glazing systems and bespoke aluminium extrusions. The company has built a reputation for product innovation, design expertise, technical competence and quality.

Located in Yatton, North Somerset, at their impressive 60,000sq/m purpose built building housing their offices, extrusion presses, powder coating paint line and distribution facilities, the company has an annual turnover of over £100 million and employs 400 people.

Smart Systems Ltd
Arnolds Way
Yatton
North Somerset
BS49 4QN

[redacted]

ENVIRONMENTAL POLICY

Minimising environmental impact has always been at the heart of development and Smart is leading the way with the greenest manufacturing operation of its kind in the country.

Smart Architectural Aluminium is fully committed to working towards a greener environment and so every aspect of our activities, from the procurement of raw materials to the delivery of finished goods, is conducted in accordance with sound environmental practices and in line with UK and EU environmental regulations and legislation. Our aim is to achieve a completely carbon neutral production operation, and we are working towards this through a combination of continued investment in efficient machinery; the operation of effective environmental management systems; the use of waste capture and recycling techniques and the introduction of sustainable power generation from natural resources.

To help realise this goal, we are also continuing to build a high level of understanding of the key environmental issues amongst our staff, customers, suppliers and stakeholders –recognising our responsibilities to deliver long term, sustainable benefits within our business and the local community and striving to continually improve the environmental impact of our total global activities. As a responsible business, we formally publish an annual environmental statement as a commitment by both our management and staff to minimise the impact of our total operations on the environment.

Working Towards a Carbon Neutral Production

It is our aim to achieve a carbon neutral production operation.

Sustainable Power Generation

As part of our aim we are committed to generating 100% of our power requirements from sustainable natural resources.

Smart have attained the following accreditations:

BES 6001 Responsible Sourcing

ISO 9001 Quality Management Systems

ISO 14001 Environmental Management Systems

OHAS 45001 Occupational Health and Safety

ISO 50001 Energy Management

ALUMINIUM EXTRUSION

MADE IN BRITAIN

Smart are a member of the Made in Britain network, a rapidly growing community which brings together the best of British manufacturing and provides a forum for businesses to share best practice.

EXTRUSION PRESSES

Within the Corialis group we have 13 extrusion presses throughout Europe, in the UK we currently operate three modern extrusion presses: These three presses combine to deliver a total annual extrusion capacity of over 30,000 tonnes.

1.400 ton - 6" press	Max length:	7.500 mm
	Max width:	100 x 50 mm (Port)
	Max width:	140 x 10 mm (Flat)
	Max quadrangle:	90 x 90 mm
	Max circumscribe circle:	100 mm Diameter
	Weight:	0.15 kg < 2 kg/m
	Alloys:	EN AW 6060, 6063 and 6063A.
2.200 ton - 8" press	Max length:	14.600 mm
	Max width:	230 x 50 mm
	Max quadrangle:	140 x 140 mm
	Max circumscribe circle:	200 mm Diameter
	Weight:	0.25 kg < 8 kg/m
	Alloys:	EN AW 6060, 6063 and 6063A.
2.200 ton - 8" press	Max length:	14.600 mm
	Max width:	230 x 50 mm
	Max quadrangle:	140 x 140 mm
	Max circumscribe circle:	200 mm Diameter
	Weight:	0.25 kg < 8 kg/m
	Alloys:	EN AW 6060, 6063, 6063A, 6005A and 6082.

BES 6001

BES 6001 was established by the Building Research Establishment (BRE), to enable manufacturers to ensure, and then prove, that their products are made with responsibly sourced constituent materials. The standard provides an approach based on governance, supply chain and community interaction, with a focus on environmental performance improvements.

Smart Architectural Aluminium has been awarded a continuation of its BES 6001 V3.1 certification, the Standard for Responsible Sourcing of Construction Products. As a result of the recent audit, the company's certification has moved up from a 'Good' classification to 'Very Good', representing the first for any systems company.

	Section	A	B	C	D	Bonus
3.2.1	Responsible sourcing policy	1				
3.2.2	Legal Compliance	1				
3.2.3	Quality management systems		2			
3.2.4	Supplier management systems	1				
3.3.1	Material traceability through the supply chain			3		
3.3.2	EMS in the supply chain				4	
3.3.3	H&SMS in the supply chain				4	
3.4.1	Greenhouse gas emissions			5		
3.4.2	Energy Management	1				
3.4.3	Resource use			4		
3.4.4	Waste prevention and management		2			
3.4.5	Water abstraction	1				1
3.4.6	Life Cycle assessment (LCA)	1				
3.4.7	Ecotoxicity	1				
3.4.8	Transport impacts	1				1
3.4.9	Employment and skills		2			
3.4.10	Local community engagement	1				
3.4.11	Business ethics	11				
	Total section scores	16 24	Sections 3.2 and 3.3 Section 3.4			
	Overall Assessment Score	**Very Good**				

SUSTAINABLE BILLET FROM RESPONSIBLE SOURCES

To ensure that we consistently deliver aluminium extrusions to the highest possible quality standards, we source our aluminium billet only from three of the world's leading suppliers, Emirates Aluminium, Dubai Aluminium and Hydro Aluminium. Sourcing from these responsible and highly reputable companies guarantees continuity of quality and performance for each and every one of our extruded aluminium profiles.

FAÇADE DESIGN LIFE

Assessment of reference service life and performance classification in accordance with BS7543 to provide assistance in estimating building service life planning to BS 15686-1.

Reference	Service Life	Design Life				Effects of Failure							
		1	2	3	4	A	B	C	D	E	F	G	H
Façade													
Smarts extruded aluminium profiles	**Indefinite**	♦	♦	⌡	♦	♦	♦	♦	♦	♦	⌡	⌡	♦
Smart ironmongery, locks and handles	**25 Years**	♦	♦	⌡	♦	♦	♦	♦	♦	♦	⌡	⌡	♦
Surface Finishes													
Smarts Anodised Finish	**60 Years**	♦	♦	♦	⌡	♦	♦	♦	⌡	♦	♦	♦	♦
Smart powder coating adhesion	**60 Years**	♦	♦	♦	⌡	♦	♦	♦	⌡	♦	♦	♦	♦
Smart Powder coating finish gloss retention and colour fastness	**40 Years**	♦	♦	⌡	♦	♦	♦	♦	♦	♦	♦	♦	⌡
Weathering													
Smart Sealants	**25 Years**	♦	♦	⌡	♦	♦	♦	♦	♦	⌡	♦	♦	♦
Smarts glazing gaskets	**40 Years**	♦	♦	⌡	♦	♦	♦	♦	♦	⌡	♦	♦	♦
Infills													
Insulating glass units	**25 Years**	♦	⌡	♦	♦	♦	⌡	♦	⌡	♦	♦	⌡	♦

Design Life BS 7543:2015 Table 1		
1	Short Term	*Shorter life than the building and readily replaceable.*
2	Replaceable	*Shorter life than the building and replacement can be envisaged at design stage.*
3	Maintainable	*Last with periodic treatment, for the life of the building.*
4	Lifelong	*Lasts for the life of the building*

Effects of failure BS 7543:2015 Table 2			
A	Danger to life	**E**	Costly because repeated
B	Risk of injury	**F**	Interruption to building use
C	Danger to health	**G**	Security Compromised
D	Costly Repair	**H**	No exceptional problems

Reference

Service Life to BS7543 reference service life. Based on known life expectancy for a reference set of particular 'in-use' conditions collated from publicly available sources. Service life expectancy is based on correct maintenance and specific environment conditions. The reference environment is external class C3 (urban industrial, coastal low salinity) and internal environment Class C1 (normal heated). Note life expectancy of IGU does not include breakages due to nickle sulphide inclusions. This document is for guidance on expectations and does not constitute any form of guarantee or warranty but does provide valuable information for service life planning.

BS 7543:2015.	Guide to durability of buildings and building elements, products and components.
ISO 15686-1	Buildings and constructed assets -- Service life planning -- Part 1: General principles and framework
EN ISO 12944-2	Paints and varnishes. Corrosion protection of steel structures by protective paint systems. Classification of environments

Updated 26.01.2020

BSI KITEMARK AND BRITISH STANDARDS

Our extrusions fully conform to all the relevant British Standards. Covering the mechanical property limits, tolerances, and temper designations of aluminium extrusions as well as the testing requirements, the specific British Standards include the following:

BS EN 14351-1:2006+A2:2016	Windows and doors. Product standard, performance characteristics. Windows and external pedestrian doorsets
BS 4873:2016	Aluminium alloy windows and doorsets. Specification
BS 6375-1:2015+A1:2016	Performance of windows and doors. Classification for weathertightness and guidance on selection and specification
BS 6375-2:2009	Performance of windows and doors. Classification for operation and strength characteristics and guidance on selection and specification
BS 6375-3:2009+A1:2013	Performance of windows and doors. Classification for additional performance characteristics and guidance on selection and specification
BS 4255-1:1986	Rubber used in preformed gaskets for weather exclusion from buildings. Specification for non-cellular gaskets
BS 8213-4:2016	Windows and doors. Code of practice for the survey and installation of windows and external doorsets
BS EN 12020-2:2016	Aluminium and aluminium alloys. Extruded precision profiles in alloys EN AW-6060 and EN AW-6063. Tolerances on dimensions and form
BS EN 12365-1:2003	Building hardware. Gasket and weatherstripping for doors, windows, shutters and curtain walling. Performance requirements and classification
BS EN 12519:2018	Windows and pedestrian doors. Terminology
BS EN 515:2017	Aluminium and aluminium alloys. Wrought products. Temper designations
BS EN 573-3:2019	Aluminium and aluminium alloys. Chemical composition and form of wrought products. Chemical composition and form of products
BS EN 755-1:2016	Aluminium and aluminium alloys. Extruded rod/bar, tube and profiles. Technical conditions for inspection and delivery
BS EN 755-2:2016	Aluminium and aluminium alloys. Extruded rod/bar, tube and profiles. Mechanical properties
BS EN 755-7:2016	Aluminium and aluminium alloys. Extruded rod/bar, tube and profiles. Seamless tubes, tolerances on dimensions and form
BS EN 755-8:2016	Aluminium and aluminium alloys. Extruded rod/bar, tube and profiles. Porthole tubes, tolerances on dimensions and form
BS EN ISO 6892-1:2019	Metallic materials. Tensile testing. Method of test at room temperature
BS EN ISO 6892-2:2018	Metallic materials. Tensile testing. Method of test at elevated temperature
BS ISO 10204:2017	Iron ores. Determination of magnesium. Flame atomic absorption spectrometric method
PAS 24:2016	Enhanced security performance requirements for doorsets and windows in the UK. Doorsets and windows intended to offer a level of security suitable for dwellings and other buildings exposed to comparable risk

QUALITY ASSURANCE

Our market-leading, in-house tensile testing facility is able to meet customers' specific requirements and to test to whatever standards are requested. If required, we are also able to offer external, independent testing by Zurich Laboratory Services, a UKAS registered testing facility.

POLYESTER POWDER COATING

Smart Architectural Aluminium is committed to the highest standards of product quality and workmanship. That is why we operate a stringent policy of Quality Inspections and Controls to ensure that our powder coated products comply with all the requirements of the following British and European and Qualicoat Standards:

POLYESTER POWDER COATING QUALITY STANDARDS

EN 12206-1:2004:	Paints and varnishes. Coating of aluminium and aluminium alloys for architectural purposes. Coatings prepared from coating powder
EN ISO 2409:2013:	Paints and Varnishes, Cross Cut Test.
QUALICOAT:	Qualicoat is a quality label organisation committed to maintaining and promoting the quality of coating on aluminium and its alloys for architectural applications. (13th EDITION 1ST JANUARY 2013)

SMART ARCHITECTUAL ALUMINIUM QUALITY INSPECTIONS

Our Quality Inspectors carry out the following examinations in line with the criteria in these standards:

QUALICOAT 2.1:	Visual inspection at 3 metres for internal and 5 metres for external extrusions (Our Inspectors visually inspect at 1 metre as standard)
QUALICOAT 2.2:	Gloss level check to within 5% +/- of the manufacturers stated level. [EN ISO 2813]
QUALICOAT 2.4.1:	Cross Hatch cuts are made at 2mm spacing with one being at 90° to the other cut, tape is then applied, left for 2 minutes and removed to check for Adhesion of paint. [EN ISO 2409 2013]
QUALICOAT 2.3	Thickness checks to see that the material is coated with at least 60 microns of powder, average. [EN ISO 2360]
QUALICOAT 2.6	Cupping test is carried out to check for adhesion with the substrate [EN ISO 1520]
QUALICOAT 2.8	Impact test with an energy of 2.5Nm to ensure that the coating adheres to the substrate [EN ISO 6272 / ASTM D2794],
QUALICOAT 2.7	Bend test on a 5mm Mandrel to ensure adhesion after bending [EN ISO 1519],
QUALICOAT 2.11	Machu test (Accelerated corrosion test) in a solution made up of Sodium Chloride, Acetic Acid and Hydrogen Peroxide at 37°C. Duration 48 hours
QUALICOAT 2.14	Polymerisation test (Wipe with MEK for 30 seconds)
QUALICOAT 2.16	Resistance to boiling water in a pressure cooker. Duration 1 hour 100Kpa
QUALICOAT 2.18	Sawing and drilling to ensure that there is no flaking after cutting (using sharp tools) Curing Oven temperatures are checked and recorded on a daily basis

External checks carried out by the powder suppliers and our Laboratory in Belgium on random samples of extrusion:

ISO9227:	Acetic Acid Salt Spray Test.
EN ISO 3231:	Resistance to Humid atmospheres containing Sulphur Dioxide.
EN ISO 11341:	Accelerated weathering test.
EN ISO 2810:	Natural weathering test (Florida Test) (Carried out on Powder type).
EN ISO 12206-1:	Resistance to mortar (Carried out on Powder type).
EN ISO 6270-2:	Constant Climate Condensation Water test.

It is the company's commitment to continually monitor product quality and comply with the latest requirements of British and European Standards.

EXPANSION PLANS

To keep pace with expect growth, Smart announced in the summer of 2020 their plans for a sixth phase of expansion. This new development is a key element of Smart's continuing growth plans and will allow the company to continue to meet the increasing demand for our aluminium extrusions across the UK.

Phase 6 is now underway and expected to be completed in 2021.

Smart Architectural Aluminium now includes three state of the art extrusion presses, two vertical powder coating plants and one horizontal powder coating plant including a specialist Accessories powder coating unit.

Whilst being able to draw upon international expertise Smarts remain committed to becoming the UK's number one systems company, and continually leading the market in terms of profile development and design.

TRADE ASSOCIATIONS

Smart Architectural Aluminium is a member of the Council for Aluminium in Building (CAB), the CWCT and in 1992 became a BSI Registered Company. The company is committed to ensuring that every aspect of its activities is conducted in accordance with sound environmental practices

ACCREDITATIONS

Smarts Systems Limited holds the following Certificates:

ISO9001 QUALITY MANAGEMENT SYSTEM

Certificate: ISO 9001:2008 Quality Management Systems
Scope: The design and supply of aluminium curtain walling, window, door and conservatory roof systems. The manufacture and supply of clipped and thermal break assemblies. Note: This registration excludes the supply of glass and double glazing units.
Company: Smart Systems Limited,BS49 4QN, United Kingdom
Notified Body: BSI
Certificate Number: FM 21582
Originally Registered: 21/09/1992

ISO 14001 ENVIRONMENTAL MANAGEMENT SYSTEM

Certificate: ISO 14001:2004 Environmental Management System
Scope: The procurement, production, sale, supply and stockholding of aluminium architectural glazing systems together with associated design and training activities.
Company: Smart Systems Limited incorporating Smart Extrusions BS49 4QN, United Kingdom
Notified Body: BSI
Certificate Number: EMS 554307
Originally Registered: 02/02/2010

IS0 18001 OCCUPATIONAL HEALTH MANAGEMENT

Certificate: BS OHSAS 18001:2007 Occupational Health Management
Scope: The provision of design, manufacture, sale, supply and stockholding of aluminium architectural glazing systems together with associated training services.
Company: Smart Systems Limited incorporating Smart Extrusions BS49 4QN, United Kingdom
Notified Body: BSI
Certificate Number: EMS 554307
Originally Registered: 04/10/2011

ISO 50001 ENERGY MANAGEMENT

Certificate: ISO 50001 Energy Management Systems
Scope: The provision of design, manufacture, sale, supply and stockholding of aluminium architectural glazing systems together with associated services.
Company: Smart Systems Limited incorporating Smart Extrusions BS49 4QN, United Kingdom
Notified Body: BSI
Certificate Number: ENMS 634370
Originally Registered: 05/12/2015