

Project: 17 Charterhouse Street, London

Stage 4 - Façade Performance Matrix - Issue 3

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				AKTI Envelopes - Building envelopes				Building Services: GDM Partnership				Fire Engineer: Jeremy Gardner Associates				Sustainability: Twinhearth (TH)											
				MCM- Lead Architect				Structural Engineer: Ramboll				Acoustic Engineer: Sandy Brown															
External Wall System Designation.	Façade System Description	Location/Level	Façade Orientation	Maximum cladding Zone (mm) - Front of glass/edge of slab or structural element.	Secondary components	Structural Façade Design.	Glazing Nomenclature	Glazing Type	Envisaged cladding unit weight	Structural slab edge Movement	Glazing Safety	Additional security requirements	Glass retention	Finishes	Minimum Envisaged Total U-Value (W/m2K) for Glazed Walls	Minimum Envisaged Total U-Value (W/m2.K) for Solid Walls	Envisaged Solar Heat Transmittance g-value (EN410)	Envisaged Visible Light Transmittance (EN410) without blinds	Envisaged Glare Control	Required/Envisaged Fire Performance	Envisaged Acoustic Performance (dB)	Acoustic flanking requirements, H, V (dB)	Air tightness (m3/m2/hr) @ 50Pa	Envisaged glass replacement	Envisaged Access and Maintenance Requirements	External Wall System Designation.	
												Subject to separate briefing, design development and separate budget within cost plan									Note - Please refer to acoustic consultants report for details						
Façade Type EWS1	Ground floor facade: Stone panel cladding installed over Metsec or on precast backing panel, joints sealed, with small glazing inserts as fixed windows. The glazed areas comprise of vertical, thermally broken extruded aluminium profiles with bottom supported and edge restrained, toggle fixed double glazed units. The glass at ground floor is envisaged to be partially opacified integrating either a digital printing on the glass/interlayer or laminated with real, thin stone, to the satisfaction of the Architect. This cladding type also includes variable height granite plinth.	L00-L01 Charterhouse Street, Saffron Hill corner	Charterhouse St, Saffron Hill	515mm (max)	Plinth detail: granite. Main Stone: Portland Bowers Basebed with Bowers Roach reveals, 75mm thick. Decorative glass (digital printed on glass/interlayer) to stone pattern defined by Architect pending presentation of samples. Fixings for the stone: stainless steel A316L or equivalent. Insulation: mineral wool or class A2 to BS EN 13501	10mm gap in stone panels, envisaged to be stacked at base and restrained at top, and laterally restrained to backing substructure (Metsec/blockwork).	GL01	Double glazed unit with low iron, laminated inner and outer panes, argon filled cavity, high performance black warm edge spacer bars, lowE coating to the cavity facing side of the inner pane. Stone veneer to DGLs or digital tint or printed interlayer as alternatives.	2.75 kNm/2	max 15mm differential deflection between floors (differential live loads) - tbc by Ramboll	pvb or ionoplast interlayer and heat treated glass (subject to confirmation of thermal shock risk assessment - by cladding contractor)	tbc		tbc	External profiles: bronze anodized Anoklok II, 25mm, to the satisfaction of the Architect	Glazed areas ≤ 1.40 W/m2K (overall including frames). Solid areas: ≤ 0.2 W/m2K	0.2	≤ 0.3	65%	N/A to Shell&Core	Smoke stop between slab edge and back of cladding line - 90 min	Sound insulation - Rw+Ctr - 38 dB Solid elements - Rw+Ctr - 45-50dB	Horizontal flanking (lab) - Dnfw - 45 dB with partition- Dnfw - 53 dB Vertical flanking - Dnfw - 48 dB	5m3/hr.m2 or better	Due to high security requirement, envisaged to be replaceable in most locations from the inside, with mechanical fixings. No use of structural silicone on site allowed unless Method statement submitted and approved specifically for the project Refer to Access and Maintenance report.	Cleaning from outside at ground level, with water pole if necessary.	Façade Type EWS1
Façade Type EWS1a	Ground floor facade operable elements and gates: this typology comprises ALL of the openings for service access (not main entrance doors), gates, and fire exits	L00-L01		varies	Vehicular access door, stone clad to match architectural intent, and protected by secondary roller shutter. Fire escape doors.	varies	n/a	n/a	2.75 kNm/2	max 15mm differential deflection between floors (differential live loads) - tbc by Ramboll	n/a	tbc	tbc	External profiles: bronze anodized Anoklok II, 25mm, to the satisfaction of the Architect	n/a	0.2	n/a	n/a	n/a	n/a	n/a	n/a	Estimate to achieve performance of 10m3/m2/h or better	n/a	Cleaning from outside at ground level, with water pole if necessary.	Façade Type EWS1a	
Façade Type EWS2	Main facade: Unitised curtain wall spanning from floor to floor, comprising a variety of decorative features like projecting fin profiles in bronze-anodised aluminium, digital printed glass to match stone pattern, and natural stone panels in Portland Basebed. The base option is for the facade to be fully prefabricated and installed as unitised curtain wall, to minimize number of joints on site and requirement for external access. An alternative option with Stone on metsec/precast piers and glazed panels installed as small curtain wall system in between might be considered, but the overall accuracy and performance would be lower.	L2-L5 Charterhouse Street and corner of Saffron Hill	south/east	225mm	Aluminium profiles creating a decorative cornice around the main bay 400mm deep, bronze-colour anodized aluminium. Profiles connected as nosing to all mullions on bays at L4 and L5, and outer mullions on L2 and L3. Bulk head and transom protection detail in steel to meet freestopping requirements	Top hung, bottom restrained from concrete structure	GL02	Double glazed unit with low iron, laminated inner and outer panes, argon filled cavity, high performance black warm edge spacer bars, lowE coating to the cavity facing side of the inner pane. Stone veneer to DGLs or digital tint or printed interlayer as alternatives.	2.75 kNm/2 (stone) 1kNm/2 (glazed window+frms)	max 15mm differential deflection between floors (differential live loads) - tbc by Ramboll	pvb or ionoplast interlayer and heat treated glass (subject to confirmation of thermal shock risk assessment - by cladding contractor)	tbc	tbc	External profiles: bronze anodized Anoklok II, 25mm, to the satisfaction of the Architect. Internal finishes: tbc by MCM (likely to be PPC coating, Qualicoat class 2 recommended)	1.4	0.2	0.3	65%	N/A to Shell&Core, but inner blind block provision likely to be provided	Smoke stop between slab edge and back of cladding line - 90 min	Sound insulation - Rw+Ctr - 30 dB Solid elements - Rw+Ctr - 45-50dB	Horizontal flanking (lab) - Dnfw - 45 dB with partition- Dnfw - 53 dB Vertical flanking - Dnfw - 48 dB	5m3/hr.m2 or better	from the outside, via BMU is possible, or temporary lifting beam	externally from the BMU	Façade Type EWS2	
Façade Type EWS3	Terrace levels: 5th + 6th floor CHS facade, - Base option: unitised curtain wall integrating stone and glazed panes into prefabricated units. Alternative option: Stick system site-assembled onto portals clad with natural stone (Portland Basebed), this would require longer assembly time and external access, and greater coordination between subcontractors.	L5 and L6 - Charterhouse Street	varies	225mm	Aluminium profiles creating a decorative cornice around the main bay 400mm deep, bronze-colour anodized aluminium. Flush glazing detail to mullions. Door to terrace levels (requirements tbc? DDA compliant? Only for maintenance?). Elements on inner courtyard are double level - fire detailing tbc. Balustrades to terrace edge and copings.	Top hung, bottom restrained from concrete structure	GL03/ GL03b	Double glazed unit with low iron, laminated inner and outer panes, argon filled cavity, high performance black warm edge spacer bars, lowE coating to the cavity facing side of the inner pane. Stone veneer to DGLs or digital tint or printed interlayer as alternatives. GL03b includes fire rated double glazed units with E190 requirement.	1 kNm/2 (glazing) + 2.5kNm/2 (stone panel)	max 15mm differential deflection between floors (differential live loads) - tbc by Ramboll	pvb or ionoplast interlayer and heat treated glass (subject to confirmation of thermal shock risk assessment - by cladding contractor)	tbc	tbc	External profiles: bronze anodized Anoklok II, 25mm, to the satisfaction of the Architect. Internal finishes: tbc by MCM (likely to be PPC coating, Qualicoat class 2 recommended)	1.4 (2.6 for fire rated glazing panels)	0.2	0.3	65%	N/A to Shell&Core, but inner blind block provision likely to be provided	Smoke stop between slab edge and back of cladding line - 90 min	Sound insulation - Rw+Ctr - 38 dB Solid elements - Rw+Ctr - 45-50dB	Horizontal flanking (lab) - Dnfw - 45 dB with partition- Dnfw - 53 dB Vertical flanking - Dnfw - 48 dB	5m3/hr.m2 or better	from the outside, via BMU is possible, or temporary lifting beam	externally from the BMU	Façade Type EWS3	
Façade Type EWS3a	Terrace levels: 5th floor Saffron Hill and L5 + L6 to courtyard terrace. Vertical, unitised, thermally broken, extruded aluminium curtain walling system with glazed and opaque elements. Opaque elements consist of portland stone panels	L5 - Saffron Hill and L5 +L6 - Courtyard terrace	varies		Aluminium profiles creating a decorative cornice around the main bay, bronze-colour anodized aluminium. Flush glazing detail to mullions. Elements on inner courtyard are double level - fire detailing tbc. Balustrades to terrace edge and copings.		GL03a	Double glazed unit with low iron, laminated inner and outer panes, argon filled cavity, high performance black warm edge spacer bar, lowE coating to the cavity facing side of the inner pane.			pvb or ionoplast interlayer and heat treated glass (subject to confirmation of thermal shock risk assessment - by cladding contractor)	tbc	tbc	tbc	External profiles: bronze anodized Anoklok II, 25mm, to the satisfaction of the Architect. Internal finishes: tbc by MCM (likely to be PPC coating, Qualicoat class 2 recommended)	1.4	0.2	0.3	65%	N/A to Shell&Core, but inner blind block provision likely to be provided	Smoke stop between slab edge and back of cladding line - 90 min Solid areas of the Saffron hill facade to have a fire rating of 90 mins	Sound insulation - Rw+Ctr - 30 dB Solid elements - Rw+Ctr - 45-50dB	Horizontal flanking (lab) - Dnfw - 45 dB with partition- Dnfw - 53 dB Vertical flanking - Dnfw - 48 dB	5m3/hr.m2 or better			Façade Type EWS3a
Façade Type EWS4	Main Entrance: ground floor main entrance, stick system, spanning double height from ground to underside of L2. Steel mullions, or aluminium mullions with interval reinforcements, externally capped on 4 sides.	L00	South	225mm (tbc)	Outward opening pass doors (double glazed) and clamshell sliding doors, fully glazed, automated with underfloor mechanism (single glazed). Integration of sensors and security devices to suit BReg compliance and Client's security requirements. Manifestation marks required. Interface with CCTV, lighting and controls to be confirmed at next stage.	Bottom supported, top restrained mullions to minimize detailing at interface with doors.	GL04	Double glazed units with low iron, laminated inner and outer panes, argon filled cavity, high performance black warm edge spacer bar, lowE coating to the cavity facing side of inner pane.	1 kNm/2 (glazing+ frame)	max 15mm differential deflection between floors (differential live loads) - tbc by Ramboll	pvb or ionoplast interlayer and heat treated glass (subject to confirmation of thermal shock risk assessment - by cladding contractor)	tbc	tbc	External profiles: bronze anodized Anoklok II, 25mm, to the satisfaction of the Architect. Internal finishes: tbc by MCM (likely to be PPC coating, Qualicoat class 2 recommended)	1.4	0.2	0.3	65%	n/a	n/a	Sound insulation - Rw+Ctr - 38 dB Solid elements - Rw+Ctr - 45-50dB	Horizontal flanking (lab) - Dnfw - 45 dB with partition- Dnfw - 53 dB Vertical flanking - Dnfw - 48 dB	Estimate to achieve performance of 10m3/m2/h or better	from the outside	from ground floor, with water pole if necessary at higher level	Façade Type EWS4	
Façade Type EWS5	Plinthroom screen: roof level screens, including ventilation louvers in PPC-painted aluminium and PV panels. Supporting structure in corrosion-protected metal in Structure's package	L7	South	150mm (tbc)	Ventilation louvers, decorative framing detailing, PV cells (cable to interiors)	Elements supported by corrosion-protected steel supports (posts and purfins) in separate Structural steel's package	n/a	n/a	0.6 kNm/2	n/a	n/a	n/a	n/a	n/a	External profiles: tbc by MCM (ie PPC coating, min Qualicoat class 2 recommended)	n/a	n/a	n/a	n/a	n/a	Rw+Ctr - 45-50dB	n/a	n/a	n/a	from ground floor, with water pole if necessary at higher level	Façade Type EWS5	
Façade type EWS6	Bridge repair to existing extension building: Stick curtain walling system with double glazed units and spandrel panels to match existing façade closely.	Saffron Hill Extension building	East	tbc		tbc	GL06	DGU to match existing	tbc	tbc	pvb or ionoplast interlayer and heat treated glass (subject to confirmation of thermal shock risk			to match existing	tbc	tbc	tbc	tbc	tbc	tbc	tbc	tbc	tbc	tbc	tbc	Façade type EWS6	
Façade Type EWS7	Saffron Hill and Courtyard upper level facade: Unitised curtain wall spanning from floor to floor, comprising decorative features like projecting fin profiles in bronze-anodised aluminium, and ceramic stone panels to match the Portland stone. The base option is for the facade to be fully prefabricated and installed as unitised curtain wall, to minimize number of joints on site and requirement for external access. An alternative option with stone on metsec/precast piers and glazed panels installed as small curtain wall system in between might be considered, but the overall accuracy and performance would be lower.	L0 to L4 to Saffron Hill, L2- L5 to courtyard	east west	250mm, tbc at next stage	Aluminium profiles creating a decorative cornice around the main bay, bronze-colour anodized aluminium, assembled as roses to curtain wall, ca 100mm deep. Bulk head and transom protection detail in steel to meet freestopping requirements	Top hung, bottom restrained from concrete structure	GL07	Double glazed units with low iron, laminated inner and outer panes, argon filled cavity, high performance black warm edge spacer bar, lowE coating to the cavity facing side of inner pane.	1.5 kNm/2	max 15mm differential deflection between floors (differential live loads) - tbc by Ramboll	pvb or ionoplast interlayer and heat treated glass (subject to confirmation of thermal shock risk assessment - by cladding contractor)	tbc	tbc	tbc	External profiles: bronze anodized Anoklok II, 25mm, to the satisfaction of the Architect. Internal finishes: tbc by MCM (likely to be PPC coating, Qualicoat class 2 recommended)	1.4	0.2	0.3	65%	N/A to Shell&Core, but inner blind block provision likely to be provided	Smoke stop between slab edge and back of cladding line - 90 min. Solid areas of the Saffron hill facade to have a fire rating of 90 mins	Sound insulation - Rw+Ctr - 30 dB Solid elements - Rw+Ctr - 45-50dB	Horizontal flanking (lab) - Dnfw - 45 dB with partition- Dnfw - 53 dB Vertical flanking - Dnfw - 48 dB	5m3/hr.m2 or better	from the outside, via BMU is possible, or temporary lifting beam	externally from the BMU	Façade Type EWS7
Façade Type EWS8	Courtyard staircase facade: Unitised curtain wall spanning from floor to floor, comprising an edge trim made of projecting fin profiles in bronze-anodised aluminium, clear DGLs and digital printed DGLs to match stone pattern, and ceramic stone panels to match the Portland stone. It spans over a staircase, and is hung from a dedicated substructure at slab levels. The base option is for the facade to be fully prefabricated and installed as unitised curtain wall, to minimize number of joints on site and requirement for external access, but an alternative as stick system could be considered.	L0-L5	west	225mm	Aluminium profiles creating a decorative cornice around the main bay, bronze-colour anodized aluminium. Detailing with waterproofing required at ground floor interface, min upstand 150mm	Top hung, bottom restrained from steel structure	GL08	Double glazed units with low iron, laminated inner and outer panes, argon filled cavity, high performance black warm edge spacer bar, lowE coating to the cavity facing side of inner pane. Stone veneer to DGLs or digital tint or printed interlayer as alternatives.	1.5 kNm/2	max 15mm differential deflection between floors (differential live loads) - tbc by Ramboll	pvb or ionoplast interlayer and heat treated glass (subject to confirmation of thermal shock risk assessment - by cladding contractor)	tbc	tbc	tbc	External profiles to edge trim: bronze anodized Anoklok II, 25mm, to the satisfaction of the Architect. Internal finishes: tbc by MCM (likely to be PPC coating, Qualicoat class 2 recommended)	1.4	0.2	0.3	65%	N/A	Smoke stop between slab edge and back of cladding line - 90 min	Sound insulation - Rw+Ctr - 30 dB Solid elements - Rw+Ctr - 45-50dB	Horizontal flanking (lab) - Dnfw - 45 dB with partition- Dnfw - 53 dB Vertical flanking - Dnfw - 48 dB	5m3/hr.m2 or better	from the outside, via BMU is possible, or temporary lifting beam	externally from the BMU	Façade Type EWS8
Façade Type EWS9	Courtyard glass pavilion: Stick system façade with glazed return to roof side. Façade envisaged to be constructed via steel profiles, fabricated and welded to suit architectural intent, wrapping upwards to support glass also horizontally. Mullions on main gridline to be connected to primary structure - transoms to span in between to support other mullions. Glass overhead not to be walkable for maintenance, partially fitted.	L0-L1	north, west, roof	300mm (tbc)	Aluminium profiles creating a decorative expression to the outside of the pavilion in correspondence to main gridline, bronze-colour anodized aluminium, proud of the glass. Sliding doors at ground floor. Outer glazing interface to the solid roof. Detailing with waterproofing required at ground floor interface, min upstand 150mm.	Bottom supported, top restrained mullions to minimize detailing at interface with doors.	GL09	DGU. Laminated glass on both sides, required to achieve safety and security requirements. High performance lowE coating face 5.	0.75 kNm/2	max 15mm differential deflection between floors (differential live loads) - tbc by Ramboll	pvb or ionoplast interlayer and heat treated glass (subject to confirmation of thermal shock risk assessment - by cladding contractor)	tbc	tbc	tbc	External profiles to create decorative fins along gridlines: bronze anodized Anoklok II, 25mm, to the satisfaction of the Architect. Internal finishes: tbc by MCM (likely to be PPC coating, Qualicoat class 2 recommended). Steel mullions to be corrosion protected (hot dipped galvanising before painting, or duplex paint to achieve high resistant finish)	1.4	0.2	0.3	65%	N/A	Smoke stop between slab edge and back of cladding line - 90 min	Sound insulation - Rw+Ctr - 30 dB Solid elements - Rw+Ctr - 45-50dB	Horizontal flanking (lab) - Dnfw - 45 dB with partition- Dnfw - 53 dB Vertical flanking - Dnfw - 48 dB	5m3/hr.m2 or better	from the outside, via temporary lifting beam	externally from the ground, cherry picker or MEWP. Rooflight subject to risk assessment (class 2 to CWCT TN 987)	Façade Type EWS9
Façade Type EWS10	Solid facade with inset windows. Insulated render. Alternative materials to be consider in conjunction with strategy for erection and installation.	L0-L6	Ely place	300mm (tbc)	Stick system framed glazing.	Laterally restrained to solid wall behind	GL10	DGU. Laminated glass on both sides, required to achieve safety and security requirements. High performance lowE coating face 5.	0.6 kNm/2	max 15mm differential deflection between floors (differential live loads) - tbc by Ramboll	pvb or ionoplast interlayer and heat treated glass (subject to confirmation of thermal shock risk assessment - by cladding contractor)	tbc	tbc	tbc	Render to rainscreen: tbc by Architect. Window profiles: bronze anodized Anoklok II, 25mm, to the satisfaction of the Architect. Internal finishes: tbc by MCM (likely to be PPC coating, Qualicoat class 2 recommended).	1.4	0.2	0.3	65%	N/A to Shell&core	Smoke stop between slab edge and back of cladding line - 90 min	Sound insulation - Rw+Ctr - 30 dB Solid elements - Rw+Ctr - 45-50dB	Horizontal flanking (lab) - Dnfw - 45 dB with partition- Dnfw - 53 dB Vertical flanking - Dnfw - 48 dB	5m3/hr.m2 or better	tbc	tbc by Access Consultant.	Façade Type EWS10

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External Wall System Designation.	Façade System Description	Location/Level	Façade Orientation	Maximum cladding Zone (mm) - Front of glass/edge of slab or structural element.	Secondary components	Structural Façade Design.	Glazing Nomenclature	Glazing Type	Envisaged cladding unit weight	Structural slab edge Movement	Glazing Safety	Additional security requirements	Glass retention	Finishes	Minimum Envisaged Total U-Value (W/m2K) for Glazed Walls	Minimum Envisaged Total U-Value (W/m2.K) for Solid Walls	Envisaged Solar Heat Transmittance g-value (EN410)	Envisaged Visible Light Transmittance (EN410) without blinds	Envisaged Glare Control	Required/Envisaged Fire Performance	Envisaged Acoustic Performance (dB)	Acoustic flanking requirements, H, V (dB)	Air tightness (m3/m2hr) @ 50Pa	Envisaged glass replacement	Envisaged Access and Maintenance Requirements	External Wall System Designation.
												Subject to separate briefing, design development and separate budget within cost plan									Note - Please refer to acoustic consultants report for details					
Façade Type EWS11	Existing stone façade with inset windows. Existing stone to be retained, protected during works and cleaned prior to handover. Containing replacement aluminium windows.	LG-L4	Saffron Hill	tbc	Aluminium framed windows with double glazing, to replace existing. Aluminium louvre panels or aluminium solid panels to replace existing.		GL11	DGU. Laminated glass on both sides, required to achieve safety and security requirements. High performance lowE coating face 5.	n/a	To be confirmed in next stage.	pvb or ionoplast interlayer and heat treated glass subject to confirmation of thermal shock risk assessment - by cladding contractor)	tbc	tbc	Window profiles: bronze anodized Anolok II, 25nm, to the satisfaction of the Architect. Internal finishes: tbc by MCM (likely to be PPC coating, Qualicoat class 2 recommended).	1.4	0.2	0.3	65%	tbc	Smoke stop between slab edge and back of cladding line - 90 min	tbc	tbc	10m3/hr.m2 or better	tbc	tbc	Façade Type EWS11