

Project Name: Our Cultural Heart, Huddersfield

CCL Facades Project No: FAC154



Document Name: Glass Specification Document

Document Number: IR430301-CCLF-XX-ZZ-RP-X-009001

Revision: P02

Issue Date: 24/01/25

Client: BAM Construction

Revision	Description	Date
P02	Glass Specification GLS-301 (a) amended to suit BAM instruction	24/01/25

To be read in conjunction with Glass Risk Assessment Document: IR430301-CCLF-XX-ZZ-RP-X-009002

Glass Type GLS-301:

41mm Overall Clear unit comprising of:

Outer: 13.5mm Heat Strengthened Eurofloat 6mm/PVB 1.52mm/Sunguard SN 75 HT 6mm

Cavity: 16mm Argon Filled, Chromatech Black spacer

Inner: 11.5mm annealed laminate: VSG 55.4 Eurofloat, with clean cut edges

Location: All locations (refer to layout drawings for specifics)

Performance Data

Transmission, reflexion, absorption

$\rho_v = 0,13$ (external light reflectance)

$\rho'_v = 0,13$ (internal light reflectance)

$\rho_e = 0,24$ (solar direct reflectance outside)

$\rho'_e = 0,24$ (solar direct reflectance inside)

$\alpha_e \quad 1 = 0,40; 3 = 0,04$ (solar direct absorptance)

EN 410

SC = 0,43 (Shading Coefficient, g/0,87)

b-Faktor = 0,46 (VDI 2078, g/0,80)

EN 673 Installation angle = 90° vertical

EN ISO 52022-3 $T_e = 5,00 \text{ }^\circ\text{C}$ $T_i = 20,00 \text{ }^\circ\text{C}$

$g_{th} = 0,030$ (Thermal radiation factor)

$g_c = 0,022$ (Convection factor)

$g_v = 0,000$ (Ventilation factor)

$T_{UV} = 0,00$ (ultraviolet transmittance)

$T_v = 0,71$ (light transmittance)

$T_e = 0,32$ (solar direct transmittance)

$R_a = 92$ (general color rendering index (CRI))

$q_i = 0,05$ (secondary heat inside)

$g = 0,37$ (solar heat gain coefficient)

$U_g = 1,0 \text{ W/m}^2\text{K}$ (Heat transfer coefficient)
Corrected emissivity according to EN 12898:2019

$E_s = 300,00 \text{ W/m}^2$ System height = 1,50 m

$h_{c,e} = 18,00 \text{ W/m}^2\text{K}$ $h_{c,i} = 3,60 \text{ W/m}^2\text{K}$

$q_i = 0,052$ (secondary heat inside)

$g_{tot} = 0,38$ (solar heat gain coefficient)

Acoustic Performance

Glass/Unit Performance			Octave Centre Frequency					
Rw (dB)	Rw + C (dB)	Rw + Ctr (dB)	125	250	500	1000	2000	4000
42	41	38	32	38	40	40	46	62

The acoustic performance data is determined by calculation, based on factors derived from certified data. Due to inherent variations in acoustic performance when testing in accordance with EN ISO 140-3, some variation in the calculated performance can also be expected. As such, the weighted performance, Rw, and adaptation terms, C and Ctr, should typically be considered to be accurate within +2dB. However, wider deviations can occur.

Glass Type GLS-301(a):

31.5mm Overall unit comprising of:

Outer: 8.8mm annealed laminate Sunguard SN 75

Cavity: 16mm Argon Filled, Chromatech Black spacer

Inner: 9.5mm annealed Laminate: Eurofloat 4mm/PVB 1.52mm/Eurofloat 4mm

Location: Clerestory All elevations

Performance Data

Transmission, reflexion, absorption

$\rho_v = 0,11$ (external light reflectance)

$\rho'_v = 0,12$ (internal light reflectance)

$\rho_e = 0,30$ (solar direct reflectance outside)

$\rho'_e = 0,26$ (solar direct reflectance inside)

$\alpha_{e1} = 0,33; \alpha_{e3} = 0,03$ (solar direct absorptance)

EN 410

SC = 0,44 (Shading Coefficient, g/0,87)

b-Faktor = 0,48 (VDI 2078, g/0,80)

EN 673 Installation angle = 90° vertical

EN ISO 52022-3 $T_e = 5,00\text{ °C}$ $T_i = 20,00\text{ °C}$

$g_{th} = 0,025$ (Thermal radiation factor)

$g_c = 0,019$ (Convection factor)

$g_v = 0,000$ (Ventilation factor)

$T_{UV} = 0,00$ (ultraviolet transmittance)

$T_v = 0,71$ (light transmittance)

$T_e = 0,34$ (solar direct transmittance)

$R_a = 94$ (general color rendering index (CRI))

$q_i = 0,04$ (secondary heat inside)

$g = 0,38$ (solar heat gain coefficient)

$U_g = 1,0\text{ W/m}^2\text{K}$ (Heat transfer coefficient)

Corrected emissivity according to EN 12898:2019

$E_s = 300,00\text{ W/m}^2$ System height = 1,50 m

$h_{c,e} = 18,00\text{ W/m}^2\text{K}$ $h_{c,i} = 3,60\text{ W/m}^2\text{K}$

$q_i = 0,044$ (secondary heat inside)

$g_{tot} = 0,39$ (solar heat gain coefficient)

Acoustic Performance

Glass/Unit Performance			Octave Centre Frequency					
Rw (dB)	Rw + C (dB)	Rw + Ctr (dB)	125	250	500	1000	2000	4000
40	39	36	29	34	40	41	39	56

The acoustic performance data is determined by calculation, based on factors derived from certified data. Due to inherent variations in acoustic performance when testing in accordance with EN ISO 140-3, some variation in the calculated performance can also be expected. As such, the weighted performance, Rw, and adaptation terms, C and Ctr, should typically be considered to be accurate within +2dB. However, wider deviations can occur.

Glass Type GLS-302:

30mm Overall Non vision unit comprising of;

Outer: 8mm Clear Toughened HST

Cavity: 16mm Argon Filled, Chromatech Black spacer

Inner: 6mm Spandrel Toughened HST in Std Colour (TBC) with 100mm mineral wool insulation bonded to rear

Location: All locations (refer to layout drawings for specifics)

Performance Data

Thermal and transmission performance can not be determined due to the spandrel/opaque inner pane

Acoustic Performance

Below figures do not consider the insulation

Glass/Unit Performance			Octave Centre Frequency					
Rw (dB)	Rw + C (dB)	Rw + Ctr (dB)	125	250	500	1000	2000	4000
36	35	31	29	25	32	44	39	35

The acoustic performance data is determined by calculation, based on factors derived from certified data. Due to inherent variations in acoustic performance when testing in accordance with EN ISO 140-3, some variation in the calculated performance can also be expected. As such, the weighted performance, Rw, and adaptation terms, C and Ctr, should typically be considered to be accurate within +2dB. However, wider deviations can occur.

Glass Type GLS-303:

Fire Rated Glass:

Outer: xx

Cavity: xx

Inner: xx

Glass Type GLS-304:

35.5mm Overall roof light glass comprising of the below

Glazing to Class 2 Non-Fragile and not intended to be walked on, but there is a risk of maintenance personnel falling onto the glass – As outlined in CWCT Technical Note TN922.

Outer: 8mm Sunguard SN 75 HT Toughened and Heat Soak Tested

Cavity: 16mm Argon Filled, Chromatech Black spacer

Inner: 11.5mm Clear Heat Strengthened laminate: Eurofloat 5mm/1.5 SGB interlayer/ Eurofloat 5mm.

Location: Rooflights (refer to layout drawings for specifics)

Performance Data

Acoustic Performance

Glass/Unit Performance			Octave Centre Frequency					
Rw (dB)	Rw + C (dB)	Rw + Ctr (dB)	125	250	500	1000	2000	4000
40	39	36	30	34	40	42	41	55

The acoustic performance data is determined by calculation, based on factors derived from certified data. Due to inherent variations in acoustic performance when testing in accordance with EN ISO 140-3, some variation in the calculated performance can also be expected. As such, the weighted performance, Rw, and adaptation terms, C and Ctr, should typically be considered to be accurate within +2dB. However, wider deviations can occur.

Glass Type GLS-305:

31.5mm Overall unit comprising of;

Outer: 6mm Sunguard SN 75 HT, Toughened and Heat soak Tested

Cavity: 16mm Argon Filled, Chromatech Black spacer

Inner: 9.5mm annealed Laminate: Eurofloat 4mm/Vanceva Foil 4 0.38mm/Eurofloat 4mm

Location: Clerestory (refer to layout drawings for specifics)

Performance Data

Thermal and transmission performance cannot be determined due to the Vanceva interlayer within the inner pane

Acoustic Performance

Glass/Unit Performance			Octave Centre Frequency					
Rw (dB)	Rw + C (dB)	Rw + Ctr (dB)	125	250	500	1000	2000	4000
39	37	34	26	30	38	43	38	52

The acoustic performance data is determined by calculation, based on factors derived from certified data. Due to inherent variations in acoustic performance when testing in accordance with EN ISO 140-3, some variation in the calculated performance can also be expected. As such, the weighted performance, Rw, and adaptation terms, C and Ctr, should typically be considered to be accurate within +2dB. However, wider deviations can occur.

Glass Type GLS-306:

41mm Overall Non-vision unit comprising of:

Outer: 13.5mm Heat Strengthened Eurofloat 6mm/PVB 1.52mm/Sunguard SN 75 HT 6mm

Cavity: 16mm Argon Filled, Chromatech Black spacer

Inner: 11.5mm annealed laminate: Eurofloat 5mm/Vanceva Foil 4 0.38mm/Eurofloat 5mm, with clean cut edges

Location: All locations (refer to layout drawings for specifics)

Performance Data

Thermal and transmission performance cannot be determined due to the Vanceva interlayer within the inner pane

Acoustic Performance

Glass/Unit Performance			Octave Centre Frequency					
Rw (dB)	Rw + C (dB)	Rw + Ctr (dB)	125	250	500	1000	2000	4000
42	41	38	32	38	40	40	46	62

The acoustic performance data is determined by calculation, based on factors derived from certified data. Due to inherent variations in acoustic performance when testing in accordance with EN ISO 140-3, some variation in the calculated performance can also be expected. As such, the weighted performance, Rw, and adaptation terms, C and Ctr, should typically be considered to be accurate within +2dB. However, wider deviations can occur.