

Criteria for Curtain Walling in the EU Taxonomy Climate Delegated Act

In the DRAFT COMMISSION NOTICE from 19th December 2022 with FAQs addressing the interpretation and implementation of certain legal provisions of the EU Taxonomy Climate Delegated Act, the Question 40 replies to the possibility for curtain walling to qualify for taxonomy-alignment under Section 3.5.

According to the given answer, Curtain Walling will fall under the windows criteria with U-value $\leq 1.0 \text{ W}/(\text{m}^2\text{K})$ if at least 80% of the surface is glazed and transparent. If the glazed and transparent area is less when some opaque panels are included, the criteria for wall systems will apply with U-value $\leq 0.5 \text{ W}/(\text{m}^2\text{K})$.

As Curtain Walling fulfils rarely at least 80% of glazed and transparent surface and U values usually are higher than $0.50 \text{ W}/(\text{m}^2\text{K})$ the FAQ 40 does not solve the problem that the product cannot comply with the EU Taxonomy.

Differentiating the criteria for Curtain Walling to fall into either the category of windows or walls does not seem to take fully into account the characteristics of Curtain Walling and does not give a fair evaluation. Curtain Walling is rarely composed in a way that can be compared with a simple wall.

The nature of Curtain Walling is indeed that can be used to create diversity in the façade with the variety of transparent and opaque areas. This gives a large flexibility in the architecture of the façade as well as the use of the rooms inside the building. This ensures good energy performance combined with the admittance of solar gain, daylight and view.

In the Annex are some examples from recent projects in Denmark, Norway and UK made of high performing products showing the diversity of Curtain Walling, however also showing that the suggested distinction between transparent and opaque areas is not reasonable and thus the criteria for **Curtain Walling should be linked to Windows only, and without conditions**. This is also a simple approach.

We also would like to remind to the [Joint call to revise criteria for windows in the EU Taxonomy Climate Delegated Act \(October 2022\)](#) which is also valid for the situation of Curtain Walling. The setting of a pan European maximum U-value for Windows and Curtain Walling does not serve the climate and the environment, because it does not allow to factor in geographical and climatic differences to optimise resource and energy use. It rather promotes highly insulated windows and curtain walls everywhere in the EU irrespective of the climatic conditions.

In the medium term the EU Taxonomy criteria should be revised to also factor in the 'Energy balance' approach for transparent products like Windows and Curtain Walling by replacing the present pan-European maximum U-value by values for Heating energy demand and/or Cooling energy demand according to different climatic conditions.

About

European Aluminium, founded in 1981 and based in Brussels, is the voice of the aluminium value chain in Europe. We actively engage with decision makers and the wider stakeholder community to promote aluminium's strategic role, secure growth, and stress our metal's contribution to meeting Europe's sustainability challenges. We do this through environmental and technical expertise, economic and statistical analysis, scientific research, sharing of best practices, and public affairs and communication activities. Our 95+ members include alumina refiners and primary aluminium producers; downstream manufacturers of extruded, rolled and cast aluminium; aluminium recyclers and national aluminium associations, representing together more than 600 plants and 1 million (direct and indirect) jobs in 30 European countries.

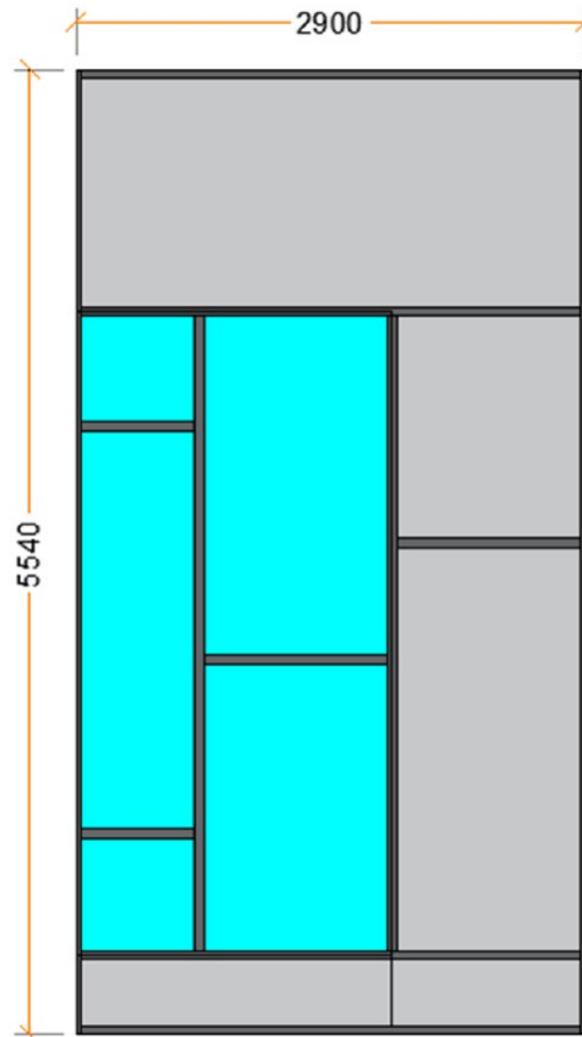
EuroWindoor AISBL was founded as an international non-profit Association, in order to represent the interests of the European window, door and facade (curtain walling) sector. Our 20 national associations speak for European window, door and facade manufacturers that are in direct contact with consumers, and thereby having large insights on consumers' demands and expectations. We are at the forefront interacting with dealers, installers and consumers buying windows and doors, and the companies behind the associations cover selling all over Europe.

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ANNEX**Example 1 Stick Curtain Walling in Denmark**

Sketch not to scale

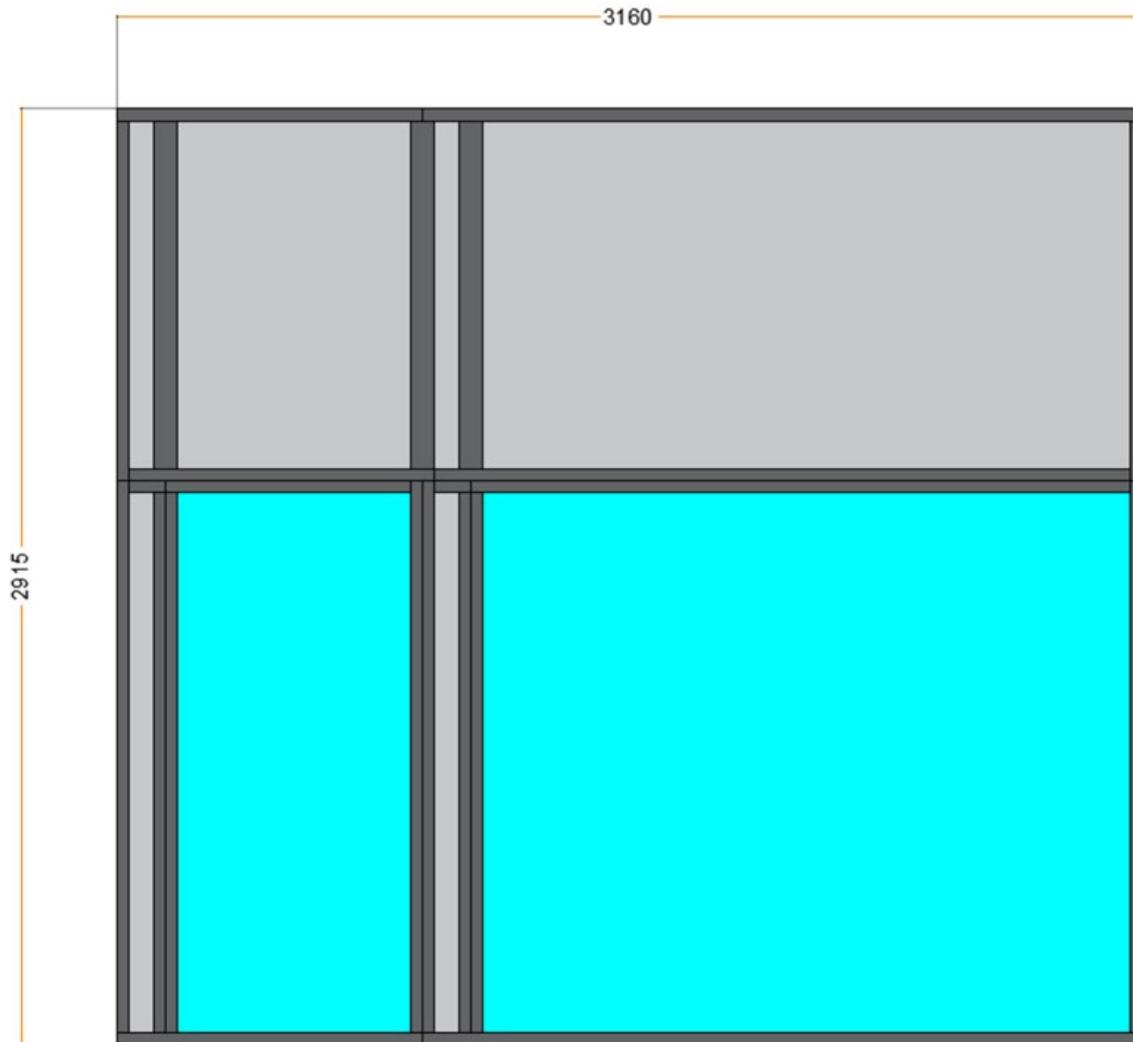
Performance of Components:

Type of Curtain Walling	Glass		Profiles		Panel
	IGU	U_g W/(m ² K)	Frames of openings U_f in W/(m ² K)	Mullion / transom U_m / U_t in W/(m ² K)	U_p in W/(m ² K)
Stick CW	Triple layer glass	0,5	-	1,21	0,15

Amount of glazed and transparent surface:

40% glazed / 60% opaque area

U-value of Curtain Walling: $U_{CW} = 0.52$ W/(m²K) which is > 0.5 W/(m²K)→ **Criteria for walls not fulfilled!**

Example 2 Unitised Curtain Walling in Norway

Sketch not to scale

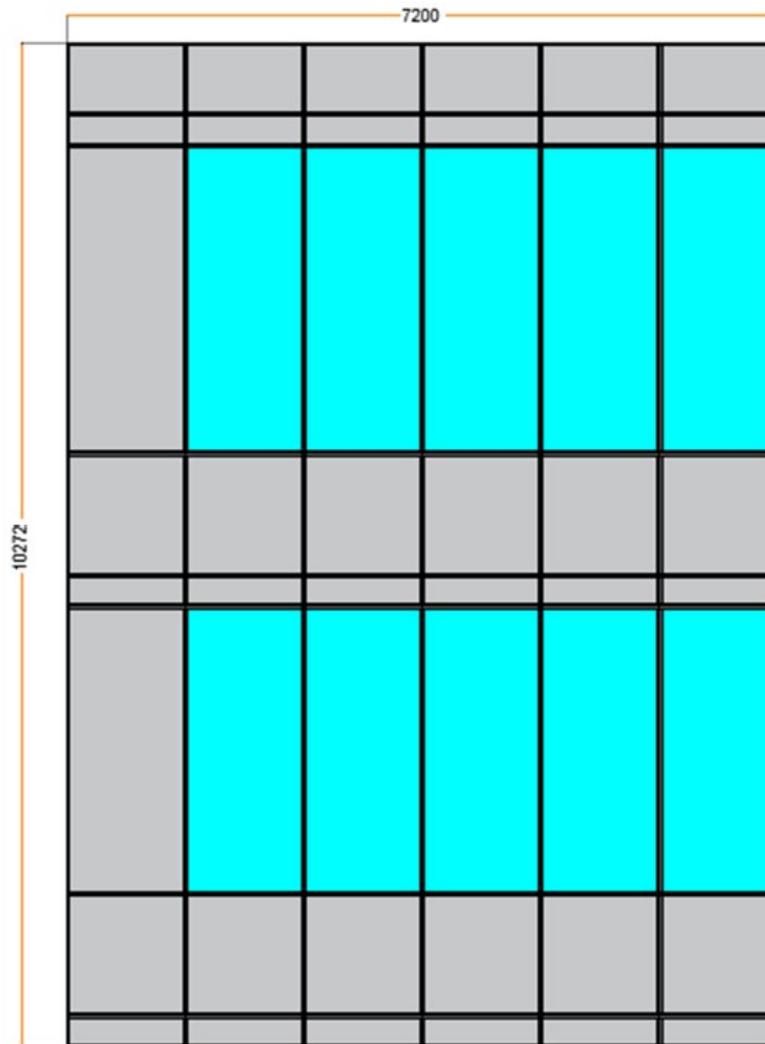
Performance of Components:

Type of Curtain Walling	Glass		Profiles		Panel
	IGU	U_g W/(m ² K)	Frames of openings U_f in W/(m ² K)	Mullion / transom U_m / U_t in W/(m ² K)	U_p in W/(m ² K)
Unitised CW	Triple layer glass	0,6	-	1,30	0,19

Amount of glazed and transparent surface:

60% glazed / 40% opaque area

U-value of Curtain Walling: $U_{CW} = 0.58$ W/(m²K) which is > 0.5 W/(m²K)→ **Criteria for walls not fulfilled!**

Example 3 Stick Curtain Walling in Denmark

Sketch not to scale

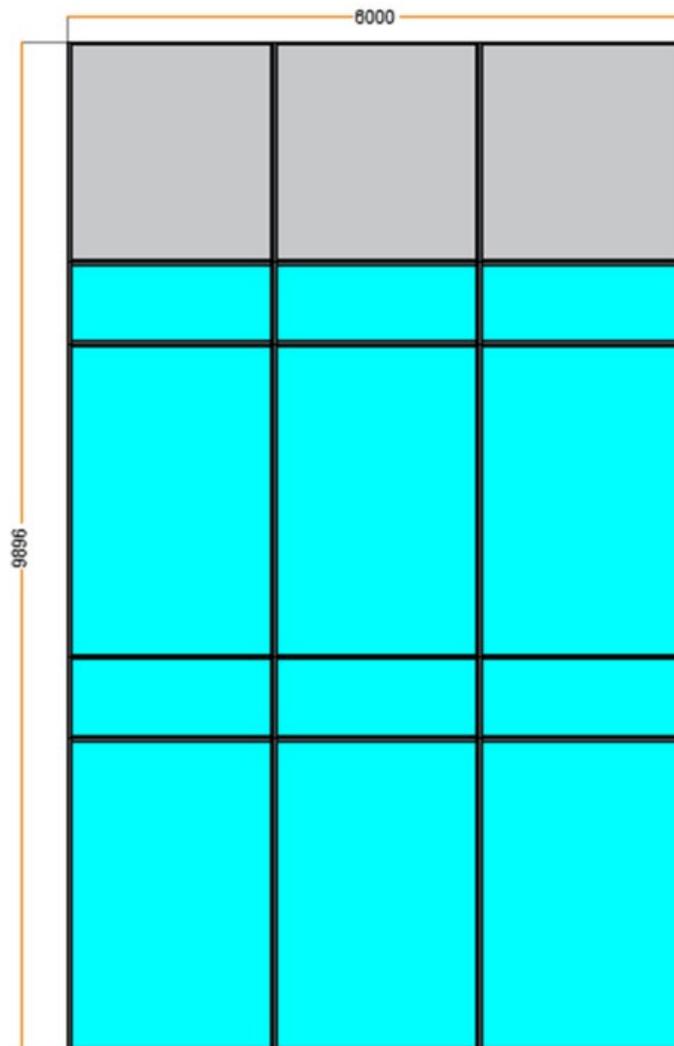
Performance of Components:

Type of Curtain Walling	Glass		Profiles		Panel
	IGU	U_g W/(m ² K)	Frames of openings U_f in W/(m ² K)	Mullion / transom U_m / U_t in W/(m ² K)	U_p in W/(m ² K)
Stick CW	Triple layer glass	0,6	-	1,22	0,19

Amount of glazed and transparent surface:

50% glazed / 50% opaque area

U-value of Curtain Walling: $U_{CW} = 0.53$ W/(m²K) which is > 0.5 W/(m²K)→ **Criteria for walls not fulfilled!**

Example 4 Stick Curtain Walling in Denmark

Sketch not to scale

Performance of Components:

Type of Curtain Walling	Glass		Profiles		Panel
	IGU	U_g W/(m ² K)	Frames of openings U_f in W/(m ² K)	Mullion / transom U_m / U_t in W/(m ² K)	U_p in W/(m ² K)
Stick CW	Triple layer glass	0,6	-	1,22	0,15

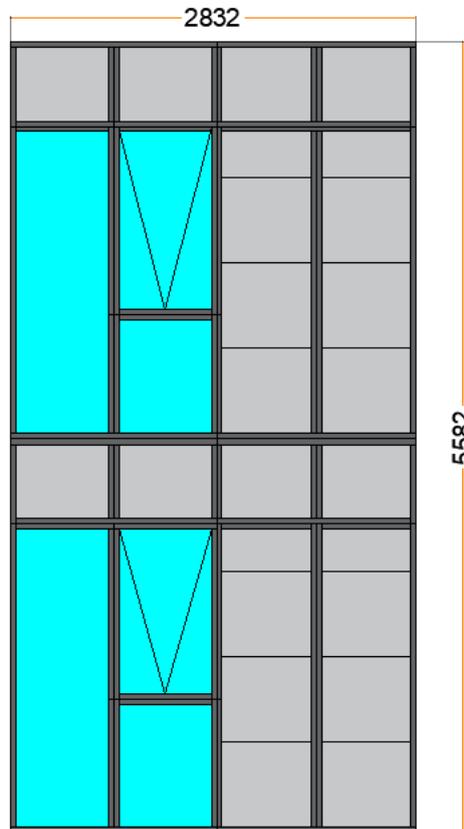
Amount of glazed and transparent surface:

80% glazed / 20% opaque area

U-value of Curtain Walling: $U_{CW} = 0.57$ W/(m²K) which is < 1.0 W/(m²K)→ **Criteria for windows is fulfilled!**

Example 5 Unitised Curtain Walling in UK

The example below includes openable elements that increase the U_{cw} -value even more and the criteria is even less achievable...



Sketch not to scale

Performance of Components:

Type of Curtain Walling	Glass		Profiles		Panel
	IGU	U_g W/(m ² K)	Frames of openings U_f in W/(m ² K)	Mullion / transom U_m / U_t in W/(m ² K)	U_p in W/(m ² K)
Unitised CW	Triple layer glass	0,6	1,41	1,29	0,22

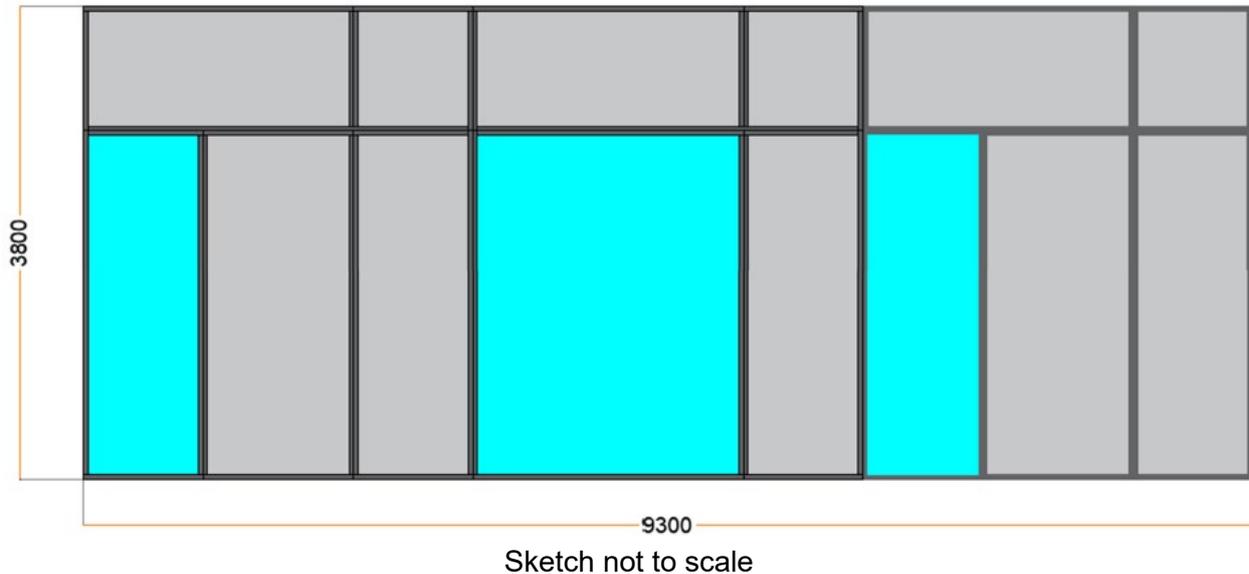
Amount of glazed and transparent surface:

40% glazed / 60% opaque area

U-value of Curtain Walling:

$U_{cw} = 0.65$ W/(m²K) which is > 0.5 W/(m²K)

→ **Criteria for walls not fulfilled!**

Example 6 Unitised Curtain Walling in Denmark**Performance of Components:**

Type of Curtain Walling	Glass		Profiles		Panel
	IGU	U_g W/(m ² K)	Frames of openings U_f in W/(m ² K)	Mullion / transom U_m / U_t in W/(m ² K)	U_p in W/(m ² K)
Unitised CW	Triple layer glass	0,6	-	1,33	0,16

Amount of glazed and transparent surface:

30% glazed / 70% opaque area

U-value of Curtain Walling: $U_{CW} = 0.45$ W/(m²K) which is < 0.5 W/(m²K)→ **Criteria for walls is fulfilled!**

Additional information to the calculation of the U_{cw}-value

The examples in this Annex are calculated according to EN ISO 12631 in which not only U values of the components but also impact of linear thermal transmittance (Ψ -values) needs to be added according to the following formula:

$$U_{CW} = \frac{\sum A_g U_g + \sum A_p U_p + \sum A_f U_f + \sum A_m U_m + \sum A_t U_t + \sum l_{f,g} \Psi_{f,g} + \sum l_{m,g} \Psi_{m,g} + \sum l_{t,g} \Psi_{t,g} + \sum l_p \Psi_p + \sum l_{m,f} \Psi_{m,f} + \sum l_{t,f} \Psi_{t,f}}{A_{CW}}$$

For giving an idea of common values for components of high performing Curtain Walling please look at the following table:

Type of Curtain Walling	Glass				Profiles		Panel
	IGU	U _g in W/(m ² K)	g	τ_v	Frames of openings U _f in W/(m ² K)	Mullion / transom U _m / U _t in W/(m ² K)	U _p in W/(m ² K)
Stick construction	3 panes	0,6	0,5	0,72	1,1	0,9	0,2
Unitised construction	3 panes	0,6	0,5	0,72	-	1,3	0,2

Furthermore the following table shows common values of linear thermal transmittance which needs additionally to be included for the total perimeter length of joint, glazing and panel in the calculation of U_{CW}-values:

Type of Curtain Walling	Consideration of linear thermal transmittance			
	$\Psi_{f,g}$ ¹⁾ in W/mK	$\Psi_{m,g} / \Psi_{t,g}$ ²⁾ in W/mK	$\Psi_{m,f} / \Psi_{t,f}$ ³⁾ in W/mK	Ψ_p ⁴⁾ in W/mK
Stick construction	0,04	0,04	0,05	0,04
Unitised construction	0,04	0,04	0,05	0,04

¹⁾ combined effect of glazing, spacer and frame

²⁾ combined effect of glazing, spacer and mullion / transom

³⁾ combined effect of frame and mullion / transom

⁴⁾ combined effect of panel, spacer and mullion / transom