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## 1. Window Information

**Profile system:**

**Framing profile:**                      **Weight:**

**Transom profile:**                      **Weight:**

**Mullion profile:**                      **Weight:**

**Glass:**                      **Block distance:**

Glass ID	Weight	Makeup
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## 2. Applied Load

**Peak velocity pressure( $q_p$ )**                       $kN/m^2$

**Pressure coefficient ( $c_p$ )**                       $c_{pe}$                        $c_{pi+}$                        $c_{pi-}$

**Horizontal live load ( $q_H$ ):**                       $kN/m$                       **Horizontal live load height:**                       $mm$

**Dead load (D):**

Density of glass	2500 $kg/m^3$
Density of aluminum	2700 $kg/m^3$
Density of thermal break	1270 $kg/m^3$

(the weight of all other accessories is assumed to be 20% of the weight of thermal break)

**Climatic conditions:**

Indoor-outdoor temperature difference in summer	$K^{\circ}$
Indoor-outdoor temperature difference in winter	$K^{\circ}$

**Load factors:**

For wind loads	$\gamma_W =$
For temperature difference	$\gamma_T =$
For horizontal live loads	$\gamma_H =$
For dead load	$\gamma_g =$

**Load combinations:**

Load combination 1 (LC1)                       $\gamma_W$ \*Wind load +  $\gamma_T$ \*Thermal load + 0.7\* $\gamma_H$ \*Horizontal live load

Load combination 2 (LC2)                      0.6\* $\gamma_W$ \*Wind load + 0.6\* $\gamma_T$ \*Thermal load +  $\gamma_H$ \*Horizontal live load

Load combination 3 (LC3)                       $\gamma_g$ \*Dead load

## 3. Codes and Specifications

- [1] DIN EN 1991-1-1, Actions on structures – Part 1-1: General actions – Densities, self-weight, imposed loads for buildings, 2010-12.
- [2] DIN EN 1991-1-1, National Annex – Nationally determined parameters, Actions on structures – Part 1-1: General actions – Densities, self-weight, imposed loads for buildings, 2010-12.
- [3] DIN EN 1991-1-4, Actions on structures – Part 1-4: General actions – Wind actions, 2010-12.
- [4] DIN EN 1991-1-4, National Annex – Actions on structures – Part 1-4: General actions – Wind actions, 2010-12.
- [5] DIN EN 1999-1-1, Design of aluminum structures – Part 1-1 General structural rules, 2014-03.
- [6]

## 4. Allowable Deflection

In out-of-plane direction (horizontal), allowable deflection follows

In in-plane direction (vertical), allowable deflection

## 5. Materials

### 5.1 Aluminum -

Young's modulus	$E = 70\text{GPa}$
Poisson's ratio	$\nu = 0.3$
0.2% apparent limit of elasticity	$\beta_{0.2} = \quad \text{N/mm}^2$

### 5.2 Thermal break -

Shear strength	-20°C	$R_{USV_{-20}} =$	N/mm	Elastic constant	-20°C	$C_{-20} =$	N/mm <sup>2</sup>
Shear strength	+80°C	$R_{USV_{+80}} =$	N/mm	Elastic constant	+20°C	$C_{20} =$	N/mm <sup>2</sup>
Tensile strength	-20°C	$R_{UST_{-20}} =$	N/mm	Elastic constant	+80°C	$C_{80} =$	N/mm <sup>2</sup>
Tensile strength	+80°C	$R_{UST_{+80}} =$	N/mm				
Reduction factor for aging and behavior under long period of loading $A_2 = 1.2$							