



# V.

## TECHNICAL ANNEXES – REGULATIONS

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# 1 CE MARKING AND STANDARDS



## 1.1 CE MARKING

For further information on CE marking, please consult the GEPVP website at [www.gepvp.org](http://www.gepvp.org).

### 1.1.1 WHAT IS CE MARKING?

CE-marked construction products bearing the CE symbol indicate that they meet the following six main performance criteria:

- > Mechanical resistance and stability
- > Fire safety
- > Hygiene, health and environment
- > Safety of use
- > Noise protection
- > Energy savings and heat retention.

These requirements are evaluated according to European standards (EN standards). Other product characteristics, such as appearance and colour, are not covered by CE marking.

### 1.1.2 PURPOSE OF CE MARKING

CE marking is not simply a case of marking products but about implementing a single European market. Construction products circulate freely within the EU, without any restrictions imposed by individual countries. Their only mandatory assessment is via the CE marking procedure based on European standards (EN). No country will be allowed to impose additional requirements covering the same aspects as CE marking, either de facto or through national legislation.

CE marking is the only way to show that a product governed by a European standard can be sold on the European market. Applying EN standards ensures that all products are evaluated in the same way in all EU countries. EN standards take precedence over all national standards.

CE marking demonstrates that the product conforms to EN standards and that it is suitable for sale on the European market but it does not impose the product on any national market. Individual countries may pass regulations governing the use of the product.

### 1.1.3 WHEN DOES CE MARKING COME INTO FORCE?

The date on which manufacturers of glass products must begin applying the CE mark to their products is indicated in the product standard. Prior to that date, it is illegal to affix CE marks to those products.

For standard products (e.g. float glass, patterned glass, etc.), toughened glass and coated glass, the start date is 1 September 2006. For laminated glass, insulating glazing and thermally toughened heat-soaked glasses the date is 1 March 2007.

However, after these dates there will be a one-year transition period during which the old system and the new CE marking system will run concurrently. During this time, manufacturers will be able to choose whether to CE-mark their products or to wait. At the end of this transition period, CE marking will become mandatory.

The table below gives details of the standards, corresponding products and launch dates for CE marking.

Standard	Relevant AGC products	Dates
EN 572-9 – Glass in building: basic soda lime silicate glass	Planibel float glass and Planibel coloured float glass Imagin wired glass Imagin patterned glass Polished wired glass	Start of mandatory CE marking: 1 September 2006
EN 1096-4 – Coated glass	Planibel Top <sup>N+</sup> Planibel Top <sup>NT</sup> Planibel Energy <sup>N</sup> Planibel Energy <sup>NT</sup> Planibel G and Planibel G fasT Stopsol Classic, Supersilver and Silverlight Sunergy Stopray Blackpearl	
EN 12150-2 – Thermally toughened soda lime silicate safety glass	All heat-treated products	
EN 1863-2 – Heat-strengthened soda lime silicate glass	All heat-strengthened products	
EN 12337-2 – Chemically strengthened soda lime silicate glass	All chemically toughened products	Start of mandatory CE marking: 1 March 2007
EN 14449 – Laminated glass and laminated safety glass	Stratobel Stratobel EVA Stratophone Pyrobel and Pyrobelite	
EN 1279-5 – Insulating glass units	Thermobel	
EN 14179-2 – Heat-soak tested, thermally toughened soda lime silicate safety glass	All thermally toughened and heat-soaked products, Pyrostar*	

\*Availability of Pyrostar depending on markets.

# 1.2 AGC AND CE MARKING

## 1.2.1 WHAT INFORMATION IS REQUIRED FOR CE MARKING?



Each individual product qualifying for the CE mark must bear the CE logo, but some additional information must also be passed on to the client:

### ▼ General information

- > name and address of manufacturer
- > reference to the relevant European standard
- > product brand name
- > description of the product
- > identification number of the notified certifying body (where necessary)
- > certificate number (where necessary)
- > the last two digits of the year in which the CE mark was affixed.

### ▼ Technical data

13 technical product features (fire resistance, impact resistance, thermal properties, etc.) must be stated (see the example below).

	<b>AGC Flat Glass Europe</b> Chaussée de la Hulpe, 166 1170 Brussels-Belgium 07		
	Certificate number: N/A Notified body: N/A EN 572-9		
Basic soda lime silicate float glass for use in buildings and construction work.			
<b>Planibel clear 4 mm</b>			
1.	Resistance to fire (EN 13501-2)		NPD
2.	Reaction to fire (EN 13501-1)		A1
3.	External fire performance		NPD
4.	Bullet resistance (EN 1063)		NPD
5.	Explosion resistance (EN 13541)		NPD
6.	Burglar resistance (EN 356)		NPD
7.	Pendulum body impact resistance (EN 12600)		NPD
8.	Resistance against sudden temperature changes and temperature differentials		NPD
9.	Wind, snow, permanent and imposed load resistance		NPD
10.	Direct airborne sound insulation (EN 12758) – $R_w$ (C <sub>1</sub> C <sub>2</sub> ): dB	30 (-2;-4)	
11.	Thermal properties (EN 673) – $U_g$ value: W/(m <sup>2</sup> .K)	5.8	
12.	Light transmission / Light reflection (EN 410)	90/8	
13.	Solar energy transmission / Solar energy reflection (EN 410)	84/8	

NPD = No Performance Determined.

To comply with CE marking, AGC has decided to put some information on its product labels.

\* Until 01/09/07, the logo appearing on the site is Glaverbel .

# 1.3 EUROPEAN GLASS STANDARDS

## 1.2.2 WWW.YOURGLASS.COM

CE marks are provided in two formats on [www.yourglass.com](http://www.yourglass.com).

### ▼ PDF files

For products to which CE Marking already applies, click on the “CE Marking” button on the left-hand side of your screen to download a pdf file containing the tables applying to all products.

### ▼ Dynamic tool – Product finder

Two tools are available in the Toolbox: Advanced Product Finder and Glass Configurator. You can use this to search for a specific brand, product, structure or look or enter the appropriate technical values.

You can also print out a CE marking data sheet for a specific product by clicking on the “CE Marking” button.

## 1.3.1 INTRODUCTION

The tables below detail the standards published in CEN TC 129 “Glass in building”. Officially published standards are indicated as EN; draft standards in the process of being drawn up are indicated as prEN. These standards are published in the different countries of the European Union (NBN EN in Belgium, NF EN in France) and are available from national standardisation authorities (NBN in Belgium, AFNOR in France, NEN in the Netherlands, etc.).

Several tables give details of the standards according to the following classification system:

- > Harmonised standards for CE-marking
- > Standards for basic glass products
- > Standards for processed glass products
- > Standards for testing and calculation methods.

## 1.3.2 HARMONISED STANDARDS FOR CE MARKING OF TC 129

EN 572-9: 2004	Basic soda lime silicate glass products – Evaluation of conformity
prEN 1036-2	Mirrors from silver coated float glass for internal use – Evaluation of conformity
prEN 1051-2	Glass blocks and paver units – Evaluation of conformity
EN 1096-4: 2005	Coated glass – Evaluation of conformity
EN 1748-1-2: 2005	Special basic products – Borosilicate glasses – Evaluation of conformity
EN 1748-2-2: 2005	Special basic products – Glass ceramics – Evaluation of conformity
EN 1279-5: 2005	Insulating glass units – Evaluation of conformity
EN 1863-2: 2004	Heat strengthened soda lime silicate glass – Evaluation of conformity
EN 12150-2: 2000	Thermally toughened soda lime silicate safety glass – Evaluation of conformity
EN 12337-2: 2005	Heat-strengthened soda lime silicate glass – Evaluation of conformity

(Continuation)

EN 13024-2: 2005	Toughened borosilicate safety glass – Evaluation of conformity
EN 14178-2: 2005	Glass in building – Basic alkaline earth silicate glass products – Evaluation of conformity
EN 14179-2: 2005	Heat soaked thermally toughened soda lime silicate safety glass – Definition and description
EN 14321-2: 2005	Thermally toughened alkaline earth silicate safety glass
EN 14449: 2005	Laminated glass and laminated safety glass – Evaluation of conformity

### 1.3.3 STANDARDS FOR TC 129 CONCERNING BASIC GLASS PRODUCTS

Reference	Title
EN 572-1: 2004	Basic soda lime silicate glass products – Definitions and general physical and mechanical properties
EN 572-2: 2004	Basic soda lime silicate glass products – Glass
EN 572-3: 2004	Basic soda lime silicate glass products – Polished wired glass
EN 572-4: 2004	Basic soda lime silicate glass products – Drawn glass
EN 572-5: 2004	Basic soda lime silicate glass products – Patterned glass
EN 572-6: 2004	Basic soda lime silicate glass products – Wired patterned glass
EN 572-7: 2004	Basic soda lime silicate glass products – Wired or unwired channel shaped glass
EN 572-8: 2004	Basic soda lime silicate glass products – Supplied and final cut sizes
EN 1748-1-1: 2004	Special basic products – Borosilicate glasses
EN 1748-2-1: 2001	Special basic products – Glass ceramics
EN 14178-1: 2005	Basic alkaline earth silicate glass products – Part 1: Float glass

### 1.3.4 STANDARDS FOR TC 129 CONCERNING PROCESSED GLASS PRODUCTS

Reference	Title
EN 1036: 1999	Mirrors from silver coated float glass for internal use
EN 1051-1: 2003	Glass blocks and paver units – Definitions, requirements, testing method and checks
EN 1096-1: 1998	Coated glass – Definition and classification
EN 1096-2: 2001	Coated glass – Requirements and test methods for class A, B and S coatings
EN 1096-3: 2001	Coated glass – Requirements and test methods for class C and D coatings
EN 1279-1: 2004	Insulating glass units – Generalities, dimensional tolerances and rules for the system description
EN 1279-2: 2003	Insulating glass units – Long term test method and requirements for moisture penetration
EN 1279-3: 2003	Insulating glass units – Long-term test method, requirements for gas leakage rate and for gas concentration tolerances
EN 1279-4: 2002	Insulating glass units – Methods of testing for the physical attributes of edge seals
EN 1279-6: 2002	Glass units – Factory production control and periodic tests
EN 1863-1: 2000	Heat-strengthened soda lime silicate glass – Definition and description
prEN 1863-1 A1	Heat-strengthened soda lime silicate glass – Definition and description
EN 12150-1: 2000	Thermally toughened soda-lime silicate safety glass – Definition and description
EN 12337-1: 2000	Chemically strengthened soda lime silicate glass – Definition and description
EN ISO 12543-1: 1998	Laminated glass and laminated safety glass – Definitions and description of component parts
EN ISO 12543-2: 1998	Laminated glass and laminated safety glass – Laminated safety glass
EN ISO 12543-2/A1: 2005	Laminated glass and laminated safety glass
EN ISO 12543-3: 1998	Laminated glass and laminated safety glass – Laminated glass

(Continuation)

EN ISO 12543-4: 1998	Laminated glass and laminated safety glass – Test methods for durability
EN ISO 12543-5: 1998	Laminated glass and laminated safety glass – Dimensions and edge finishing
EN ISO 12543-6: 1998	Laminated glass and laminated safety glass – Appearance
EN 13022-1: 2006	Structural sealant glazing – Glass products for structural sealant glazing systems – Supported and unsupported monolithic and multiple glazing
EN 13022-2: 2006	Structural sealant glazing – Assembly rules
EN 13024-1: 2002	Thermally toughened borosilicate safety glass – Definition and description
EN 14179-1: 2005	Heat-soaked thermally-toughened soda-lime silicate safety glass – Definition and description
EN 14321-1: 2005	Thermally toughened alkaline earth silicate safety glass

### 1.3.5 STANDARDS FOR TC 129 CONCERNING TESTING AND CALCULATION METHODS

Reference	Title
EN 356:1999	Security glazing – Testing and classification of resistance against manual attack
EN 357: 2005	Fire-resistant glazed elements with transparent or translucent glass products – Classification of fire resistance
EN 410: 1998	Determination of luminous and solar characteristics of glazing
EN 673: 1997	Determination of thermal transmittance (U-value) – Calculation
EN 673 A1: 2000	Determination of thermal transmittance (U-value) – Calculation
EN 673 Az: 2003	Determination of thermal transmittance (U-value) – Calculation
EN 674: 1997	Determination of the thermal transmittance (U value) – Guarded hot plate method
EN 675: 1997	Determination of thermal transmittance (U value) – Heat flow meter method
EN 1063: 1999	Security glazing – Testing and classification of resistance against bullet attack

EN 1288-1: 2000	Determination of the bending strength of glass – Fundamentals of testing glass
EN 1288-2: 2000	Determination of the bending strength of glass – Coaxial double ring test on flat specimens with large surface areas
EN 1288-3: 2000	Determination of the bending strength of glass – Test with specimen supported at two points (four point bending)
EN 1288-4: 2000	Determination of the bending strength of glass – Testing of channel shaped glass
EN 1288-5: 2000	Determination of the bending strength of glass – Part 5: Coaxial double ring test on flat specimens with small test surface areas
EN 12600: 2003	Pendulum test – Impact test method and classification for flat glass
EN 12603: 2003	Procedures for goodness of fit and confidence intervals for Weibull distributed glass strength data
EN 12758: 2002	Glazing and airborne sound insulation – Product descriptions and determination of properties
EN 12898: 2001	Determination of the strength of glass panes
prEN 13474:	Design of glass panes
EN 13541: 2000	Testing and classification of resistance against explosion pressure
EN ISO 14438: 2002	Determination of energy balance value – Calculation method

### 1.3.6 STANDARDS FOR TC 129 CONCERNING INSTALLATION

prEN 12488	Assembly rules – Glazing requirements
prEN ISO 14439	Glazing requirements – Use of glazing blocks

# 1.4 OTHER EUROPEAN STANDARDS AND DOCUMENTS

## 1.4.1 SOUND

- > EN ISO 717-1: 1996 – Acoustics. Rating of sound insulation in buildings and of building elements
- > EN ISO 140-3: 1995 – Measurement of sound insulation in buildings and of building elements. Part 3: Laboratory measurement of airborne sound insulation of building elements.

## 1.4.2 THERMAL

- > EN ISO 10077-1: 2000 – Thermal performance of windows, doors and shutters. Calculation of thermal transmittance – Part 1: Simplified method
- > EN ISO 10077-2: 2003 – Thermal performance of windows, doors and shutters. Calculation of thermal transmittance – Part 2: Numerical method for frames
- > prEN 13947 – Thermal performance of curtain walling – Calculation of thermal transmittance – simplified method or via tests
- > EN ISO 13788: 2001 – Hygrothermal performance of building components and building elements – Internal surface temperature to avoid critical surface humidity and interstitial condensation – Calculation methods (ISO 13788/2001).

## 1.4.3 SOLAR

- > EN 13363-1: 2003 – Solar protection devices combined with glazing – Calculation of solar and light transmittance – Part 1: Simplified method
- > EN 13363-2: 2003 – Solar protection devices combined with glazing – Calculation of total solar energy transmittance and light transmittance – Part 2: Detailed calculation method.

## 1.4.4 STRUCTURAL GLAZING

- > ETAG 002: 1999 – Structural sealant glazing systems (SGGS) – Part 1: Supported and non supported system
- > ETAG 002: 1999 – Structural sealant glazing systems (SGGS) – Part 2: Coated aluminium systems
- > ETAG 002: 2002 – Structural sealant glazing systems (SGGS) – Part 3: Systems incorporating profiles with thermal barrier.

## 1.4.5 POINT FIXED GLAZING

- > 1998 – UEAtc technical report for the assessment of installation using point-fixed glazing systems.

## 1.4.6 COATINGS

- > UEAtc technical guide: 2001 – Coated glass
- > GEPVP code of practice – GEPVP member's commitment to characterize Low-E insulating glazing in accordance with the new European standards
- > GEPVP code of practice for in-situ measurement and evaluation of the colour of coated glass used in façades.

### 1.4.7 FIRE

- > EN 13501-1: 2002 – Fire classification of construction products and building elements. Part 1: Classification using test data from reaction to fire tests
- > EN 13501-2: 2003 – Fire classification of construction products and building elements – Part 2: Classification using data from fire resistance tests, excluding ventilation services
- > EN 1363-1: 1999 – Fire resistance tests. Part 1: General requirements
- > EN 1363-2: 1999 – Fire Resistance Tests-Part 2: Alternative and Additional Procedures
- > EN 1364-1: 1999 – Fire resistance tests for non-load bearing elements – Part 1: Walls
- > EN 1364-2: 1999 – Fire resistance tests for non-load bearing elements – Part 2: Ceilings
- > EN 1364-3: 2003 – Fire resistance tests for non-load bearing elements in buildings – Part 3: Curtain walls – Full configuration (complete assembly)
- > EN ISO 1716: 2002 – Reaction to Fire Tests for Building Products – Determination of the Heat of Combustion (ISO 1716:2002)
- > EN ISO 1182: 2002 – Reaction to fire tests for building products – Non-combustibility test (ISO 1182:2002)
- > EN 13823: 2002 – Reaction to fire tests for building products – Building products excluding floorings exposed to the thermal attack by a single burning item
- > EN ISO 11925-2: 2002 – Reaction to fire tests – Ignitability of building products subjected to direct impingement of flame – Part 2: Single-flame source test (ISO 11925-2:2002).

### 1.4.8 EUROCODES

- > EN 1990: 2002 – Eurocodes – Basis for structural designs
- > EN 1990/A1: 2006 – Eurocode – Basis for structural design
- > EN 1991-1-1: 2002 – Eurocode 1. Actions On Structures – Part 1-1: General Actions – Densities, Self-weight, Imposed Loads For Buildings
- > EN 1991-1-3: 2003 – Eurocode 1 – Actions on structures – Part 1-3: General actions. Snow loads
- > EN 1991-1-4: 2005 – Eurocode 1 – Actions on structures – Part 1-4: General actions. Wind actions.

### 1.4.9 SHOWERS, LIFTS, FURNITURE AND GREENHOUSES

- > EN 14428: 2005 – Shower partitions – Functional details and testing methods
- > EN 81-1: 2000 – Safety rules for the construction and installation of lifts – Part 1: Electric lifts
- > EN 14072: 2004 – Glass in furniture - Test methods
- > EN 13031-1: 2002 – Greenhouses – Design and Construction – Part 1: Commercial-production greenhouses.

### 1.4.10 JOINERY AND CURTAIN-WALL FAÇADES

The TC 33 of CEN applies to joinery and curtain-wall façades. Several standards are detailed below but there are many more besides.

- > EN 14351-1: 2006 – Windows and doors - Product standard, performance characteristics – Part 1: Windows and external pedestrian doorsets without resistance to fire and/or smoke leakage characteristics
- > EN 13830: 2003 – Curtain walling. Product standard
- > EN 13049: 2003 – Windows. Soft and heavy body impact. Test method, safety requirements and classification
- > EN 14019: Curtain walling. Impact resistance. Performance requirements
- > ENV 1627: 1999 – Windows, doors, shutters. Burglar resistance. Requirements and classification
- > ENV 1628: 1999 – Windows, doors, shutters. Burglar resistance. Test method for the determination of resistance under static loading
- > ENV 1629: 1999 – Windows, doors, shutters. Burglar resistance. Test method for determination of resistance under dynamic loading
- > ENV 1630: 1999 – Windows, doors, shutters. Burglar resistance. Test method for the determination of resistance to manual burglary attempts
- > EN 13123-1: 2001 – Window, doors and shutters – Explosion resistance; Requirements and classification - Part 1: Shock tube
- > EN 13123-2: 2004 – Windows, doors, and shutters – Explosion resistance – Requirements and classification – Part 2: Range test
- > EN 13124-1: 2001 – Windows, doors and shutters - Explosion resistance; Test method – Part 1: Shock tube
- > EN 13124-2: 2004 – Windows, doors and shutters. Explosion resistance. Test method – Part 2: Range test
- > EN 1522: 1999 – Windows, doors, shutters and blinds. Bullet resistance. Requirements and classification
- > EN 1523: 1988 – Windows, doors, shutters and blinds. Bullet resistance. Test method
- > EN 1026: 2000 – Windows and doors. Air permeability. Test method
- > EN 12207: 2000 – Windows and doors. Air permeability. Classification
- > EN 12211: 2000 – Windows and doors. Resistance to wind load. Test method
- > EN 12210: 2000 – Windows and doors. Resistance to wind load. Classification
- > EN 1027: 2000 – Windows and doors. Watertightness. Test method
- > EN 12208: 2000 – Windows and doors. Watertightness. Classification
- > EN 12152: – Curtain walling. Air permeability. Performance requirements and classification
- > EN 12179: 2000 – Curtain walling. Resistance to wind load. Test method
- > EN 13116: 2001 – Curtain walling. Resistance to wind load. Performance requirements
- > EN 12155: 2000 – Curtain walling. Watertightness. Laboratory test under static pressure
- > EN 12154: 2000 – Curtain walling. Watertightness. Performance requirements and classification.

## 2 GLAZING INSTALLATION



## 2.1 INTRODUCTION

This chapter sets out the fundamental principles for installing glazings.

More detailed brochures on the following are available at [www.yourglass.com](http://www.yourglass.com):

- > installing glazing rebates
- > installing specific items (floors, balustrades, portholes, etc.)
- > structural glazing
- > point-fixed glazing (Structura)
- > decoration products.

In all cases any relevant national standards and regulations must be applied in addition to these requirements.

## 2.2 INSTALLING GLAZING REBATES

For detailed installation instructions please visit [www.yourglass.com](http://www.yourglass.com).

### 2.2.1 INTRODUCTION

When installing glazing rebates (single glazing, double-glazing, laminated glass etc.) you should adhere to certain rules to ensure that the project remains durable and continues to provide high levels of performance and at the same time to limit any alteration:

- > the correct sizes of glass should be used
- > the glazing should be of high quality
- > the frame should be of high quality
- > there should be no contact between the glass and the frame. The glass should be installed on setting blocks and there should be sufficient clearance between the frame and the glazing
- > the area between the frame and glazing should be watertight and the rebate should be drained
- > materials should be compatible
- > insulating glazing joints should be protected against UV rays
- > thermal and mechanical stresses within the glazing should be limited
- > the unit should be properly maintained.

### 2.2.2 USING THE CORRECT SIZES OF GLASS

The thickness of the glazing should be calculated:

- > for façade glazing: bearing in mind the wind load
- > for roof glazing: bearing in mind the wind load, the snow load and the actual weight of the glass.

To perform the calculations, the contract documents must specify the area in which the building is located (city, countryside, coast etc.), the size of the building, the number of glazing supports (the number of supported edges), the size of the glazing and its position within the façade or the roof.

### 2.2.3 QUALITY OF THE GLAZING

The edges of the glass to be installed must be cut cleanly and without splinters. Panes with signs of crizzling should not be used. Tolerance levels in glazings and thicknesses should be adhered to.

No further changes may be made to the glazing.

### 2.2.4 QUALITY OF THE FRAME

Frames must be protected against corrosion and rotting. They must be watertight and airtight and the rebate must have an efficient drainage system.

Distortions in frames must be limited so as not to exceed the permitted mechanical stresses in the glass and in the seal between the insulating glazings.

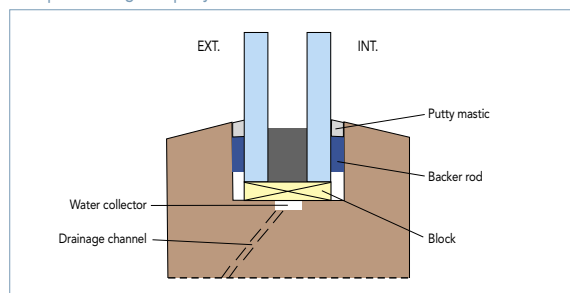
### 2.2.5 SETTING BLOCKS AND CLEARANCE

The glazing must never come into direct contact with the frame or with any other hard material. Setting blocks are positioned between the glazing and the frame in order to:

- > prevent contact
- > ensure that the glazing is positioned correctly in the frame (height, width, thickness) and that there is a minimum clearance between the glazing and the frame
- > transfer the weight of the glass and the load applied on it to the frame through the blocks. The blocks should be sized to ensure that they do not exceed the permissible stress for the glass, the frame and/or the blocks when transferring these strains
- > to maintain the squareness of the frame when opening it or using it.

The rebate and the glazing beads must be large enough to ensure that blocks can be set correctly. It is therefore important to adhere to the minimum clearances between the glazing and the frame, both in the same plane as the glass (i.e. between the glazing and the rebate platform) and perpendicular to the plane of the glass (i.e. between the DGU and the DGU bead or rebate upstand).

Fitting a DGU into a frame:  
example of fitting with putty mastic in a wooden frame



## 2.2.6 SEALS – DRAINAGE FROM THE REBATE

The assembly between the frame and the DGU must be both watertight and airtight. To prevent damage to the DGU's weatherproof seal or deterioration of the interlayer in a laminated glass, for example, no water should be allowed to stagnate in the rebate platform.

Seals (putty mastic, waterproof seals,) are used to keep areas watertight and airtight; these seals also absorb different expansion levels between the frame and the DGU while remaining watertight and airtight. They should retain these properties over time.

Drainage keeps a rebate as dry as possible, even in unfavourable situations, by removing water which may accidentally penetrate the rebate (condensation, infiltration due to the failure of a waterproof seal, etc.) via drainage channels or outlets.

## 2.2.7 COMPATIBILITY OF MATERIALS

Once the DGU has been fitted, adjacent or nearby materials should be compatible, i.e. they may not, following chemical or physical interaction, impact on each other in such a way that their level of performance is reduced.

## 2.2.8 PROTECTION AGAINST ULTRAVIOLET RAYS

Some waterproof barriers in insulating DGUs are vulnerable to alteration by ultraviolet radiation. If this is the case, they should be protected from the sun's rays. For DGUs with rebates on all four edges this poses no difficulties provided that the clearances are respected. For DGUs where one or more edges are visible, it is important either to protect the waterproof barrier by applying, for example, a cap or a glued covering or to use a waterproof barrier that is resistant to UV rays.

## 2.2.9 LIMITING THERMAL STRESSES IN THE GLASS

Glass is sensitive to temperature changes. If, at any given moment, there is a temperature gradient in excess of 30° between two adjacent areas of the same glass, there is the risk that said glass will suffer thermal breakage.

Where there is a risk of this occurring (DGUs set back from the façade, shadows cast by blinds, etc.) the risk of thermal breakage should be assessed and, where necessary, heat-strengthened or thermally toughened glass products should be used.

For roof glazings, the thermal load is significantly increased.

### 2.2.10 PRECAUTIONS AND MAINTENANCE

During the construction work, it might be useful to protect the glass from damage. The method of protection must be selected to avoid a risk of thermal breakage.

Depending on the type of DGU (including coated glasses facing the outside of an insulating glazing), precautions should also be taken when cleaning.

Damaged seals should be replaced.

## 2.3 INSTALLING SPECIFIC ITEMS

Specific installation includes installation of:

- > curved glazings
- > glass balustrades
- > glass floors and stairtreads
- > portholes
- > others.

Each of the above should comply with the detailed and individual installation requirements set out in a detailed brochure available at [www.yourglass.com](http://www.yourglass.com).

## 2.4 "ALL-GLASS" FAÇADES: STRUCTURAL GLAZING – POINT-FIXED GLAZING

Projects incorporating structural glazing or point-fixed glazing can produce façades with a high proportion of glass.

There are three different types of installation which must comply with strict rules set out in the detailed brochures available at [www.yourglass.com](http://www.yourglass.com).

## 2.5 DECORATIVE PRODUCTS

Detailed instructions on installing decorative products (Mirox, Lacobel, etc.) are also available at [www.yourglass.com](http://www.yourglass.com).