

The logo for AGC, consisting of the letters 'AGC' in a bold, blue, sans-serif font. A small red square is positioned between the 'A' and the 'G'.

LACOBEL T MATELAC T

INSTALLATION GUIDE

VERSION 4.0 – NOVEMBER 2016

Your Dreams, Our Challenge

This version of the guide replaces and cancels all previous versions.
Please check www.agc-yourglass.com regularly for any updates.

Preliminary Important Instructions

Carefully read the following instructions before installing Lacobel T / Matelac T products.

AGC strongly recommends that Lacobel T and Matelac T products should be processed by an AGC Certified Processor. The complete list of Certified Processors with their addresses and contact details is available on www.yourglass.com in the Lacobel T and Matelac T “Products” section.

- 1. Product** - Lacobel T and Matelac T MUST BE heat treated (thermally toughened according to EN12150 or heat strengthened according to EN1863) before installation.
- 2. Product** - Lacobel T and Matelac T are products intended for interior and exterior applications. They are not designed for applications where the glass is back-lit. Please contact your local AGC agent for an alternative product for such applications.
- 3. Product** - All Lacobel T and Matelac T colours can be used in humid environments (kitchens, bathrooms, etc.) but should not come in contact with water for a prolonged period of time.
- 4. Enamel quality** - The quality (correct “fusing”) of the enamel must be checked before installation. A simple way to achieve this is to touch the enamelled side with a wet finger. No wet stain may be visible from the glass side. No variation in colour along the piece may be observed from the glass side.
- 5. Enamel quality** - Ensure that the paint on the rear of the Lacobel T or Matelac T glass has not been scratched during the cutting and assembly process.
- 6. Dimensioning** - The thickness of the Lacobel T or Matelac T glass must be defined on the basis of the size and shape of each panel. AGC recommends minimum 6mm thickness for interior wall cladding (panels > 1 m²). For exterior, facade applications, the thickness of the Lacobel T or Matelac T glass depends on the loads and stresses to which it is subject. National standards and regulations and Eurocode essential requirements should be respected.
- 7. Substrate preparation** - Both glass and support have to be clean and dry. Do not fit glass onto supports with porous surfaces without a primer pre-treatment. For gluing without primer, please contact your adhesives supplier. Before *interior* installation, AGC suggests painting the wall in the same colour as the glass on the glass junction areas to avoid colour differences that might be seen through the transparent joints.
- 8. Adhesives** - For interior applications, AGC recommends using FIX-IN range of adhesive products. Lacobel T Crisp White and Matelac T Crisp White are not fully opaque and can therefore not be glued. In the case of mechanical fixing of those products, AGC recommends painting the complete wall/substrate in a uniform white colour. For outdoor, always use adhesive products recommended by AGC and follow exactly the instructions supplied by the adhesive manufacturer (particularly regarding the quantities of adhesive to be used per m²). The correct use of adhesives is the sole responsibility of the user/customer.
- 9. Safety** - The use of safety gloves and appropriate personal protection is strongly recommended during all operations, handling and setting of the glass.
- 10. Further information** - Please visit www.agc-yourglass.com - Lacobel T and Matelac T brands description - to download your language version of the Installation Guide or contact AGC’s Technical Advisory Services (TAS).

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0. PRODUCT: LACOBEL T AND MATELAC T

This guide sets out AGC recommended installation procedures **for Lacobel T and Matelac T glass**.

Correct installation is critical in ensuring the **correct appearance of the glass** - by preventing shadows and colour variations caused by the surface to which the glass has been fitted.

Before it is used in any application or installation Lacobel T and Matelac T **must be heat treated** (either heat strengthened according to EN1863* or thermally toughened according to EN12150*). See recommendations in the Lacobel T and Matelac T processing guide, available on www.agc-yourglass.com.

Thermally toughened glass can be classified as safety glass according EN12600*.

Lacobel T and Matelac T are products intended for **interior and exterior** applications. They are not designed for applications where the glass is back-lit. Please contact your local AGC agent for an alternative product for such applications.

Due to the **roller-wave effect** created by the heat treatment, cutting should be done in a way that roller-waves on the final installed Lacobel T or Matelac T panes are all aligned in the same, preferably horizontal direction to **avoid visual distortion**.

The product is light- and UV-resistant. The Lacobel T and Matelac T colours are fixed during the heat treatment process.

The thickness of the float glass sheet also has a slight impact on the colour, possibly resulting in colour variations. Consequently, using different thicknesses of glass next to each other should preferably be avoided.



** Or equivalent local standards for countries outside the EU*

I. INTERIOR INSTALLATION – Wall cladding

1. INTERIOR INSTALLATION GUIDE

1.1 Glass dimensioning

The thickness of the Lacobel T and Matelac T glass must be defined on the basis of the size and shape of each panel, the substrate and related requirements. AGC recommends minimum 6mm thickness for interior wall cladding (panels > 1 m²). For very large panels, thicker glass may be required.

1.2 Preparing the walls (or other support surface)

- Before fitting Lacobel T or Matelac T as a wall cladding, AGC recommends checking the state of the support surface to facilitate the installation and to avoid any eventual deterioration of the glass paint.
- Smooth out any uneven wall or background surfaces. A smooth surface will ensure optimum adherence of the glass.
- Ensure that the glass paint is well dried and not scratched or damaged.
- Apply the glass to a clean, dry surface: do not fit glass onto walls or any other surfaces that are not completely dry.
- Pre-treat porous surfaces with a primer.

1.3 Humid environments

All Lacobel T and Matelac T colours can be used in humid environments (kitchens, bathrooms, etc.) but cannot come in direct contact with water for a prolonged period of time. The glass must be installed in a way which prevents water from penetrating behind it (See Fix-In Silicone guide). Ensure that the humid area is properly ventilated to prevent water accumulation (thus leading to permanent stagnant water) on the glass for a prolonged period of time.

1.4 Fitting glass onto the support

There are two ways of fitting Lacobel T or Matelac T glass onto interior walls (or other support surface):

- The bonding method, using:
 - FIX-IN silicone
 - FIX-IN silicone + FIX-IN adhesive tape
- The mechanical method, using screws, metal clips or fixing the glass directly into a frame.



Special note for splashbacks

Non-tempered glass can break if there is a temperature difference of 30°C or more on the same sheet of glass. For instance, a hot teapot that touches the glass could cause it to break. After heat treatment, Lacobel T and Matelac T can resist up to 200°C temperature difference within the sheet.

1.4.1 Bonding method

If you opt for the bonding method, you should use the adhesive best-suited to the level of safety required due to the size of the glass.

Under the trade name **FIX-IN**, AGC has developed its own range of high-performance and easy-to-use adhesive products which perfectly fit to the professional installation of Lacobel T and Matelac T in **indoor applications**.

Based on a formula exclusive to AGC, the **perfect compatibility between FIX-IN components prevents corrosive damage to Lacobel T and Matelac T paint**, supported by a 10-years warranty⁽¹⁾.

Professionals can buy the FIX-IN components online at www.agc-store.com or from their glass processors.

AGC has identified other adhesives compatible with AGC's painted glass for which you are kindly suggested to refer to the instructions and warranties supplied by the adhesive manufacturer.

1.4.2 Silicone

Silicone can be used with both Lacobel T and Matelac T.

Recommended silicone brand for Lacobel T and Matelac T glass

Type	Brand	Manufacturer
Alcoxy	FIX-IN SL, transparent	AGC

Silicone brands compatible with Lacobel T and Matelac T glass

Type	Brand	Manufacturer
Oxime	Parasilico AM 85-1, transparent	DL Chemicals
Oxime	Silirub 2, transparent	Soudal
Alcoxy	DC 817, white	Dow Corning
Alcoxy	Illbrück FA 940, white	Illbrück

AGC recommends to use the FIX-IN solution to guarantee full compatibility, at all times, between the silicone and Lacobel T or Matelac T paint.

All the FIX-IN system components have been standardised to ensure that the glass adheres properly to the substrate. For good results it is necessary to respect the product expiration dates and storage conditions.

Before starting installation, read the recommendations for use of the FIX-IN components (particularly regarding the quantities of silicone and tape to be used per m²).

A complete FIX-IN Installation Guide, technical datasheets (TDS) and material safety datasheets (MSDS) can be downloaded from www.agc-yourglass.com (FIX-IN brand description) or from www.agc-store.com.

Make sure to comply with local regulations when using the AGC FIX-IN system.

AGC recommends using transparent FIX-IN SL silicone in combination with FIX-IN AT double sided adhesive tape (both always applied in vertical strips), to allow:

- minimal correction during setting,
- ventilation for correct silicone curing and condensation elimination on the back of the glass pane,
- initial tack during the first 48hrs of the installation.

Recommendations⁽²⁾:

- Prior to installation of Lacobel T or Matelac T, AGC recommends painting the entire wall in a uniform colour to ensure a uniform glass appearance after installation.
- Lacobel T Crisp White and Matelac T Crisp White are not fully opaque and can therefore not be glued. AGC recommends painting the complete wall/substrate in a uniform white colour, before mechanically installing. When silicone bonding is the only option to install the glass, please choose Lacobel T Cool White or Matelac T Cool White instead of Crisp White to avoid visible fixing points.
- Sealing the joints prevents water from penetrating to the rear of the glass and is absolutely vital in humid environments. Joints should be 3mm wide⁽³⁾.
- Prior to installation, AGC suggests to paint the glass junction areas on the support in the same colour as the glass, to avoid colour differences with the base colour of the support that might become visible through the FIX-IN SL transparent silicone.
- In case of use of adhesive products other than FIX-IN ones, AGC suggests to carefully read in advance the recommendations for use supplied by the manufacturer.
- AGC recommends using several smaller pieces of tape rather than one single length.

- (1) *against paint discoloration, peeling or cracking.*
- (2) *If the above-mentioned recommendations for use are followed, no traces of silicone will become visible through the glass, on the condition that Lacobel T / Matelac T has been heat treated as set out in AGC's Lacobel T / Matelac T Processing Guide.*
- (3) *All expansion joints and sliding joints in the building must be respected. If there is an expansion joint behind the glass installation, the glass structure also needs a joint at the same place and having the same properties.*

1.4.3 Mechanical fitting

If using a **frame** to fit your Lacobel T or Matelac T glass, you should:

- use setting blocks and spacers to prevent contact with the frame;
- avoid contact between the Lacobel T or Matelac T and hard and/or brittle elements such as metals and porcelain.

Using metal clips and/or screws

If using **metal clips and/or screws** to fit your glass, you should:

- insert a spacer between the clip and the glass;
- avoid contact between the Lacobel T or Matelac T and hard and/or brittle elements such as metals and porcelain.

II. EXTERIOR INSTALLATION – Facade applications



1. INTRODUCTION

Lacobel T and Matelac T are high-quality decorative glass products with the best safety standards (if EN 12150) for single layer glass available today, intended for exterior (as well as interior) use. Its opaque quality is obtained by applying high-quality enamel paint to the rear of the glass.

Highly prized by the building industry, architects and designers, this glass range comes in a vast array of colours. Used as wall covering, they provide an interesting alternative to traditional building envelope solutions such as brick masonry, concrete, fibre cement boards and timber cladding.

The use of Lacobel T or Matelac T with backlighting is not recommended, as the product is not designed for this kind of application. Please contact your local AGC agent for an alternative product for such applications.

Projects: to ensure a uniform appearance and colour across a given project, AGC recommends using Lacobel T or Matelac T glass made from a **single production batch, heat treated on the same furnace, and to ensure a uniform direction of roller-wave throughout the project** (from cutting to installation).

2. EXTERIOR INSTALLATION GUIDE

Lacobel T and Matelac T can only be used in building applications with observation only in reflection.

Building applications where observation in transmission can occur are excluded.

Hence, Lacobel T and Matelac T are not suitable for applications where the glass is back-lit (neither naturally, nor artificially).

Please contact your local AGC agent for an alternative product for such applications.

2.1 Basic principles

Glass installers must:

- ensure that the products used for setting blocks and tightening the assembly are compatible with the glazing and with each other;
- install the glazing in accordance with regulations, standards and codes of good practice in force and also with specific instructions issued by AGC;
- avoid any factor that is likely to damage the glazing through stress, scratches or corrosion caused by use of unsuitable products during assembly or maintenance.

Architects and project engineers must ensure that:

- the correct dimensions are used for glazing in accordance with maximum manufacturing sizes and weight dimensions;
- the loads and stresses to which the glazing is subjected are in accordance with the performance required;
- the national standards and regulations and Eurocode essential requirements concerning mechanical resistance and stability, safety in case of fire, hygiene, health and environment, safety in use, protection against noise – acoustic insulation, energy economy and heat retention, ... are respected;
- adjacent construction components allow for maintenance, repair and, if necessary, replacement of the glazing and joints at a low cost.

2.2 Thickness of Lacobel T and Matelac T

The thickness of the Lacobel T and Matelac T glazing used, depends on the loads and stresses to which it is subject:

- facade glazing (i.e. inclined at a maximum of angle of 15° from the vertical): wind
- roof glazing: wind, snow, maintenance loads and proper weight.

To determine loads, the principal will refer to standards and regulations or good practices in force in the construction sector and define the specific factors that need to be considered (e.g. height and shape of building or the location of the construction site).

These criteria are used to establish the thickness of the glazing required.

The thickness of the float glass sheet also has a slight impact on the colour, possibly resulting in colour variations. Consequently, using different thicknesses of glass next to each other should be avoided.

2.3 Single glazing - spandrels

When used in conjunction with vision glass, **spandrels** give the appearance of an 'all glass' facade.

Spandrel colours can be chosen to create harmony or contrast, as desired.

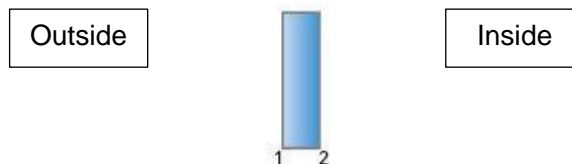
Choosing the right spandrel to go with a given vision glass is not always easy, which is why we recommend that the architect, contractor and glass professional work together to find the best solution.

Spandrels can be either ventilated or non-ventilated. AGC only recommends the **ventilated type** for single glazing Lacobel T or Matelac T used in spandrels. Presence of water in contact with the enamel paint coating must be avoided.

For general recommendations on correct setting of glass, please refer to AGC's Technical Brochure "Glazing Instructions – Traditional Setting" on www.agc-yourglass.com.

Lacobel T and Matelac T can be used in single-glazing facades, as **spandrel application, with insulation behind the spandrel**. Insulation on the rear side cannot be bonded onto the glazing. In no case the Lacobel T or Matelac T single glazing units shall be visible from inside the building, to **avoid observation in transmission**.

The following restrictions count for the position of the Lacobel T painted surface.



	Position of the painted surface	
	1	2
Lacobel T	KO	OK
Matelac T	KO	OK

NOTE:

- Position 1 is facing the outside of the building; position 2 is facing the inside of the building.
- The thickness of the single glazing pane must be **at least 6mm**.

Lacobel T or Matelac T single glazing spandrels can also be fixed by means of **mechanical fixations**. In no case the single glazing units shall be visible from inside the building, to **avoid observation in transmission**.

Concerns mechanical fixings:

- positioned on the edge of the glass
- positioned in drilled holes (eventually chamfered)
- Or a combination of points above.

It is up to the manufacturer to calculate the resistance of the Lacobel T or Matelac T glass elements with respect to the ruling loads (proper weight, wind, snow, maintenance load, or other) and the chosen fixation system.

The calculated deflection and stress should comply to the prescribed maximum values as indicated in the national building standards and codes.

Over the life-cycle of the installed Lacobel T and Matelac T, the weathering and ageing of the mechanical fixations can in no way lead to a loss in fixation performance neither lead to additional loads and strains resulting in the collapse if of the mechanical fixation system or breakage of the Lacobel T or Matelac T.

2.4 Insulating glazing - spandrels

Lacobel T and Matelac T can be **assembled in insulating glazing units**, but **only for spandrel applications**.

In no case the insulating glazing units shall be visible from inside the building, to **avoid observation in transmission**.

DGU's (double-glazed units) are commonly used for spandrel glazing, however TGU's (triple-glazed units) are not allowed for spandrel glazing.

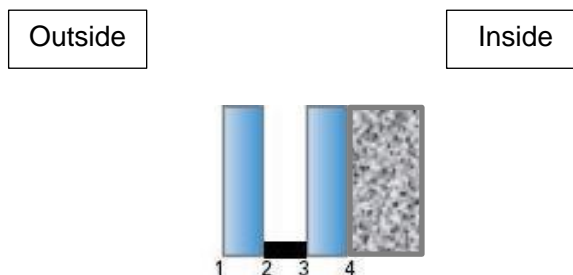
Spandrels can be either ventilated or non-ventilated. AGC only recommends the **ventilated type** for insulated glazing used in spandrels. Presence of water in contact with the enamel paint coating must be avoided.

National or local regulations for the use of DGU as spandrels might apply. It is under the sole responsibility of the glass installer to:

- communicate these regulations to AGC when ordering a glass product,
- ask for a technical approval from AGC's Technical Advisory Services (AGC TAS),
An assessment on the maximum temperatures reached by each constituent material of the insulating glazing is needed. The obtained values shall not exceed the maximum values as mentioned in the respective technical data sheets delivered by the manufacturers of the various constituent materials.
- comply with any existing local standards or rules (i.e. in France, IGU is not allowed for spandrels).

For general recommendations on correct setting of glass, please refer to AGC's Technical brochure "Glazing Instructions – Traditional Setting" on www.agc-yourglass.com .

Lacobel T and Matelac T can be assembled in insulated glazing units (DGU) with the following restrictions on the position of the painted surface.



	Position of the painted surface in the double-glazed unit			
	1	2	3	4
Lacobel T	KO	OK	KO	OK ⁽¹⁾⁽²⁾
Matelac T	KO	OK	KO	KO

(1) Be aware that temperatures inside the DGU can raise, as well as the temperature of the inner pane of the DGU, due to the coloured surface of Lacobel T or Matelac T. The installer needs to take precautions in order to avoid burns for the final user, caused by touching the inner pane. This phenomenon is mostly noticeable when a low-e coating is placed in front of the Lacobel T or Matelac T glass.

(2) In no case the insulating glazing units shall be visible from inside the building, to avoid observation in transmission.

NOTE:

- Position 1 is facing the outside of the building; position 4 is facing the inside of the building.
- No edge deletion of the paint is needed for purpose of assembly in DGU.
- For the EU, all heat treated glass, like Lacobel T and Matelac T must be CE marked. In accordance with EU-regulations, all the requirements set out by these standards (ITT, FPC, etc.) must be met by the processor.
- In case a DGU is used for spandrel applications, **both glass panes need to be heat treated (EN 12150 for the Lacobel T and Matelac T)**, and a **silicone secondary sealant** should be used.
- The thickness of the external pane must be **at least 6mm**.

2.5 Structural glazing, primary and secondary sealing

Where the painted surface is in contact with the DGU sealant, the **compatibility** of the DGU primary and secondary sealants with the enamel paint and all installation accessories (such as gaskets, frames, glazing beads,...) shall be approved on a case by case basis **by the sealant supplier**.

Structural Glazing (single glazing and DGU spandrels):

Refer to the AGC Technical Brochure “Structural Glazing” on www.agc-yourglass.com

AGC recommends only the use of **supported structural glazing systems**.

If local regulations for structural glazing apply, **retaining devices** to protect against glass fall-out might be necessary.

The responsibility for the design of the structural glazing joint (“joint bite h” and “glueline thickness e”) is apportioned to the structural silicone sealant supplier. Calculations should be done according to technical guideline **ETAG-002** (or any other local standard, i.e. ASTM C1184) in function of dynamic load (i.e. wind load), dead load, thermal dilatation,...

Regardless of any calculated value, AGC recommends a **“glueline thickness” of minimum 6mm** and a ratio “joint bite h: glueline thickness e” of minimum 1:1 and maximum 3:1.

Silicone is the **only adhesive recommended for Lacobel T and the painted side of Matelac T in structural glazing applications***.

The **adhesion** of the silicone adhesive with both frame and Lacobel T or Matelac T glass **depends on the state of the surface**. The frame and Lacobel T or Matelac T glass must be dry, clean and treated accordingly (i.e. industrial glass washing machine, or cleaner and/or primer). If necessary, grease will need to be removed from the surfaces to be bonded. Cleanliness during work is vital, as certain adhesives can occasionally leave traces that are difficult to remove once they have polymerized.

AGC Glass Europe recommends using **Dow Corning’s DC993 as a structural silicone adhesive**.

DC adhesives: mandatory use of Dow Corning primer 1200 OS after preliminary cleaning of the Lacobel T or Matelac T surface with Dow Corning cleaner R40 for Lacobel T/ Matelac T ref 5813 Misty White and ref 5713 Light Green.

Sika adhesives: a cleaner/surface activator can be used on the Lacobel T or Matelac T surface, such as Sika Cleaner-P or Sika Aktivator-205.

Primary and secondary sealing of DGU’s for spandrel application.

Sealant	Recommended Sealant Type		Manufacturer
Primary	Polyisobutylene (PIB)	Butylver	Fenzi
Secondary	Silicone	DC3362	Dow Corning
Secondary	Silicone	IG-16	Sika
Weatherseal	Silicone	DC791	Dow Corning

Attention:

- The compliance of the DGU’s to the CE- / CPR- requirements and the chemical compatibility are under the sole responsibility of the DGU processor, including testing and certification.
- **Lacobel T and Matelac T Crisp White are not fully opaque.** There is a possibility to see the black sealing, in reflection, through the outer glass pane of the DGU.

2.6 Cleaning and maintenance – facade glazing

For general cleaning and maintenance instructions, AGC recommends consulting our AGC “Cleaning and Maintenance Guide – Facade Glazing” on www.agc-yourglass.com .

III. Touch-up paint

Small scratches and damages on the painted side of the glass due to handling, processing or installation can be repaired using AGC’s FIX-IN TU Touch-up paint for standard colours, available at www.agc-store.com.

**The mat side of Matelac T should never be used for structural glueing.*

IV. DISCLAIMER

This document gives recommendations on how to maximize quality installation of the product. AGC Glass Europe provides the information in this document for advisory purposes only. The customer/user is solely responsible for using this advice.

The content of this Installation Guide reflects our knowledge and experience at the time of publication. Every version of the Installation Guide bears a reference to its publication date. The newest version of the Installation Guide replaces all previous versions. Customers should be aware that the newest version may contain technical changes that must be taken into account when using AGC glass products. The latest version or a different language version of the Installation Guide and our Warranty terms may be consulted on www.agc-yourglass.com or obtained from your local AGC representative. Customers should always check whether an updated version of the Installation Guide is available before using AGC glass products.

AGC's warranty on glass products shall only apply if the latest version of this Installation Guide, which may be updated from time to time, is used by the customer and if all relevant requirements, standards and regulations have been taken into account by the customer for the use of the glass products. AGC has made every effort to ensure the accuracy of the information in this Installation Guide, but it cannot be held liable for any oversights, inaccuracies or typographical errors.

Customers and glass fitters can always contact AGC's Technical Advisory Services (TAS) for further assistance if required. The glass fitter is entirely responsible for the final application, including the installation of the glass and the compatibility between the different materials used. AGC Glass Europe accepts liability for the product it supplies and for its general sales conditions.

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