



Your Dreams, Our Challenge

LACOBEL[®]T MATELAC[™]T

INSTALLATION GUIDE FOR EXTERIOR APPLICATION

VERSION 1.2 – JUNE 2019

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

Developed by AGC Glass North America for the North American market

WARNING

Carefully read this manual before cutting and installing Lacobel T & Matelac T products.

Important Preliminary Instructions

Lacobel T and Matelac T products should be processed by an AGC Qualified Fabricator of Lacobel T and Matelac T.

Product – Lacobel T and Matelac T **MUST BE** heat treated (thermally tempered according to ANSI Z97.1 or heat strengthened according to ASTM C1048) before installation.

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 representative for an alternative product for such applications.

Product – All Lacobel T and Matelac T colors can be used in humid environments (kitchens, bathrooms, etc.) but should not come in contact with water for a prolonged period of time.

Enamel quality – The quality (correct “fusing”) of the enamel **MUST BE** checked before installation. A simple way to achieve this is to touch the enameled side with a wet finger. No wet stain may be visible from the glass side. No variation in color along the piece may be observed from the glass side.

Enamel quality – Ensure that the paint on the rear of the Lacobel T and Matelac T glass has not been scratched during the cutting and assembly process.

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. AGC recommends minimum 1/4" (6mm) thickness for interior wall cladding (panels > 11ft²). For exterior facade applications, the thickness of the Lacobel T and Matelac T glass depends on the loads and stresses to which it is subject. Installation should meet all recognized glass standards and specifications as well as compliance to building codes.

Substrate preparation – Both glass and support have to be clean and dry. Do not install glass onto supports with porous surfaces without a primer pre-treatment. For adhering without primer, please contact your adhesives supplier. Before interior installation, AGC suggests painting the wall in the same color as the glass on the glass junction areas to avoid color differences that might be seen through the transparent joints.

Installation – For exterior applications, always use adhesives recommended by AGC and follow exactly the instructions supplied by the adhesive manufacturer (particularly regarding the quantities of adhesive to be used per ft²). The use of any other adhesive not validated by AGC is the sole responsibility of the user/customer.

Safety – The use of safety gloves and appropriate personal protective equipment is strongly recommended during all operations, handling and setting of the glass.

LACOBEL[®] T & MATELAC[™] T

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I. PRODUCT: LACOBEL T AND MATELAC T

This guide sets out AGC recommended installation procedures for Lacobel T and Matelac T glass. Lacobel T and Matelac T are two opaque float glass ranges that are meant to be tempered. Their opaque quality is obtained by applying high-quality temperable paint to the rear of the glass. The difference between the two lies in their appearance: Lacobel T is reflective (temperable paint + float) while Matelac T has a satin matte finish (temperable paint + acid-etched float).

Correct installation is critical in ensuring the **correct appearance of the glass** – by preventing shadows and color variations caused by the surface to which the glass has been installed. Before it is used in any application or installation Lacobel T and Matelac T **must be heat treated** (either heat strengthened according to ASTM C1048 or thermally tempered according to ANSI Z97.1). See recommendations in the Lacobel T and Matelac T fabricating guide, available on www.agcglass.com.

Thermally tempered glass can be classified as safety glass according to ANSI Z97.1.

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 representative for an alternative product for such applications.

Due to the **roller-wave effect** created by the heat treatment process, cutting should be done in a way that roller-waves on the final installed Lacobel T and 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 colors are fixed during the heat treatment process.

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

The content of this guide reflects our knowledge and experience at the time of publication. Customers and glass installers can always contact AGC's Technical Services for further assistance if required. The glass installer is entirely responsible for the final application, including the installation of the glass and the compatibility between the different materials used.

II. EXTERIOR INSTALLATION – Facade applications

If you are looking for a recommendation for interior use (wall cladding), please consult the Lacobel T AND Matelac T Interior Installation Guide.

1. Introduction

Lacobel T and Matelac T are high-quality decorative glass products, offering the best safety standards for single-layer glass intended for exterior (as well as interior) use available to date. 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 colors. Used as wall covering, they provide an interesting alternative to traditional building envelope solutions, such as, brick masonry, concrete, fiber cement boards and wood cladding.

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



Projects: to ensure a uniform appearance and color across a given project, AGC recommends using Lacobel T and Matelac T glass made from a **single production batch, heat treated on the same furnace, helping 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 representative 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, as well as with each other
- Install the glazing in accordance with the 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. This can be 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
- Installation should meet all recognized glass standards and specifications, as well as compliance to building codes
- 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 angle of 15° from the vertical): wind loads
- Roof glazing: wind, snow, maintenance loads and proper weight

To determine loads, the principal will refer to glass standards and specifications, as well as compliance to building codes, 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 may also impact the color, possibly resulting in color 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 colors 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 the GANA Glazing Manual.

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 apply to the position of the Lacobel T or Matelac T painted surface.

		Position of the painted surface	
		1	2
Outside	Inside	LACOBEL T	MATELAC T
1	2	NO	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 1/4" (6mm)**.

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

Mechanical installation considerations:

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

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

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



Over the life-cycle of the installed Lacobel T or Matelac T, the weathering and aging of the mechanical installations can in no way lead to a loss in fixation performance, nor lead to additional loads and strains, resulting in the collapse 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 insulated glass units, but only for spandrel applications.

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

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

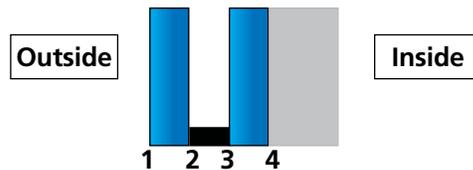
Spandrels can be either ventilated or non-ventilated. AGC only recommends the **ventilated type** for insulated glass used in spandrels. Presence of water in contact with the enamel paint coating must be avoided.

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

- Complete an assessment on the maximum temperatures reached by each constituent material of the insulating glazing. 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 building codes.

For general recommendations on correct setting of glass, please refer to GANA's Glazing Manual.

Lacobel T and Matelac T can be assembled in insulated glass units (IGU) 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	NO	OK	NO	OK⁽¹⁾⁽²⁾
MATELAC T	NO	OK	NO	NO

(1) Be aware that temperatures inside the IGU can raise, as well as the temperature of the inner pane of the IGU due to the colored 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 insulated glass 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 IGU
- In case an IGU is used for spandrel applications, **both glass panes need to be heat treated** and a **silicone secondary sealant** should be used
- The thickness of the external pane must be **at least 1/4" (6mm)**

2.5 Structural glazing, primary and secondary sealing

Where the painted surface is in contact with the IGU sealant, the **compatibility** of the IGU 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 IGU spandrels):

- AGC recommends only the use of **supported structural glazing systems**
- If local building codes or 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 ASTM C1184 in function of dynamic load (i.e. wind load), dead load and thermal expansion.
- Regardless of any calculated value, AGC recommends a **"glueline thickness" of minimum 1/4"** 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 North America recommends using the following list of silicones for exterior installation:

Supplier	Adhesive	Cleaner	Primer
Dow® Chemical	Dowsil™ 795 ¹	Dowsil™ R40 Cleaner	Dowsil™ C OS Primer Dowsil™ 1200 OS Primer
Dow® Chemical	Dowsil™ 995 ¹	Dowsil™ R40 Cleaner	Dowsil™ C OS Primer Dowsil™ 1200 OS Primer

¹ Structural glazing applications will need to have required adhesion testing performed and approved by Dow

***The matte side of Matelac T should never be used for structural glazing.**

Primary and secondary sealing of IGU's for spandrel application

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

Attention: 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 IGU.

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III. DISCLAIMER

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

The content of this document 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 of the Installation Guide and AGC'S Limited Warranty terms and conditions can be located at www.agcglass.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.

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Customers and glass installers should contact AGC's Technical Services if further assistance is required. The glass installer is entirely responsible for the final application, including the installation of the glass and the compatibility between the different materials used.

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