



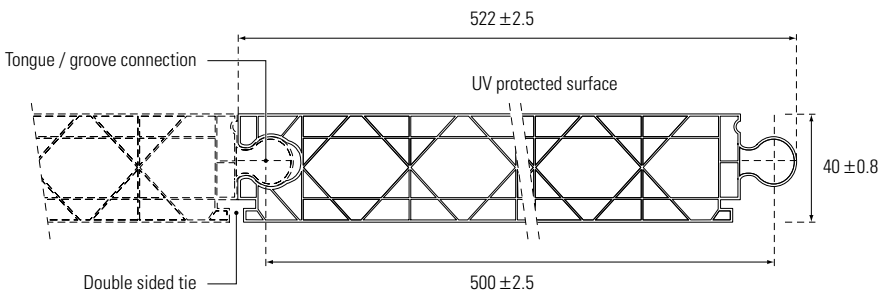
Data Sheet - Installation Guide

Lexan® Thermoclick™ Sheet system LTC40/4X4000

Introduction

Lexan® polycarbonate is a unique engineering thermoplastic which combines a high level of mechanical, optical and thermal properties. When extruded in multi-wall sheet form, its optical and impact properties in particular render this material a strong candidate for a wide range of glazing applications.

Lexan® Thermoclick™ sheet system, LTC40/4X4000, is an impact resistant, energy- saving multi-wall sheet with profiled tongue and groove connection, joint cover on the outside and groove for double sided tie on the inside.

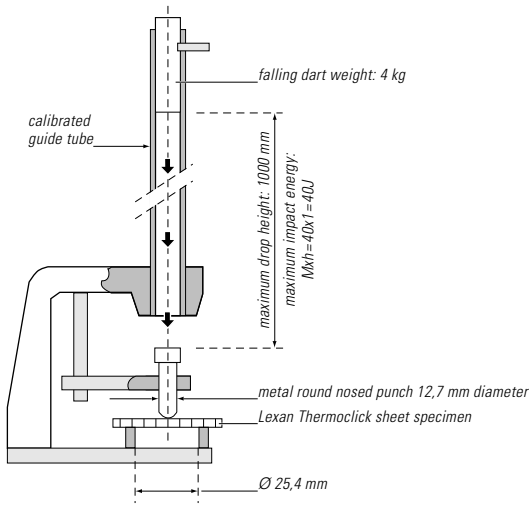


Lexan Thermoclick sheet LTC40/4X4000 offers:

- Unique four wall plus X structure
- UV protected surface
- Good light transmission/light diffusion characteristics
- Extremely high stiffness
- Excellent thermal insulation
- High impact strength
- Long-term weather resistance
- Easy and fast installation

Property Profile LTC40/4X4000		Test Method
Panel width	c.t.c. 500 ± 2.5 mm	
Standard length	≤ 6 meter +0-20 mm >6 meter +0-30 mm	
Panel thickness	40 mm ± 0.8 mm	
Weight	4 kg/m ² ± 5%	
Gardner impact	≤ 40 joules	
Temperature resistance	-40 up to +100°C	UL 746 B
K-Value	1.5 W/m ² ·K, ± 0.1	NEN2444
Sound insulation	≤ 21dB	DIN 52210-75
Coefficient of linear thermal expansion	7 x 10 ⁻⁵ 1/C	DIN 53752
Colour	Transparent	
Light transmission	40% ± 5%	ASTM D1003
Solar transmission	56% ± 3%	DIN 67507





Lexan Thermoclick sheet is backed by a Ten Years Limited Warranty covering loss of strength or impact performance due to weathering.

Impact Strength

Lexan Thermoclick sheet has outstanding impact performance over a wide temperature range of -40°C to +100°C. The product has been shown capable of withstanding the extremes of weather: storms, hail stones, snowfall, and ice formation.

When tested according to the Gardner falling dart impact test, the maximum impact energy of 40 joules does not show any visible signs of surface cracks.

Light Transmission

Transparent Lexan Thermoclick sheet has a light transmission value of 40% ±5% Lexan. Thermoclick is almost opaque to radiation in the UV region which helps prevent discoloration of sensitive and valuable materials placed under or behind LTC40/4X4000.

Colour	transparent
Light transmission	40% ±5%

UV Protection

Lexan Thermoclick sheet has one proprietary UV protected surface to help protect the system against the degrading effects of ultra violet radiation of sunlight and promotes long-term optical quality under all kind of severe weather conditions. This UV protected surface, indicated on the masking, should always face outwards.

Limited Warranty*

GE Structured Products offers a Ten Year Limited Warranty on Lexan Thermoclick sheet covering :

Loss of light transmission <6% according to ASTM D 1003

Yellowness index delta <10 points according to ASTM D 1925

No breakage during hail-storm creating hail-stones at 20mm diameter at a fall speed of 21m/s.

* See specific warranty for details

Solar Control

Transparent Lexan Thermoclick sheet has excellent light diffusion characteristics which significantly reduce solar heat gain into the building and cut down the brightness of sunlight to a pleasing level.

Colour	transparent*
Solar transmission	56% ±3%
Shading coefficient	0.63

* Opal and bronze will be available on request.

Thermal Insulation

The multi-wall structure of Lexan Thermoclick sheet offers potential advantages where thermal insulation is a major consideration. The amount of energy transmitted through the material per square meter and per degree temperature difference, referred to as the K- or U - Value, is only 1.5 W/m²·K, ±0.1.

Temperature Resistance

Lexan Thermoclick sheet is characterised by its excellent retention of impact strength and stiffness at elevated temperatures, even over an extended period. Lexan Thermoclick sheet has a continuous use temperature rating of -40°C up to +100°C.

Fire Test Performance

Lexan Thermoclick sheet has good fire performance in accordance with national fire standards. More detailed information is available from GE Structured Products Service Centre or your local authorised dealer.

General Guide-lines

Storage

Lexan Thermoclick sheet should be stored and protected against atmospheric influences like sun, rain etc. Care should be exercised when handling and transporting Lexan Thermoclick sheet in order to prevent scratches on the panel surface and damage to the panel edges.

Sawing

Lexan Thermoclick sheet can be cut easily and accurately with most standard workshop equipment. This includes common circular, hand and hacksaws both with fine-toothed blades. The panel should be clamped to the worktable to avoid undesirable vibration and the saw dust should be blown out of the channels.

Pre- Installation Guide-lines

Thermal Expansion Allowance

Take into account a clearance of approximately 3 mm per linear meter between panel top edge and top glazing profile platform, and between the first and last panel side and side glazing profile platform. This thermal expansion clearance is already taken into account when using the special developed glazing profiles indicated in this chapter.

Sealing Recommendations

In order to minimize moisture build-up and dust contamination inside the channels, edge sealing of the open ended channels is very important. An anti dust impermeable tape and an anti condensation venting tape have been developed by the company Multifoil*. Both tapes are available from your local distributors' sales offices.

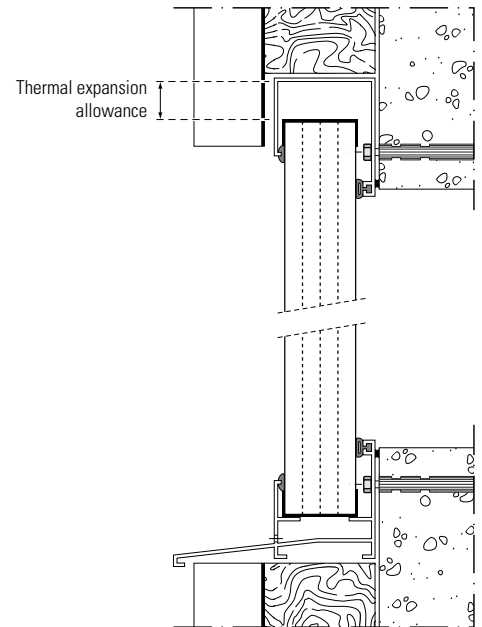
* Multifoil: Verl. Hoogravenseweg 63h, 3525 BB Utrecht, The Netherlands
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Standard glazing

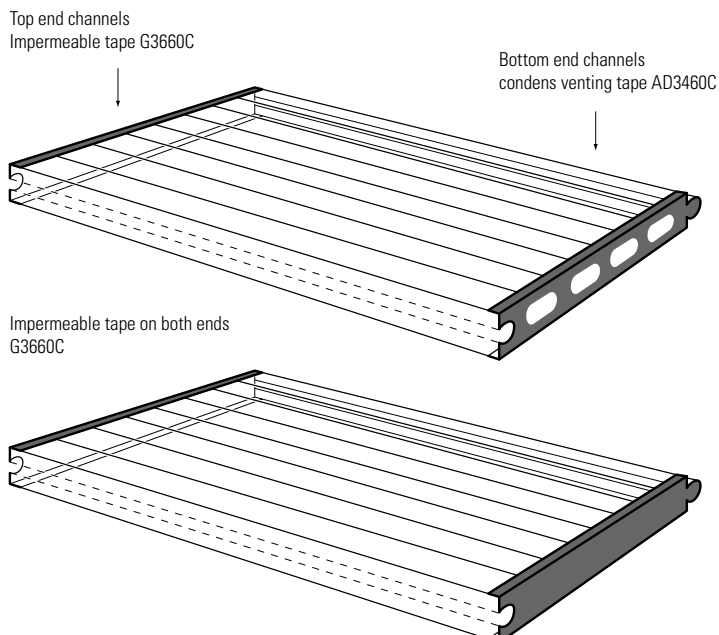
For standard glazing applications it is generally recommended to seal the top end channels with an impermeable tape (G3660C) and the bottom end channels with an anti condensation venting tape (AD 3460C). A clearance between the bottom panel end and the sash profile platform helps allow for condensation drainage.

Specific conditions

In extremely dusty environments such as saw mills, welding stations etc., it is usually advisable to seal both the top and bottom channel ends with an impermeable tape (G3660C).



Typical glazing detail
Thermoclick/alu glazing profile

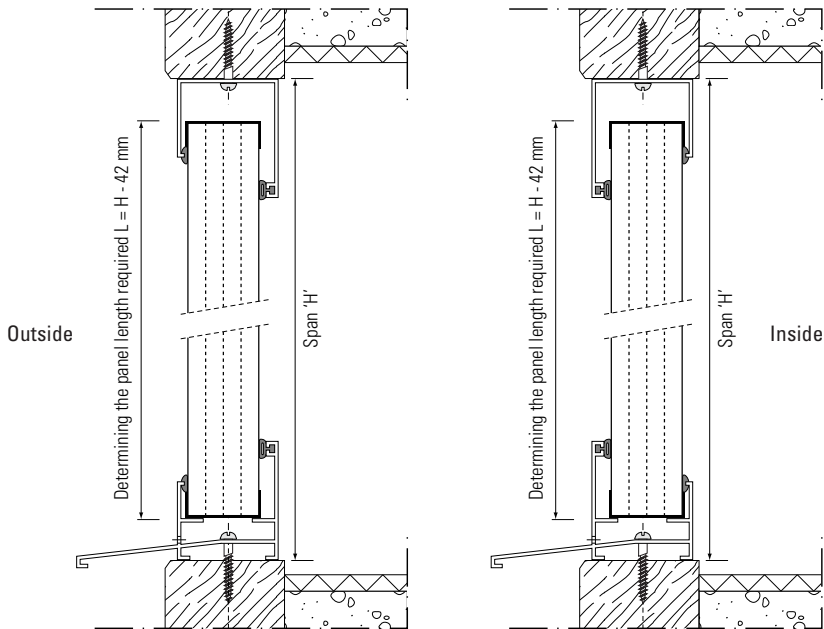


Vertical wall glazing

This chapter illustrates some glazing proposals using commercially available aluminum glazing profiles which have been proven to be successful in combination with Lexan Thermoclick panels.

A wide range of easy to use aluminum glazing profiles and metal fastener clips are available at the vast majority of approved Lexan Thermoclick distributors and specialized installers.

Lexan Thermoclick panels can be installed either from inside the building or from the outside.



Maximum Recommended Span 'H'

Wind pressure/wind suction, snow load in N/m ²	Maximum recommended span 'H' in mm
600	2500
900	2250
1200	2000

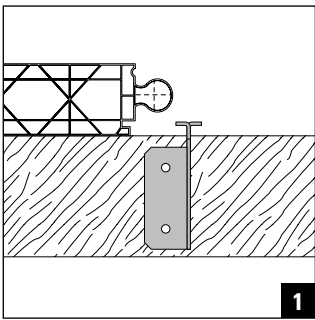
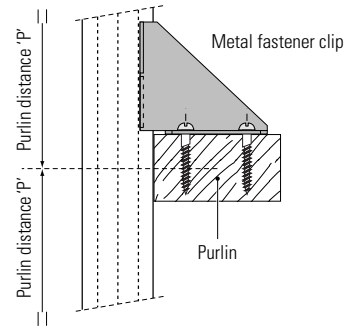
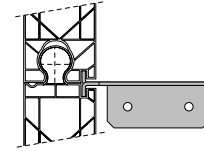
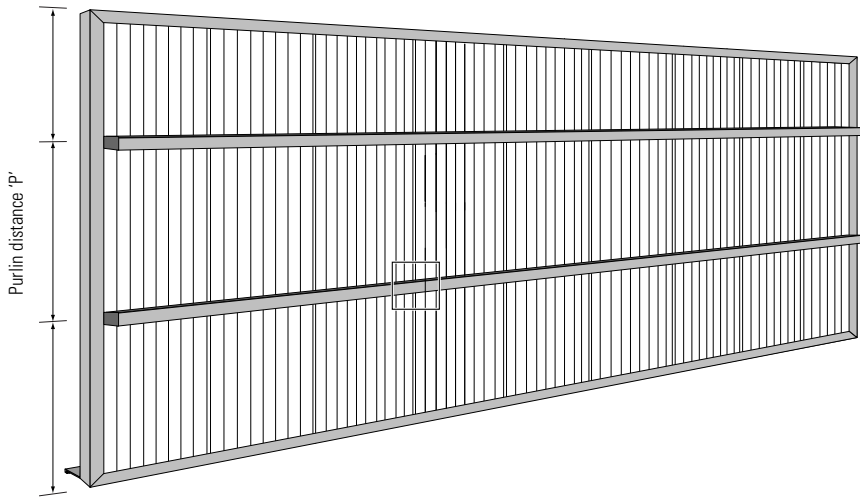
The above Table indicates the maximum recommended span at a specific loading which results in acceptable panel deflection behaviour minimal risk of buckling or pop-out effect calculated with sufficient safety factor.

Maximum Recommended Purlin Distance 'P'

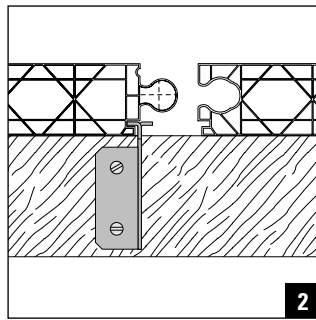
When the glazing height exceeds the maximum recommended span 'H', intermediate horizontal purlins should be used to support the Lexan Thermoclick sheet panel Lexan Thermoclick sheet may be fixed to these purlins using special non rusting metal fastening clips positioned in the double sided tie on both panel sides.

The distance between the horizontal intermediate purlins should not exceed the maximum recommended span dimensions 'P' as indicated in the Table below.

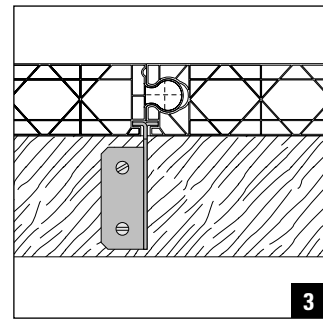
Wind pressure/wind suction, snow load in N/m ²	Maximum recommended span 'P' in mm
600	2000
900	1750
1200	1500



1



2



3

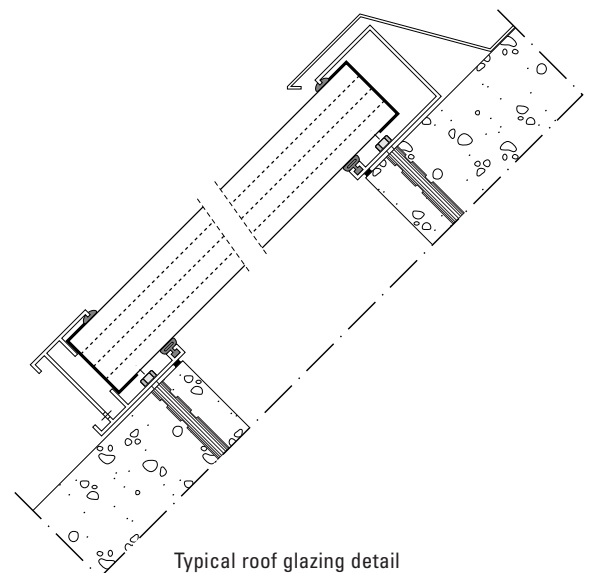
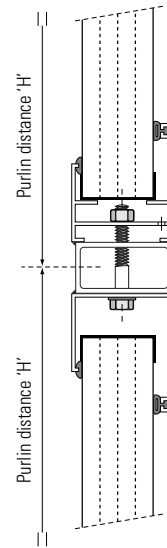
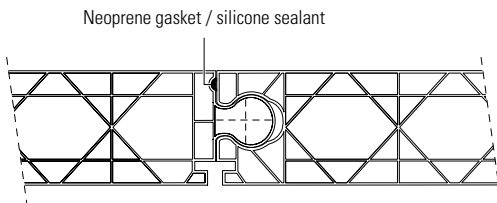
- 1 Slide metal fastener clip in place.
- 2 Bolt clip to purlin.
- 3 Slide and click next panel in place.

Alternative for connecting panels

Using the aluminum top and bottom glazing profiles, bolted to the intermediate purlins is a good alternative for connecting Lexan Thermoclick panels when the glazing height exceeds the maximum allowable span 'H'.

Roof glazing

For most sloped roofing applications a minimum slope of 10 degrees is advised to allow for rainwater drainage. A round neoprene gasket, or silicone sealant, for additional watertightness, can be applied into the groove between two panels.



Typical roof glazing detail

On roof constructions Lexan Thermoclick sheet may never be used to support a person's weight during installation or cleaning. A temporary wooden beam, supported by the roof structural members, should always be used.

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