



LEXAN™ THERMOCLEAR™ MULTIWALL POLYCARBONATE SHEET

Technical Manual for Americas



CHEMISTRY THAT MATTERS™

INDEX

PRODUCT AVAILABILITY	5
LEXAN polycarbonate resin	5
LEXAN MULTI-WALL SHEET	5
LEXAN THERMOCLEAR-PLUS™ sheet	5
LEXAN THERMOCLEAR SUNXP™ sheet	5
LEXAN THERMOCLEAR Easyclean sheet	5
LEXAN THERMOCLEAR Dripgard® sheet	5
LEXAN THERMOCLEAR Solar Control IR sheet	6
LEXAN THERMOCLEAR Solar Control sheet	6
LEXAN THERMOCLEAR Venetian sheet	6
LEXAN THERMOCLICK™ sheet	6
LEXAN MULTI-WALL SHEET STRUCTURES	7
LEXAN SHEET AVAILABILITY	8
LEXAN MULTI-WALL SHEET DESCRIPTIONS	9
LEXAN THERMOCLEAR SHEET AVAILABILITY	10
PROPERTY PROFILE	13
LEXAN multi-wall sheet	13
LEXAN THERMOCLEAR Venetian sheet	14
LEXAN THERMOCLEAR Solar Control sheet	14
LEXAN THERMOCLEAR Solar Control IR sheet	14
Typical properties for LEXAN polycarbonate	15
MECHANICAL PROPERTIES	16
Impact strength	16
Hail simulation	16
PHYSICAL PROPERTIES	17
Light transmission	17
SOLAR CONTROL PROPERTIES	18
Temperature increase inside the building	18
Solar control	18
Solar heat gain	18
OUTDOOR WEATHERING PERFORMANCE	20
UV protection	20
Typical values of THERMOCLEAR sheet	20
VARIOUS PROPERTIES	21
Temperature resistance	21
Dimensional stability	21
Continuous use temperature/UL ratings	21
Fire performance	21
Weight factors	21
Sound insulation	22

INDEX

THERMAL PROPERTIES	22
Thermal insulation	22
Overglazing	23
Double LEXAN multi-wall sheet units	23
Energy loss calculations	23
Cold radiation	24
CLEANING	25
CONDENSATION/CHEMICAL RESISTANCE	26
Condensation	26
Chemical resistance	26
GENERAL GUIDELINES	27
Storage	27
Handling	27
Sawing	27
Drilling	27
INSTALLATION	28
Thermal expansion allowance	28
Sheet edge clamping conditions	28
Dry glazing systems	29
Wet glazing systems	29
SEALING GUIDELINES	30
Edge sealing	30
Sealing tape	30
Standard glazing conditions	30/31
Specific glazing conditions	31
WIND AND SNOW LOADING	32
Dynamic wind pressure	32
Pressure coefficient	32
Snow loading	32
Computer aided sheet engineering	32
SHEET THICKNESS GUIDELINES	33
Support conditions	33
Safety factor	33
Sloped roofing	33
Site safety	33
FLAT GLAZING SHEET THICKNESS	34
Four sides clamped	34
Two sides clamped, glazing bars parallel with rib structure	35
Two sides clamped, glazing bars 90° to rib structure	37
CURVED GLAZING SHEET THICKNESS	38
Sheet thickness recommendations	38 – 41
SHEET GLAZING GUIDELINES	42
Do's and Don'ts	42

Specialty Film & Sheet

SABIC is a leading supplier of high performance engineering sheet products, serving customers around the world in a broad spectrum of applications. Our virtually unbreakable, lightweight, fire resistant LEXAN sheet portfolio made with Polycarbonate (PC) technology includes many structures, ranging from solid, multiwall and corrugated sheet. The company has integrated extrusion processes, surface texturing and coating technologies to provide value added solutions across a wide variety of industries. A well-established brand name for over 40 years, LEXAN THERMOCLEAR multiwall sheet is amongst the most extensive portfolio on the market today, offering hundreds of combinations of structures, coatings, colors and finishes.

At SABIC, we are dedicated to meet our customers' ever changing needs with our high performance LEXAN sheet portfolio. Our material solutions and services help our customers to reduce their system costs, create innovative designs and environmentally responsible materials. SABIC's ongoing investment in world-class technologies demonstrates our commitment to helping our customer's technical requirements, application development needs and business goals. Our product portfolio is backed by advanced technical support and application development services around the world to meet our customers' global specification needs with local supply.

SABIC ranks among the world's top petrochemical companies, and is a global market leader in the production of polyethylene, polypropylene, advanced thermoplastics, glycols, methanol and fertilizers. SABIC operates in more than 40 countries across the world with 33,000 employees worldwide. It has significant research resources with 18 dedicated technology and innovation facilities in Saudi Arabia, the USA, the Netherlands, Spain, India and China.

LEXAN Polycarbonate Resin

LEXAN resin is a polycarbonate, which is a unique engineering thermoplastic that combines a high level of mechanical, optical and thermal properties. The versatility of this material makes it a suitable candidate for many engineering applications. When extruded in sheet form, due to its excellent optical and impact properties, this material can be an excellent candidate for a wide range of glazing applications. SABIC has developed a whole range of products to suit the most demanding of these application needs.

Typical applications include:

- Industrial roofs and sidewalls
- Commercial greenhouses
- Sunroom, swimming pool and conservatory roofing
- Shopping center roofing
- Railway/Metro station
- Football stadium roofing
- Rooflights

LEXAN THERMOCLEAR Multiwall Sheet Portfolio

LEXAN THERMOCLEAR-PLUS sheet (LT2UV)

LEXAN THERMOCLEAR-PLUS sheet features a 4.5 mm thickness a unique 2 side proprietary surface treatment designed to protect the sheet against the degrading effects of ultra-violet radiation in natural sunlight. 2 sides UV protected surfaces offers advantage in economical cutting the sheet in desired shapes and installation mistakes are minimized since both sheet surfaces may be faced outwards.

LEXAN THERMOCLEAR SUNXP sheet (LT2XP)

LEXAN THERMOCLEAR SUNXP sheet offers next to remarkable impact strength, high light transmission, light weight, long term weather resistance and, due to the multi-wall construction, outstanding thermal insulation properties an even more unique 2 side proprietary surface treatment which provides almost total resistance against degradation caused by UV radiation in sunlight. The entire LEXAN THERMOCLEAR SUNXP sheet range carries a Fifteen Year Limited Written Warranty against discoloration, loss of light transmission and/or loss of strength due to weathering.

LEXAN THERMOCLEAR Easyclean sheet (LTE)

LEXAN THERMOCLEAR Easyclean sheet makes use of a new and innovative technology platform of self cleaning properties. The extraordinary hydrophobic coating on the outside surface reduces the surface tension of polycarbonate and increases the contact angle of water to the sheet this causes larger droplets to form and wash away dirt as the droplets roll down the sheet.

LEXAN THERMOCLEAR Easyclean sheet comes standard with a unique 2 side UV proprietary surface treatment but can be combined with Drippard property on the inner side of the sheet forming a unique combination of having a THERMOCLEAR sheet with self cleaning properties on the out side and a surface treatment on the inside which reduces the formation of condensation droplets to prevent loss of light transmission.

LEXAN THERMOCLEAR Drippard® sheet (LTD)

LEXAN THERMOCLEAR Drippard sheet, in addition to the extraordinary properties of standard 2 side UV resistant LEXAN THERMOCLEAR sheet, also features a specially developed coating on the inner surface which reduces the formation of condensation droplets. This property is particularly important in helping to prevent crop spoilage in commercial greenhouses, by falling condensation droplets. There is no reduction in light transmission due to condensation water droplets. It is the ideal roof glazing material in any application where water drops are unacceptable. For instance: greenhouses/verandas/sunrooms/ swimming pool enclosures/industrial roof glazing.

PRODUCT AVAILABILITY

LEXAN THERMOCLEAR Solar Control IR sheet (2UVIR)

LEXAN THERMOCLEAR Solar Control IR sheet makes use of a new and innovative technology platform of solar energy absorption. The LEXAN THERMOCLEAR Solar Control IR sheets are transparent with a green (GN), blue (BL) or grey (GY) tint, which blocks near-Infrared light but lets in high levels of visible light. LEXAN Solar Control IR multi wall sheet offers: high light transmission combined with low solar transmission, 2 sides unique UV protection, various structures (2/3/5/6/9 walls, X structures), long-term weathering resistance and high impact strength.

LEXAN THERMOCLEAR Solar Control sheet (LTC-SC)

LEXAN THERMOCLEAR Solar Control sheet features in addition to the extraordinary properties of standard LEXAN THERMOCLEAR sheet, a unique and specially developed Solar Control Coating at the non UV protected side of the sheet which reduces the heat build-up beneath the sheet. Despite the reduction of the heat build-up a high light transmission will remain. The excellent properties result in an agreeable comfort level inside the building.

LEXAN THERMOCLEAR Venetian sheet (LTC-VEN)

LEXAN THERMOCLEAR Venetian grades are members of the LEXAN THERMOCLEAR sheet range of high quality, multi-wall polycarbonate glazing sheets extruded from LEXAN resin. LTC Venetian is a multi-wall sheet which has been screen printed with white stripes on the non UV coated side. The white striped side should always be installed facing inwards, the other side, clearly identified as protected against UV, being installed facing outwards. Although the screen printed white stripes are mainly intended for additional decorative purposes, the belonging shadow effect results in an improved comfort level inside the building.

LEXAN THERMOCLICK sheet

LEXAN THERMOCLICK sheet is an X-structured multi wall polycarbonate panel with profiled tongue and groove connections. This inter-connecting system eliminates the need for vertical profiles, thereby saving costs and enhancing aesthetics. It is an ideal product to create flush profile-free facades in different colors and effects, this combined with the ease of installation and the variety in colors in particular render this panel highly suitable for facades and wall cladding. LEXAN THERMOCLICK sheet has a one side proprietary surface treatment designed to protect the sheet against the degrading effects of ultra-violet radiation in natural sunlight.

Typical applications include:

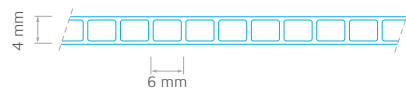
- Industrial Sidewalls
- Commercial Side walls Greenhouses
- Railway/Metro Station
- Interior decoration



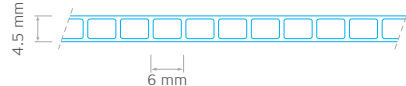
PRODUCT AVAILABILITY

LEXAN multi-wall sheet structures:

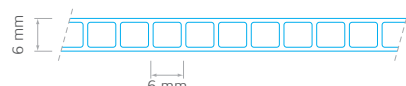
42RS Structure



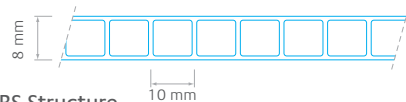
452RS Structure



62RS Structure



82RS Structure



102RS Structure



103RS Structure



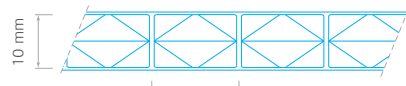
103TS Structure



105RS Structure



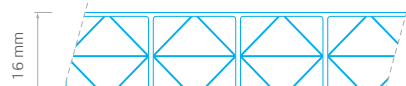
103X Structure



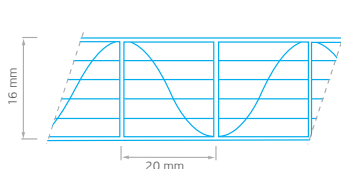
163TS Structure



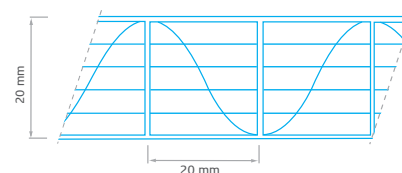
163X Structure



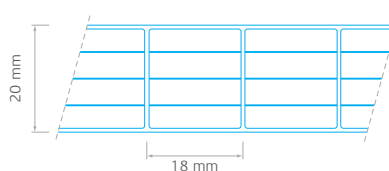
166RS Structure



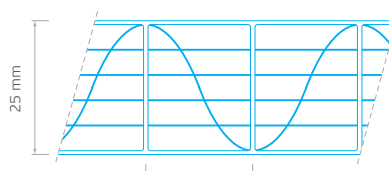
206RS Structure



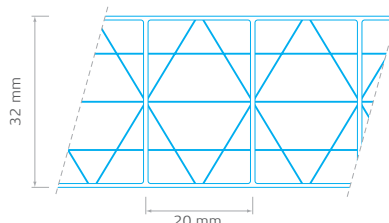
205RS Structure



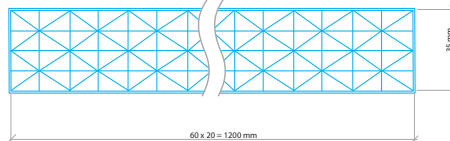
256RS Structure



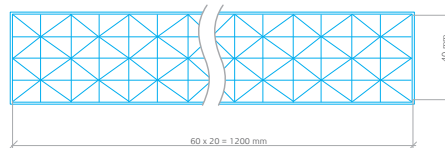
325X Structure



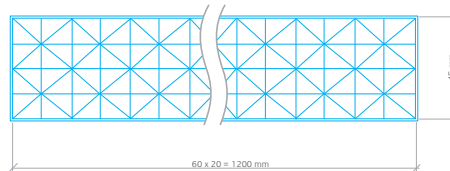
359X Structure



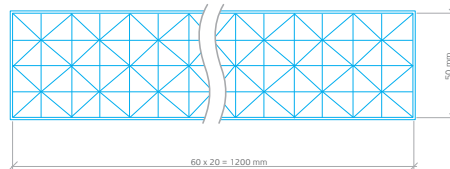
409X Structure



459X Structure



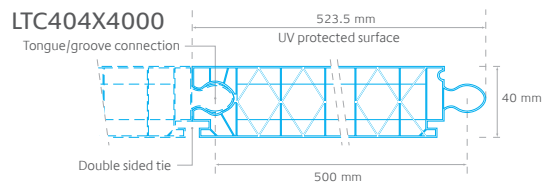
509X Structure



PRODUCT AVAILABILITY

LEXAN THERMOCLICK sheet

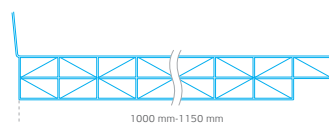
LEXAN THERMOCLICK sheet system is an impact resistant, energy-saving multi-wall sheet with profiled tongue and groove connection, joint cover on the outside and groove for double sided tie on the inside.



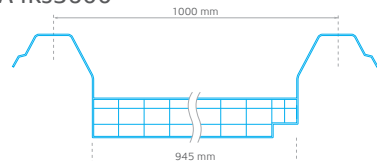
LEXAN THERMOPANEL™ sheet

LEXAN THERMOPANEL sheet is an impact resistant, energy saving multi-wall transparent sheet with calibrated multi form side wings matching any insulating corrugated metal panel. Its optical and impact properties in particular render this panel a strong candidate as roofglazing for insulated corrugated metal industrial buildings.

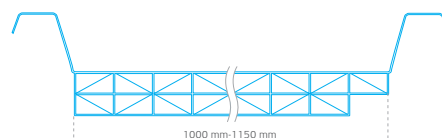
LTP30D3X3600



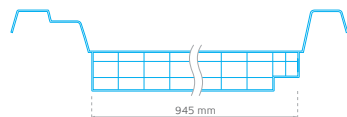
LTP30A4RS3600



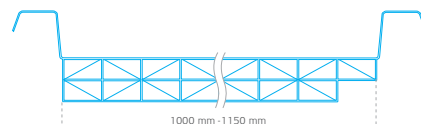
LTP30E3X3600



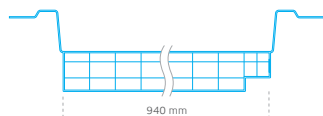
LTP30B4RS3600



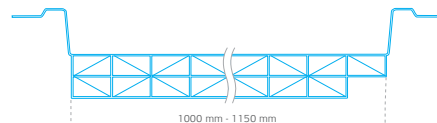
LTP30F3X3600



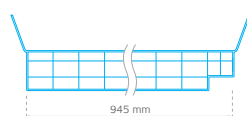
LTP30C4RS3600



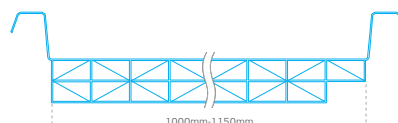
LTP30G3X3600



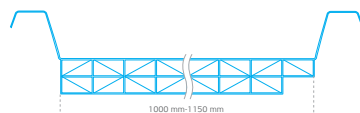
LTP30D4RS3600



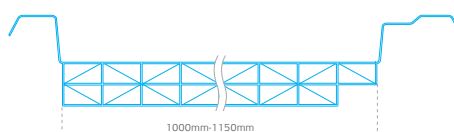
LTP30T3X3600



LTP30E4RS3600



LTP30V3X3600



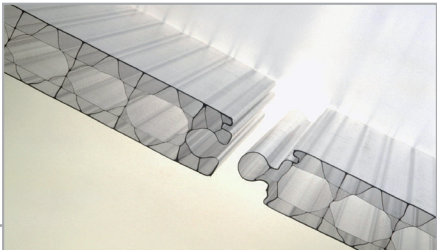
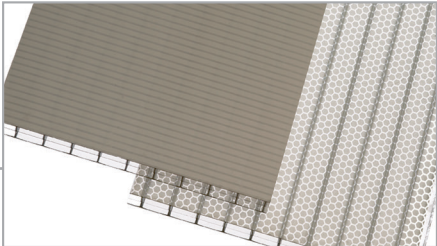
PROPERTY PROFILE

DESCRIPTION

LEXAN THERMOCLEAR/Drippgard/Plus sheet

LT(C)(D)(2UV)10(2)(3)(5)(6)(9)(RS)(TS)(X)17

LT(C)(D)(2UV)	LTC = LEXAN THERMOCLEAR sheet LTD = LEXAN THERMOCLEAR Drippgard sheet LT2UV = LEXAN THERMOCLEAR sheet 2 sides U.V. protected
10	Sheet thickness in mm
(2)(3)(5)(6)(9)	2 = double wall 3 = triple wall 5 = five wall 6 = six wall 9 = nine wall
(RS)(TS)(X)	RS = Rectangular structure TS = Tunnel structure X = X structure
17	17 = 1.7 kg/m²



LEXAN THERMOCLEAR Venetian/Solar Control Sheet

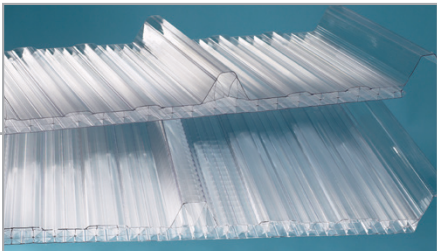
LTC 32(2)(3)(5)(6)(RS)(TS)(X)38(VENS)(SC)

32	Sheet thickness in mm
(2)(3)(5)(6)	2 = double wall 3 = triple wall 5 = five wall 6 = six wall
(RS)(TS)(X)	RS = Rectangular structure TS = Tunnel structure X = X structure
38	38 = 3.8 kg/m²
(VENS)(SC)	VENS = Venetian white stripes printed SC = Solar Control coated

LEXAN THERMOCCLICK Sheet

LTC40(4)(X)(4000)

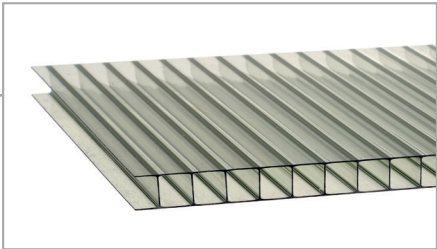
LTC	LTC = LEXAN THERMOCLEAR sheet
40	Sheet thickness in mm
(4)	4 = four wall
(X)	X = X structure
(4000)	Weight in g/m²



LEXAN THERMOPANEL Sheet

LTP30(A)(B)(C)(D)(E)(F)(G)(T)(V)4RS(4000)(3600)

LTP	LTP = LEXAN THERMOPANEL sheet
30	Sheet thickness in mm
(A)(B)(C)(D)	A, B, C, D = Type of corrugation
(E)(F)(G)(T)(V)	E, F, G, T, V = Type of wing configuration
(3x)(4RS)	4 = Four wall RS = Rectangular structure
(4000)(3600)	Weight in g/m²



LEXAN THERMOCLEAR Solar Control IR Sheet

2UV(IR)16(2)(3)(5)(6)(9)6RS(27)

2UV(IR)	2UV(IR) = LEXAN THERMOCLEAR Solar Control IR
16	Sheet thickness in mm
(2)(3)(5)(6)(9)	2 = double wall 3 = triple wall 5 = five wall 6 = six wall 9 = nine wall
6RS	6 = Four wall RS = Rectangular structure
27	27 = 2.7 kg/m²

PROPERTY AVAILABILITY

Table 1: Standard LEXAN THERMOCLEAR sheet products

Product code	Standard sheet width in inches.									
	19.69	37.20	38.58	39.37	41.34	43.31	45.28	47.24	49.21	82.68
LEXAN THERMOCLEAR-PLUS sheet										
LT2UV452RS10									X	X
LT2UV62RS13									X	X
LT2UV82RS15									X	X
LT2UV83TS17									X	X
LT2UV102RS17									X	X
LT2UV103RS19										X
LT2UV103TS17					X				X	X
LT2UV103TS20									X	X
LT2UV105R175									X	X
LT2UV163TS27									X	X
LT2UV163X29			X		X				X	X
LT2UV163TS28			X		X			X	X	X
LT2UV163X28			X						X	X
LT2UV206RS30			X						X	X
LT2UV205RS33									X	
LT2UV205X32			X						X	X
LT2UV256RS35			X						X	X
LT2UV325X38									X	
LT2UV359X40								X		
LT2UV409X43								X		
LT2UV459X45								X		
LT2UV509X48								X		

Standard sheet lengths: 6000 – 7000 mm

LEXAN THERMOCLEAR SUNXP sheet										
LT2XP452RS10									X	X
LT2XP62RS13									X	X
LT2XP82RS15									X	X
LT2XP83TS17									X	X
LT2XP102RS17									X	X
LT2XP103RS19										X
LT2XP103TS17									X	X
LT2XP103TS20									X	X
LT2XP103X20			X		X			X		X
LT2XP105R175									X	X
LT2XP163TS27			X		X			X	X	X
LT2XP163TS28			X		X				X	X
LT2XP163X29			X		X			X		X
LT2XP166RS27			X						X	X
LT2XP205RS33			X						X	X
LT2XP205X32									X	
LT2XP206RS30			X						X	X
LT2XP256RS35			X						X	X
LT2XP325X38									X	
LT2XP359X40								X		
LT2XP409X43								X		
LT2XP459X45								X		
LT2XP509X48								X		

Standard sheet lengths: 6000 – 7000 mm

PROPERTY AVAILABILITY

Table 1: Standard LEXAN THERMOCLEAR sheet products (Continued)

Product code	Standard sheet width in inches.									
	19.69	37.20	38.58	39.37	41.34	43.31	45.28	47.24	49.21	82.68
LEXAN THERMOCLEAR Easyclean sheet										
LTE452RS1000									X	X
LTE62RS13									X	X
LTE82RS15									X	X
LTE83TS17									X	X
LTE102RS17									X	X
LTE103RS19										X
LTE103TS17									X	X
LTE103TS20									X	X
LTE103X20			X		X			X		X
LTE105R175									X	X
LTE163TS27			X		X			X	X	X
LTE163TS28			X		X			X	X	X
LTE163X29			X		X			X		X
LTE166RS27			X						X	X
LTE205RS33			X						X	X
LTE205X32									X	
LTE206RS35			X						X	X
LTE256RS35			X						X	X
LTE325X38									X	
LTE359X40								X		
LTE409X43								X		
LTE459X45								X		
LTE509X48								X		
Standard sheet lengths: 6000 – 7000 mm										
LEXAN THERMOCLEAR Drippgard sheet										
LTD62RS13										X
LTD82RS15										X
LTD102RS17									X	X
LTD103TS17										X
LTD103RS19										X
LTD163TS28			X						X	X
LTD163X29								X		X
LTD205RS33									X	X
LTD256RS35									X	X
Standard sheet lengths: 6000 – 7000 mm										

PROPERTY AVAILABILITY

Table 1: Standard LEXAN THERMOCLEAR sheet products (Continued)

Product code	Standard sheet width in inches.									
	19.69	37.20	38.58	39.37	41.34	43.31	45.28	47.24	49.21	82.68
LEXAN THERMOCLEAR Solar Control IR sheet										
2UVIR62RS13									X	X
2UVIR82RS15									X	X
2UVIR102RS17									X	X
2UVIR105R175									X	X
2UVIR163TS27			X		X			X	X	X
2UVIR163X29			X		X			X		X
2UVIR166RS27			X						X	X
2UVIR205RS33			X						X	X
2UVIR205X32									X	
2UVIR325X38									X	
2UVIR359x40								X		
2UVIR409x43								X		
2UVIR459x45								X		
2UVIR509X48								X		
Standard sheet lengths: 6000 – 7000 mm										
LEXAN THERMOCLEAR Solar Control sheet										
LTC62RS13 SC										2100x6000
LTC102RS17 SC									1250x6000	2100x6000
LTC163TS27 SC			980x6000						1250x6000	2100x6000
LTC205RS33 SC			980x6000						1250x6000	
LTC256RS35 SC										2100x6000
LTC325X38 SC									1250x3500	
									1250x4000	
									1250x4500	
									1250x6000	
LEXAN THERMOCLEAR Venetian sheet										
LTC62RS13 VENS										2100x6000
LTC102RS17 VENS									1250x6000	2100x6000
LTC163TS27 VENS			980x6000						1250x6000	2100x6000
LTC205RS33 VENS			980x6000						1250x6000	
LTC256RS35 VENS										2100x6000
LTC325X38 VENS									1250x3500	
									1250x4000	
									1250x4500	
									1250x6000	
LEXAN THERMOCLICK sheet										
LTC404x4000	X									
Standard sheet length: 6000 – 7000 mm										
LEXAN THERMOPANEL sheet										
LTP30(A,B,C,D,E)4RS3600		X								
LTP30(A,B,C,D,E,F,G,T,V)3X3600				X	X	X	X			
Standard sheet lengths: 6000 – 7000 mm										
LEXAN THERMOCLEAR sheet										
LTC42RS800										X
Standard sheet length: 6000 – 7000 mm										

PROPERTY PROFILE

LEXAN multi-wall sheet products

Typical property values for:

LEXAN THERMOCLEAR-PLUS (LT2UV)

LEXAN THERMOCLEAR sheet (LTC)

LEXAN THERMOCLEAR Dripgard (LTD)

LEXAN THERMOCLEAR Easyclean (LTE)

LEXAN THERMOCLEAR SUNXP (LT2XP)

Table 2: LEXAN THERMOCLEAR sheet product selection

walls	grade name	gauge (inch)	weight (lbs/ft ²)	rib distance (inch)	ISO 10077 U value (BTU/ft ² hr F)	** LT clear 112 (%)	** LT opal white WH7A092X (%)	*** TST clear 112 (%)	*** TST opal white WH7A092X (%)
2-wall	LTC42RS800	0.16	0.164	0.24	0.697	83	67	83	70
	LT2UV452RS10	0.18	0.205	0.24	0.680	83	67	83	70
	LT2UV62RS13	0.24	0.266	0.24	0.627	82	66	82	69
	LT2UV82RS15	0.31	0.307	0.39	0.574	81	64	82	68
	LT2UV102RS17	0.39	0.348	0.39	0.532	81	64	80	68
3-wall	LT2UV83TS17	0.31	0.348	0.39	0.514	73	61	75	66
	LT2UV103TS17	0.39	0.348	0.39	0.472	73	61	75	66
	LT2UV103RS19	0.39	0.389	0.79	0.474	74	63	78	69
	LT2UV163TS27	0.63	0.553	0.79	0.400	74	63	78	69
X-structure 3-wall	LT2UV103X20	0.39	0.410	0.63	0.461	71	62	71	67
	LT2UV163X28	0.63	0.573	0.63	0.370	67	60	71	64
5-wall	LT2UV105R175	0.39	0.358	0.31	0.421	65	60	65	59
	LT2UV205RS33	0.79	0.676	0.71	0.312	64	55	71	60
6-wall	LT2UV166RS27	0.63	0.553	0.79	0.324	61	52	64	60
	LT2UV206RS30	0.79	0.614	0.79	0.284	61	50	64	61
	LT2UV256RS35	0.98	0.717	0.79	0.255	58	49	66	63
X-structure 5-wall	LT2UV205X32	0.79	0.655	0.79	0.298	58	50	66	51
	LT2UV255X34	0.98	0.696	0.79	0.266	57	49	65	54
	LT2UV325X38	1.26	0.778	0.79	0.232	55	48	65	48
Double X-structure 9-wall	LT2UV359X40	1.38	0.819	0.79	0.209	51	44	53	49
	LT2UV409X43	1.57	0.881	0.79	0.194	51	43	52	48
	LT2UV459X45	1.77	0.922	0.79	0.182	50	42	52	47
	LT2UV509X48	1.97	0.983	0.79	0.173	50	40	52	47
THERMOCLICK X-structure 4 wall	LTC404X4000	1.57	0.819	1.57	0.248	59	50	64	57
THERMOPANEL 4-wall	LTP30 (A,B,C,D,E)4RS36	1.18	0.737	0.79	0.335	68	62	68	68
THERMOPANEL X-structure 3-wall	LTP30 (A,B,C,D,E,F,G,V) T3X36	1.18	0.737	0.79	0.306	67	63	70	67

U-values based on SABIC-IP calculated values according ISO 10077 (EN673)

*** LT (Light Transmission) measurements according ISO 9050 (EN 410) on 600x600 mm samples

TST (Total Solar Transmission) measurements according ISO 9050 (EN 410) on 600x600 mm samples

PROPERTY PROFILE

Table 3: Typical properties for LEXAN THERMOCLEAR Venetian (LTC VEN) sheet

Sheet thickness inch	0.39	0.63	0.79	0.98	1.26
Structure	2RS	3TS	5RS	6RS	5X
Approx. weight lbs/ft ²	0.348	0.553/0.573	0.676	0.717	0.778
Clear code 112					
Light transmission**%	46	41	40	38	36
Total Solar transmission %	49	43	41	39	38
Shading Coefficient	0.65	0.62	0.60	0.65	0.52
U-value BTU/ft ² hr F	0.532	0.400	0.312		0.232
Sound insulation dB	19	21	22	23	24
Hail impact test Bullet 20 mm Velocity FT/sec	>69	>69	>69	>69	>69

*U-values based on SABIC-IP calculated values according ISO 10077 (EN673)

**LT (Light Transmission) measurements according ISO 9050 (EN 410) on 600x600 mm samples

#TST (Total Solar Transmission) measurements according ISO 9050 (EN 410) on 600x600 mm samples

"Shading Coefficient (SC): The ratio of the total solar radiation transmitted by a given material to that transmitted by normal 3 mm glass, whose light transmission is 87%. SC=%TST/87."

Table 3a: Typical properties for LEXAN THERMOCLEAR Solar Control (LTC SC) sheet

Sheet thickness inch	0.39	0.63	0.63	0.79	0.98	1.26
Structure	2RS	3TS	3X	5RS	6RS	5X
Approx. weight lbs/ft ²	0.348	0.573	0.594	0.676	0.717	0.778
Clear code 112 + SC						
Light transmission**%	66	60	56	53	48	47
Total Solar transmission %	54	50	46	44	41	39
Shading coefficient	0.72	0.69	0.68	0.61	0.67	0.58
U-value BTU/ft ² hr F	0.532	0.400	0.370	0.312	0.255	0.232
Sound insulation dB	19	21	21	22	23	24
Hail impact test Bullet 20 mm Velocity FT/sec	>69	>69	>69	>69	>69	>69

*U-values based on SABIC-IP calculated values according ISO 10077 (EN673)

**LT (Light Transmission) measurements according ISO 9050 (EN 410) on 600x600 mm samples

#TST (Total Solar Transmission) measurements according ISO 9050 (EN 410) on 600x600 mm samples

"Shading Coefficient (SC): The ratio of the total solar radiation transmitted by a given material to that transmitted by normal 3 mm glass, whose light transmission is 87%. SC=%TST/87."

Table 3b: Typical properties for LEXAN THERMOCLEAR Solar Control IR (2UVIR) sheet (Green color)

Sheet thickness inch	0.39	0.63	0.63	0.79	0.98	1.26
Structure	5RS	3TS	3X	5RS	6RS	5X
Approx. weight lbs/ft ²	0.358	0.553	0.594	0.676	0.717	0.778
Green code GN8B038T						
Light transmission**%	48	55	46	46	41	36
Total Solar transmission %	34	36	29	29	26	23
Shading coefficient	0.56	0.60	0.52	0.53	0.50	0.49
U-value BTU/ft ² hr F	0.421	0.400	0.370	0.312	0.255	0.232
Sound insulation dB	20	21	22	22	23	24
Hail impact test Bullet 20 mm Velocity FT/sec	>69	>69	>69	>69	>69	>69

*U-values based on SABIC-IP calculated values according ISO 10077 (EN673)

**LT (Light Transmission) measurements according ISO 9050 (EN 410) on 600x600 mm samples

#TST (Total Solar Transmission) measurements according ISO 9050 (EN 410) on 600x600 mm samples

"Shading Coefficient (SC): The ratio of the total solar radiation transmitted by a given material to that transmitted by normal 3 mm glass, whose light transmission is 87%. SC=%TST/87."

PROPERTY PROFILE

Table 4: Typical properties for LEXAN polycarbonate sheet

Property physical	Test method	Unit	Value
Density	ISO 1183	lbs/in ³	0.043
Water absorption, 50% RH / 23 °C	ISO62	%	0.15
Water absorption, saturation / 23 °C	ISO 62	%	0.35
Mechanical			
Tensile stress at yield 1.97" /min	ISO 527	MPa	60
Tensile stress at break 1.97" /min	ISO 527	MPa	70
Tensile strain at yield 1.97" /min	ISO 527	%	6
Tensile strain at break 1.97" /min	ISO 527	%	120
Tensile modulus 0.079" /min	ISO 527	MPa	2300
Flexural stress at yield 0.079" /min	ISO 178	MPa	90
Flexural stress at break 0.079 /min	ISO 178	MPa	2300
Hardness H358/30 95	ISO 2039/1	MPa	95
Thermal			
Vicat softening temperature, rate B/120	ISO 306	°F	293
HTD/Ae, 1.8 MPa edgew. 120*1*04/ sp=100	ISO 75	°F	260.6
Thermal conductivity	ISO 8302	BTU/hr ft °F	0.116
Coeff. of lin. Therm. Exp.extr. 23 – 80 °C	ISO 11359-2	1/°F	4.00 E-05
Electrical			
Volume resistivity	IEC 60093	Ohm.in	5.9 E15

These property values have been derived from LEXAN resin data for the material used to produce this sheet product. Variation within normal tolerances are possible for various colors. These typical values are not intended for specification purposes. If minimum certifiable properties are required please contact your local SABIC representative. All values are measured at least after 48 hours storage at 23°C/50% relative humidity. All properties are measured on injection molded samples. All samples are prepared according ISO 294.



MECHANICAL PROPERTIES

Impact strength

LEXAN THERMOCLEAR sheet has outstanding impact performance over a wide temperature range, -40 °C to +120 °C, and also after prolonged outdoor exposure.

Hail resistance

As a roof glazing material LEXAN THERMOCLEAR sheet is subject to extremes of weather; storms, hail-stones, wind, snowfalls and ice formation. Under these conditions, the product is virtually unbreakable and is able to withstand the subsequent temperature change to sunny conditions without breaking or buckling.

In a test developed by the Dutch Testing Institute TNO, samples of LEXAN THERMOCLEAR sheet have been subjected to simulated hail-stones of varying diameters without significant damage.

A test sample is clamped into a metal frame and polyamide balls of varying diameters are fired at the surface of the sample using a pressurized airgun.

In practice, hail-stones with a diameter of 20 mm can reach a terminal velocity of 21 m/s. Under these conditions materials such as glass and acrylic fail.

It should be noted that when the glass and the acrylic are tested their failure characteristics are typically brittle, whilst the LEXAN THERMOCLEAR showed ductile behavior: upon impact the ball will leave indentations but the sheet will not break (See Figure 1).

SABIC offers a Ten Years Written Limited Warranty on LEXAN THERMOCLEAR sheet covering loss of strength or impact due to weathering.

Figure 1: Represents material failure at this speed

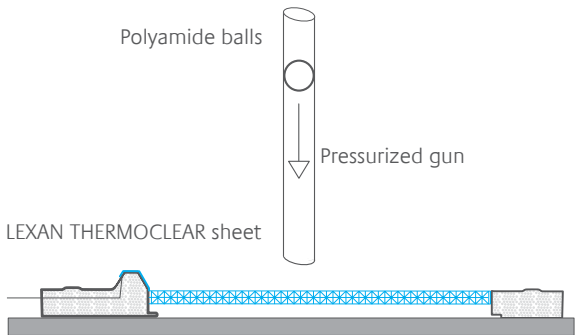


Table 5: Hail simulation test results

Material	Ball diameter
	0.79"
Acrylic multi-wall sheet t=0.63"	23-46 ft/s
Float glass t=0.16"	33 ft/s
LEXAN THERMOCLEAR sheet t=0.39"	69 ft/s
LEXAN THERMOCLEAR sheet t=0.63"	69 ft/s
Equilibrium velocity of hail stones in practice	69 ft/s

PHYSICAL PROPERTIES

Light transmission

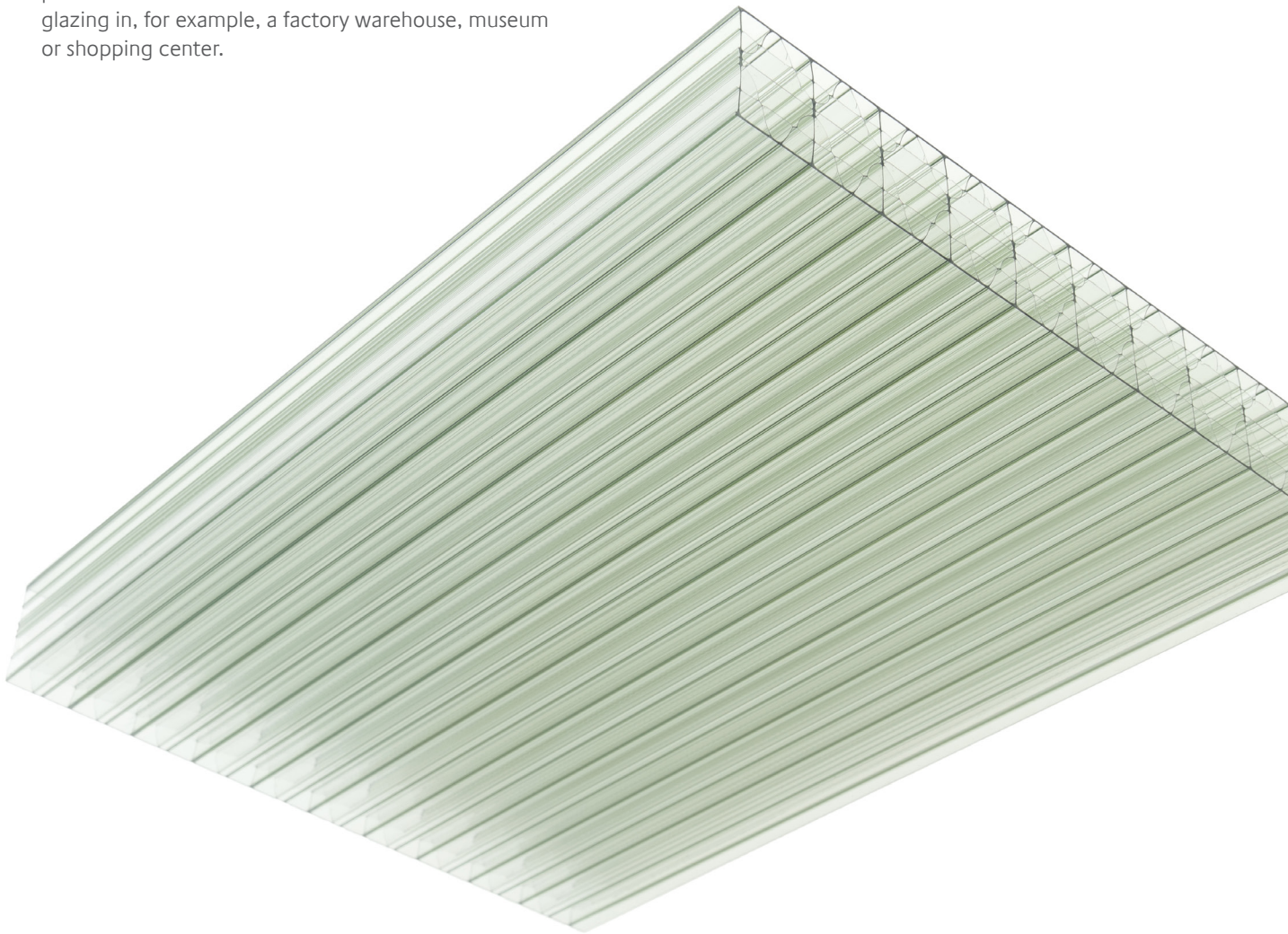
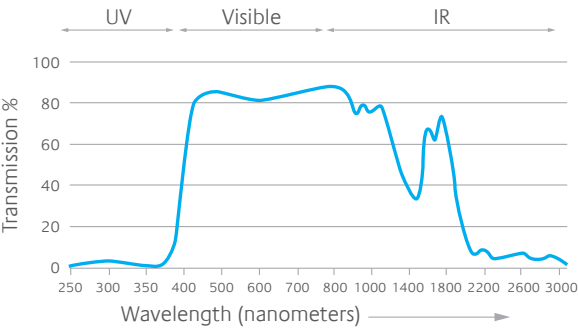
The sunlight which reaches the surface of the earth has a wavelength that ranges between 295 – 2140 nanometers ($10E^{-9}$ meters). This optical window is divided into the following sections:

UV-B Middle ultraviolet region	280 – 315 nm
UV-A Near ultraviolet region	315 – 380 nm
Visible light region	380 – 780 nm
Near infrared region	780 – 1400 nm
Middle infrared region	1400 – 3000 nm

As shown in Graph 1, LEXAN THERMOCLEAR sheet has the highest transmission in the visible light.

Despite transmitting visible light very well, LEXAN THERMOCLEAR sheet is almost opaque to radiation in the UV and far infrared region. This useful shielding property can prevent discolouration of sensitive materials such as fabrics or other organic materials placed under or behind LEXAN THERMOCLEAR sheet glazing in, for example, a factory warehouse, museum or shopping center.

Graph 1: Light Transmission Spectrum of LEXAN THERMOCLEAR sheet



SOLAR CONTROL PROPERTIES

Temperature increase inside the building

Sunlight entering the building heats the air both directly and through absorption by the framework, furniture, etc., and is released as infrared energy. In combination with the insulating properties of LEXAN THERMOCLEAR sheet, this prevents heat escaping faster than it is created causing a temperature increase – the so-called 'greenhouse effect'. The temperature can be controlled by venting, often in combination with specially tinted LEXAN THERMOCLEAR sheet, by LEXAN THERMOCLEAR Venetian Grades and LEXAN THERMOCLEAR Solar Control SC/IR.

Solar control

Transparent grades of LEXAN THERMOCLEAR sheet have excellent light transmission, between 38 and 83% depending upon thickness. However, for buildings in hot climates or with south facing aspects, LEXAN THERMOCLEAR sheet is available in translucent grades of bronze, grey, blue, green, opal white, LEXAN THERMOCLEAR Solar Control sheet and LEXAN THERMOCLEAR Venetian sheet with screen printed white stripes on the non UV protected side. These grades significantly reduce solar heat build-up, helping to maintain comfortable interior temperatures.

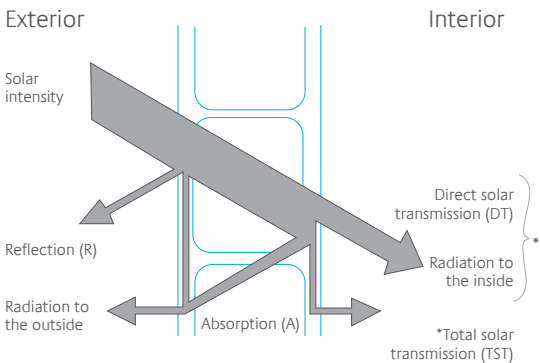
The specially tinted sheet, LEXAN THERMOCLEAR Venetian sheet and LEXAN THERMOCLEAR Solar Control sheet cuts down the brightness of sunlight to a pleasing level and reduces air conditioning costs in the summer.

LEXAN THERMOCLEAR Solar Control IR (SCIR) sheet does not significantly, like most other solar control products, block or reflect sun light but absorbs that part of the light spectrum which create solar transmission. LEXAN THERMOCLEAR SC/IR is an excellent candidate for those applications where there is a need for high light transmission together with a low solar transmission.

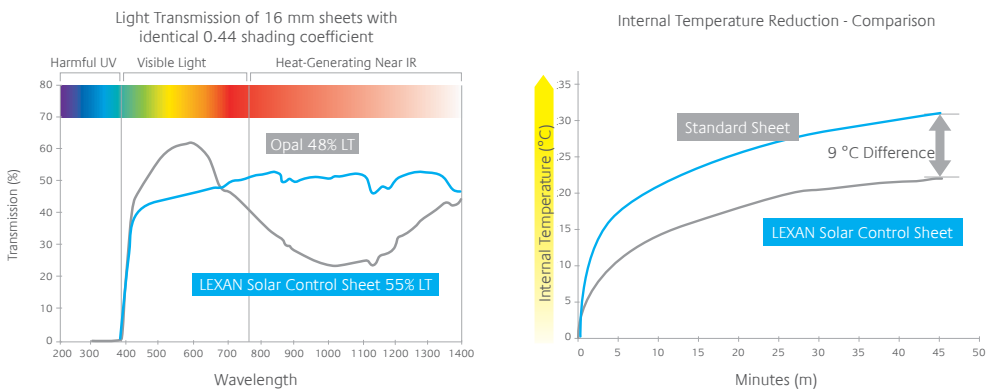
Solar heat gain

The solar radiation reaching the sheet is reflected, absorbed and transmitted, as shown in Figure 2. The greatest proportion is transmitted and the total solar transmission (TST) is the sum of the direct transmission (DT) and the inwardly released part of the absorbed energy (A). Table 6 lists the solar control properties of the LEXAN THERMOCLEAR sheet range and LEXAN THERMOCLEAR Venetian products.

Figure 2



Graph 2



SOLAR CONTROL PROPERTIES

Table 6: Total Solar Transmission# in % Solar Control IR (LTC-IR)

Grade Name	Structure	gauge (Inch)	weight (lbs/ft ²)	rib distance (Inch)	ISO 10077 U value*(W/m ² K)	LT** SC IR Green (%)	LT** SC IR Blue (%)
2UVIR6/2RS13	2-wall	0.24	0.266	0.24	0.627	66	
2UVIR8/2RS15	2-wall	0.31	0.307	0.39	0.574	65	
2UVIR10/2RS17	2-wall	0.39	0.348	0.39	0.532	65	52
2UVIR16/3TS27	3-wall	0.63	0.553	0.79	0.400	55	36
2UVIR16/3X29	3-wall X-structure	0.63	0.594	0.63	0.370	46	29
2UVIR10/5RS175	5-wall	0.39	0.358	0.31	0.421	48	
2UVIR20/5RS33	5-wall	0.98	0.676	0.71	0.312	46	
2UVIR20/5X32	5-wall X-structure	0.98	0.655	0.79	0.298		24
2UVIR32/5X38	5-wall X-structure	1.26	0.778	0.79	0.232	36	20
2UVIR16/6RS27	6-wall	0.63	0.553	0.79	0.324	42	

Table 6: Total Solar Transmission# in % Solar Control IR (LTC-IR) (continued)

Grade Name	LT** SC IR Grey (%)	TST# SC IR Green (%)	TST# SC IR Blue (%)	TST# SC IR Grey (%)	SC‡ SC IR Green (%)	SC‡ SC IR Blue (%)	SC‡ SC IR Grey (%)
2UVIR6/2RS13		60			0.69		
2UVIR8/2RS15		61			0.70		
2UVIR10/2RS17	20	60	58	42	0.69	0.67	0.48
2UVIR16/3TS27		52	49		0.60	0.56	
2UVIR16/3X29	22	45	32	30	0.52	0.37	0.34
2UVIR10/5RS175		48			0.56		
2UVIR20/5RS33		46			0.53		
2UVIR20/5X32			37			0.51	
2UVIR32/5X38	12	42	35	30	0.49	0.40	0.34
2UVIR16/6RS27		45			0.52		

*U-values based on SABIC-IP calculated values according ISO 10077 (EN673)

**LT (Light Transmission) measurements according ISO 9050 (EN 410) on 600x600 mm samples

#TST (Total Solar Transmission) measurements according ISO 9050 (EN 410) on 600x600 mm samples

‡Shading Coefficient (SC): The ratio of the total solar radiation transmitted by a given material to that transmitted by normal 3 mm glass, whose light transmission is 87%. SC=%TST/87.*

OUTDOOR WEATHERING PERFORMANCES

UV protection

Solar radiation has a particularly harmful effect upon polymeric materials initiating degradation by causing superficial surface crazing. These crazes become sites for further erosion from water, dust, chemicals, etc. The degree to which these conditions affect the polymer depend largely upon environmental parameters such as geographical location, altitude, seasonal variations, etc.

LEXAN THERMOCLEAR sheet has on one or both sides a unique proprietary UV-protected surface, giving excellent resistance to outdoor weathering. This unique protection ensures long-term optical quality under intensive UV exposure, and maintains the superior toughness of the polycarbonate material in comparison to other thermoplastic glazing.

Typical values of THERMOCLEAR sheet

Research into the long-term effects of weathering on glazing materials is basically focused upon measuring product performance through material property changes, typically mechanical strength, impact resistance, color retention, transparency, etc.

Under ISO 4892, a test has been developed using high intensity Xenon lamps to simulate natural sunlight. Together with UV filters and programmable rain cycles, the test is able to simulate natural conditions.

Accelerated weathering tests have been carried out on LEXAN THERMOCLEAR sheet by SABIC. Using in-house Xenon 1200 apparatus, these tests were carried out according to ISO 4892. However, even tougher demands were placed on the material by removing the UV filter for 1/6 of the cycle.

Placed within this environment, LEXAN THERMOCLEAR sheet was exposed to 5,000 hours. Experience with the Xenon test equipment indicates that this relates to 15 years natural exposure in a moderate European climate. Following the test, the optical properties of light transmission and yellowness index were measured and compared with an un-aged sample.

WARRANTY

SABIC offers a Ten Year Written Limited Warranty on LEXAN THERMOCLEAR sheet covering discolouration, loss of light transmission and loss of impact strength due to weathering as more specifically defined in such warranty. Please consult your local distributor or SABIC Sales Office for more details.

Europe's first stadium with a sliding roof, Amsterdam Arena in The Netherlands, was constructed from transparent LEXAN THERMOCLEAR sheet. An independent research organization, TNO Science & Industry, tested the properties of LEXAN THERMOCLEAR multiwall sheet from the roof of the Amsterdam ArenA stadium after 15 years and found no significant change. The minimal loss in light transmission of 1.5 percent and small increase in yellowness index of 1.1 point met the product warranty. This TNO report is available on request.



VARIOUS PROPERTIES

Temperature resistance

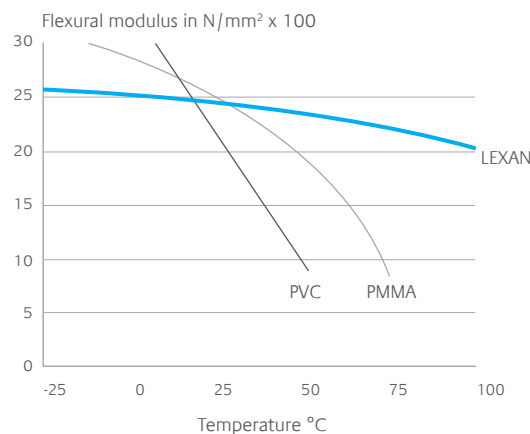
The heat build-up of glazing materials can be seen as a function of the solar energy absorption of the glazing material and the solar intensity.

In areas with intense sun radiation, and when high energy absorbing tinted glazing is installed, heat build-up of the glazing can be considerable. Calculations and actual measurements on installed LEXAN THERMOCLEAR sheet in several projects throughout Europe have shown that sheet surface temperatures of 100 °C can exist.

Dimensional stability

LEXAN THERMOCLEAR sheet is characterized by its excellent retention of impact strength and stiffness at elevated temperatures, even over an extended period. LEXAN THERMOCLEAR sheet retains 85% of its room temperature flexural modulus at 80 °C.

Graph 3: Dimensional stability. Flexural modulus in N/mm² x 100



Continuous use temperature

UL ratings

The U.S.A. Underwriters Laboratories continuous-use temperature rating can be considered as a reliable indicator of a thermoplastic's long-term high temperature performance. The most important properties of the thermoplastic are tested at various temperatures. Test results are extrapolated over a period of 10 years and no property may lose more than 50% of its original value. Table 7 outlines the UL-continuous use temperatures of typical thermoplastic glazing materials.

Table 7: UL temperature ratings UL746B

Underwriters Laboratories		
	Continuous-use temperature rating	Softening temperature
LEXAN polycarbonate	100 °C	145 °C
Acrylic	50 °C	100 °C
PVC	50 °C	70 °C

LEXAN THERMOCLEAR sheet has a continuous-use temperature of 100 °C. At the other end of the scale the minimum continuous-use temperature has been set at -40 °C. However, using LEXAN THERMOCLEAR sheet at lower temperatures is possible since the embrittlement temperature is as low as -110 °C.

Fire performance

LEXAN THERMOCLEAR sheet has good fire behavior characteristics, and receives high ratings in several major European fire performance tests including EN13501. More detailed information is available from your local SABIC Service Center or authorized dealer.

Weight factors

LEXAN THERMOCLEAR sheet is an ideal replacement for the more traditional glazing materials. It is safe and easy to handle, cut and install and is virtually unbreakable. Its light weight offers significant savings in terms of transportation, handling and installation. When compared with 6 mm wired glass, 10 mm LEXAN THERMOCLEAR sheet offers weight savings of more than 85%.

LEXAN THERMOCLEAR sheet has shown in many applications that its lightness and ease of handling have contributed to significant savings in overall installation costs.

Table 8: Weight

Product	Thickness inch	Weight lbs/ft ²
LEXAN THERMOCLEAR sheet	0.16	0.164
	0.18	0.205
	0.24	0.266
	0.31	0.307
	0.39	0.348 – 0.410
	0.63	0.553 – 0.597
	0.79	0.614 – 0.676
	0.98	0.696 – 0.717
	1.26	0.778
	1.38	0.819
	1.57	0.881
	1.77	0.922
LEXAN THERMOCLICK sheet	1.97	0.983
	1.57	0.819
LEXAN THERMOPANEL sheet	1.18	0.737

VARIOUS PROPERTIES / THERMAL PROPERTIES

Sound insulation

The sound insulation characteristics of a material are largely pre-determined by its stiffness, mass and physical construction. In accordance with DIN 52210-75, the maximum obtainable sound transmission class for a particular thickness of LEXAN THERMOCLEAR sheet is listed in Table 9.

Table 9: Sound Reduction Values

Product	Thickness inch	Sound Reduction dB
LEXAN THERMOCLEAR sheet	0.16	15
	0.18	16
	0.24	18
	0.31	18
	0.39	19
	0.63	21
	0.79	22
	0.98	23
	1.26	23
	1.38	24
	1.57	25
	1.77	26
LEXAN THERMOCLICK sheet	1.97	26
	1.57	21
LEXAN THERMOPANEL sheet	1.18	22

Sound reduction values based on SABIC-IP calculated values according DIN 52210-75

Thermal insulation

The multi-wall structure of LEXAN THERMOCLEAR sheet offers significant advantages where thermal insulation is a major consideration. The hollow form provides excellent insulation characteristics with heat losses significantly lower than mono-wall glazing materials. Heat loss is normally referred to as the U-value, which is the amount of energy transmitted through a material per square meter of glazing area and per degree temperature difference. It is expressed in terms of BTU/ft².

Table 10: Material U-values (W/m² K)

Product	Thickness mm	U-value
LEXAN THERMOCLEAR sheet	0.18 (2RS)	0.697
	0.24 (2RS)	0.627
	0.32 (2RS)	0.574
	0.39 (2RS)	0.532
	0.39 (3RS)	0.474
	0.39 (3TS)	0.472
	0.39 (3X)	0.461
	0.63 (3TS)	0.400
	0.63 (3X)	0.370
	0.63 (6RS)	0.324
	0.79 (5X)	0.312
	0.79 (5RS)	0.298
	0.79 (6RS)	0.284
	0.98 (5X)	0.266
	0.98 (6RS)	0.255
	1.26 (5X)	0.232
	1.38 (9X)	0.210
	1.58 (9X)	0.194
	1.77 (9X)	0.181
	1.97 (9X)	1.730
LEXAN THERMOCLICK sheet	1.57 (4X)	0.248
LEXAN THERMOPANEL sheet	1.18 (A,B,C,D) (4RS/3.6)	0.335
	1.18 (A,B,C,D,F,G,V,T) (3X/3.6)	0.306

U-values based on SABIC-IP calculated values according ISO 10077 (EN673)

THERMAL PROPERTIES

Overglazing

Installing LEXAN THERMOCLEAR sheet in front or behind the existing glazed window provides additional energy savings. For effective insulation, the best results are obtained when leaving a 20 – 50 mm air gap between the existing glazing and the LEXAN multi-wall sheet.

Double LEXAN multi-wall sheet units

Extremely low U-values can be obtained by double-glazed multi-wall LEXAN sheet units. A combination of LEXAN THERMOCLEAR sheet outside and LEXAN THERMOCLEAR sheet inside, with an air gap of 20 – 50 mm will dramatically reduce the heat loss factor in applications such as curved and pitched roof lights.

Energy loss calculations

The need to reduce energy consumption, and therefore energy costs, is one of the highest priorities in any business today. Substantial savings of more than 50% are possible when installing LEXAN THERMOCLEAR sheet instead of mono-layer glass. When calculating according to the guidelines given in the DIN standard 4701, an average annual saving of between 0.9 – 1.3 litres of oil or 1.0 – 1.5 m³ of gas per m² of glazing area will be obtained by decreasing the U-value by 0.1 W/m²K.

Table 13 shows the minimum and maximum amount of savings of fuel consumption per m² glazing area when the U-value is decreased by varying amounts.

Calculation example

Annual fuel saving when glass is replaced by LEXAN THERMOCLEAR sheet.

Data:

4 mm glass, U-value - 5.8 W/m²K
10 mm LEXAN THERMOCLEAR sheet, U-value – 3.0 W/m²K

U-value difference: 5.8 - 3.0 = 2.8 W/m²K. As shown in Table 12, the minimum and maximum amount of annual fuel savings per m² glazing area are:

25.2 – 36.4 litres of oil
28 – 42 m³ of gas

Table 11: Material U-values (W/m² K)

Glass Thickness inch	Air space inch	THERMOCLEAR sheet Thickness inch	U-value BTU/ft ² hr F
0.16	0.79 – 1.97	0.24 (2RS)	0.382
0.16	0.79 – 1.97	0.31 (2RS)	0.368
0.16	0.79 – 1.97	0.39 (2RS)	0.347
0.16	0.79 – 1.97	0.39 (3TS)	0.298

Installing LEXAN THERMOCLEAR sheet in front or behind the existing glazed window provides additional energy savings. For effective insulation, the best results are obtained when leaving a 20-50 mm air gap between the existing glazing and the LEXAN multi-wall sheet.

Table 12: Overglazing

THERMOCLEAR sheet outside	Air gap inch	THERMOCLEAR sheet inside	U-value BTU/ft ² hr F
0.24 (2RS)	0.79 – 1.97	0.18 (2RS)	0.322
0.31 (2RS)	0.79 – 1.97	0.18 (2RS)	0.313
0.39 (2RS)	0.79 – 1.97	0.24 (2RS)	0.284
0.63 (3TS)	0.79 – 1.97	0.24 (2RS)	0.250
0.63 (3TS)	0.79 – 1.97	0.31 (2RS)	0.245
0.79 (5RS)	0.79 – 1.97	0.24 (2RS)	0.210
0.79 (5RS)	0.79 – 1.97	0.31 (2RS)	0.204

Table 13: Annual savings

U-value difference BTU/ft ² hr F	Annual saving per 10,8 ft ² glazing area	
	Oil - Gallon	Gas - ft ³
0.02	0.24 – 0.35	35 – 53
0.04	0.48 – 0.69	71 – 106
0.05	0.72 – 1.04	106 – 159
0.07	0.96 – 1.38	141 – 212
0.09	1.19 – 1.72	177 – 265
0.11	1.43 – 2.07	212 – 318
0.12	1.67 – 2.41	247 – 371
0.14	1.91 – 2.75	283 – 424
0.16	2.14 – 3.1	318 – 477
0.18	2.38 – 3.44	353 – 530
0.21	2.86 – 4.13	424 – 636
0.25	3.33 – 4.81	494 – 742
0.28	3.81 – 5.5	565 – 848
0.32	4.28 – 6.19	636 – 953
0.35	4.76 – 6.87	706 – 1059
0.39	5.24 – 7.56	777 – 1165
0.42	5.71 – 8.25	848 – 1271
0.46	6.19 – 8.93	918 – 1377
0.49	6.66 – 9.62	989 – 1483
0.53	7.14 – 10.31	1059 – 1589
0.56	7.61 – 10.99	1130 – 1695
0.60	8.09 – 11.68	1201 – 1801
0.63	8.56 – 12.37	1271 – 1907
0.67	9.04 – 13.06	1342 – 2013
0.70	9.52 – 13.74	1413 – 2119

Note:

The exact amount of annual fuel savings is strongly dependent upon the building type, location and regional environmental conditions. Local authority engineering departments usually have official data relating to average temperature differences throughout the year.

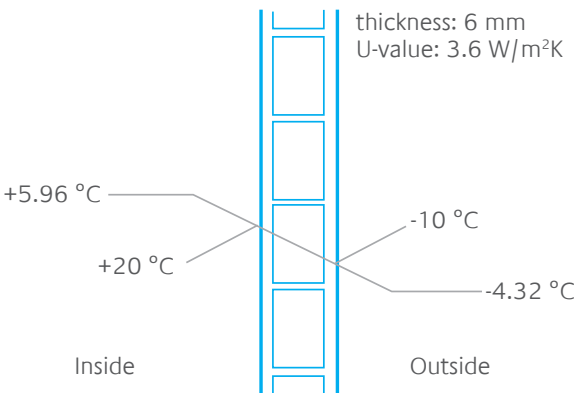
THERMAL PROPERTIES

Cold radiation

The excellent insulation properties of LEXAN THERMOCLEAR sheet will also contribute to a reduction in the radiation of cold into the building. The lower the U-value, the higher the inner sheet surface temperature will be maintained during the winter season.

Figure 3 presents an example of the temperature profile through 6 mm LEXAN THERMOCLEAR sheet when the outside temperature is -10 °C and the inside building temperature is +20 °C.

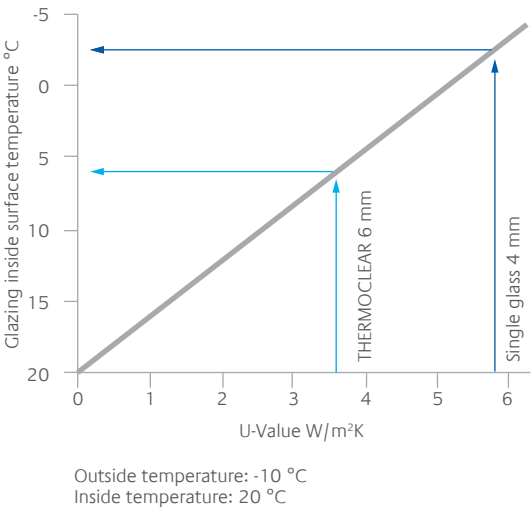
Figure 3: Temperature process through LEXAN THERMOCLEAR sheet at low outside temperature.



The multi-wall construction creates an air space which results in a moderate sheet surface temperature. Under the conditions indicated, the inner sheet surface temperature remains far above zero so that there is no cold radiation to the inside of the building.

Graph 4 compares LEXAN THERMOCLEAR sheet with single glazed glass under the same conditions. The inside glass surface temperature is well below zero, which means that cold radiation will negatively influence the overall building temperature and will affect the comfort level near the windows.

Graph 4: Comparison of LEXAN THERMOCLEAR sheet with single glazed glass under the same conditions.



LEXAN SHEET CLEANING RECOMMENDATIONS

These cleaning recommendations apply to all LEXAN polycarbonate sheet products, including, but not limited to, LEXAN solid sheet and signs, LEXAN coated MARGARD™ sheet and LEXAN multi-wall sheet. Periodic cleaning using correct procedures can help to prolong service life. For cleaning, it is recommended that the following instructions be adhered to:

Cleaning procedure for small areas – manual

1. Gently wash sheet with a solution of mild soap and lukewarm water, using a soft, grid-free cloth or sponge to loosen any dirt or grime.
2. Fresh paint splashes, grease and smeared glazing compounds can be removed easily before drying by rubbing lightly with a soft cloth using petroleum ether (BP65), hexane or heptane. Afterwards, wash the sheet using mild soap and lukewarm water.
3. Scratches and minor abrasions can be minimized by using a mild automobile polish. We suggest that a test be made on a small area of LEXAN sheet with the polish selected and that the polish manufacturer's instructions be followed, prior to using the polish on the entire sheet.
4. Finally, thoroughly rinse with clean water to remove any cleaner residue and dry the surface with a soft cloth to prevent water spotting.

Cleaning procedure for large areas - automated

1. Clean the surface using a high-pressure water cleaner (max. 100 bar or 1,450 psi) and/or a steam cleaner. We suggest that a test be made on a small area, prior to cleaning the entire sheet.
2. Use of additives to the water and/or steam should be avoided.

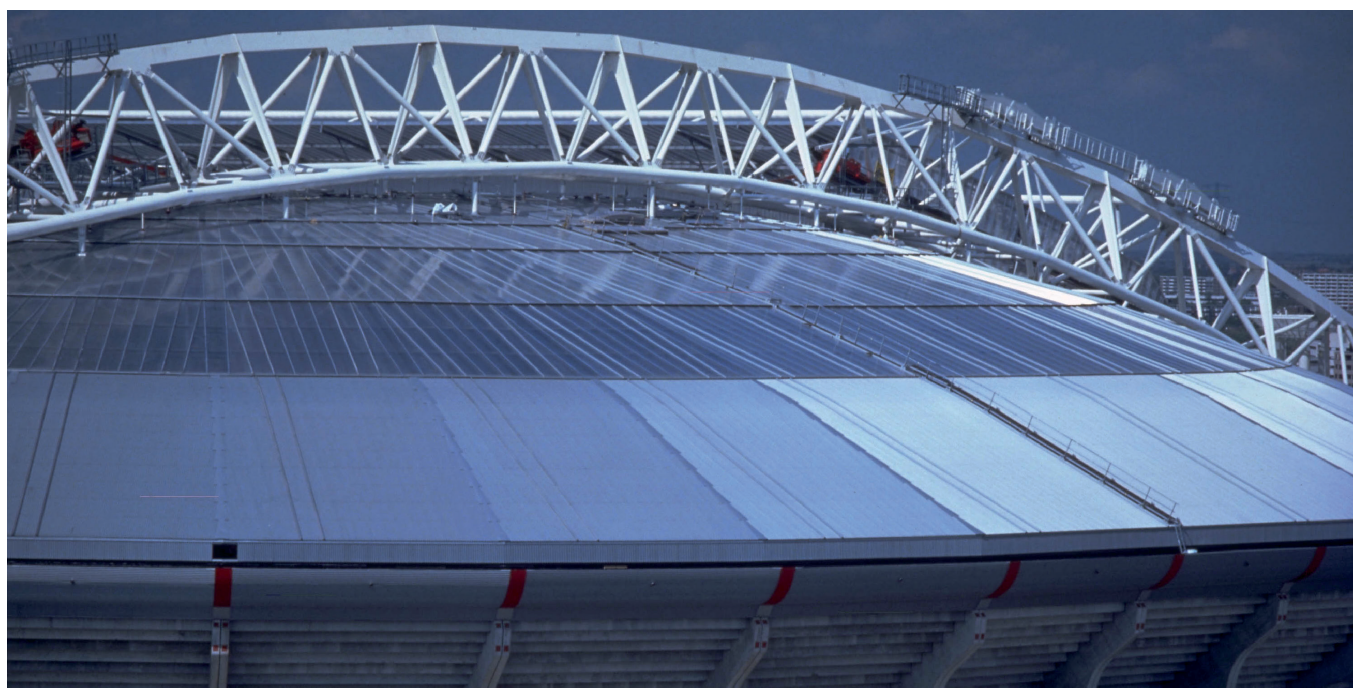
Other important instructions for all LEXAN sheets

- Never use abrasive or highly alkaline cleaner on LEXAN polycarbonate materials.
- Never use aromatic or halogenated solvents like toluene, benzene, gasoline, acetone or carbon tetrachloride on LEXAN polycarbonate materials.
- Use of incompatible cleaning materials with LEXAN sheet can cause structural and/or surface damage.
- Contact with harsh solvents such as methyl ethyl ketone (MEK) or hydrochloric acid can result in surface degradation and possible crazing of LEXAN sheet.
- Never scrub with brushes, steel wool or other abrasive materials.
- Never use squeegees, razorblades or other sharp instruments to remove deposits or spots.
- Do not clean LEXAN polycarbonate in direct sunlight or at high temperatures as this can lead to staining.
- For all mentioned chemicals consult the manufacturer's material safety datasheet (MSDS) for proper safety precautions.

Additional important considerations for multi-wall, corrugated and sign sheet

- Cleaners and solvents generally recommended for use on polycarbonate are not necessarily compatible with the UV-protected surfaces of LEXAN multi-wall, corrugated and sign polycarbonate materials.
- Do not use alcohols on the UV-protected surfaces of LEXAN sheet.
- Never clean the Drippard surface of LEXAN multi-wall and corrugated sheets.

Amsterdam Arena in Amsterdam, the Netherlands is Europe's first stadium with a sliding roof, made from LEXAN THERMOCLEAR transparent sheet. 20,000 m² - The sliding roof was necessary to allow events to be staged regardless of the weather.



CONDENSATION/CHEMICAL RESISTANCE

Condensation

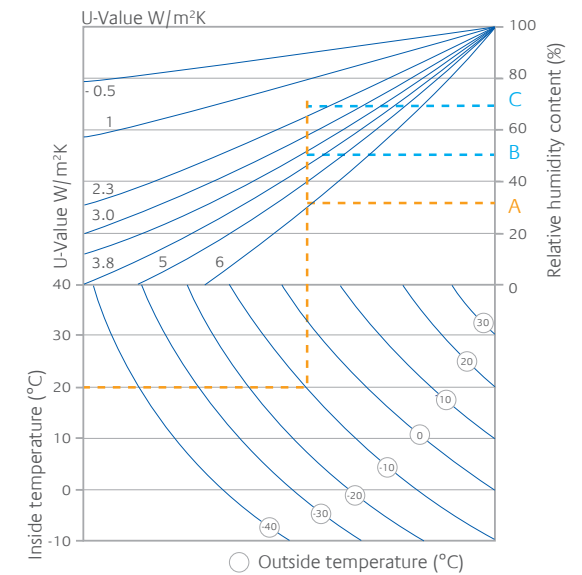
Condensation is formed when moisture in the atmosphere changes back to water as it comes into contact with a surface at a temperature below the 'dewpoint' of the surrounding air.

Water droplets on the surface of the glazing reduce light transmission, and, if they fall, can spoil plants or damage sensitive goods and equipment underneath. LEXAN THERMOCLEAR Dripgard sheet has a special one-sided coating that inhibits the formation of condensation droplets. The coating lowers the surface tension and the droplets form a thin layer of water over the whole surface of the sheet.

When the sheet is correctly installed, this thin, transparent water film runs off the sheet surface into the profile drainage system without falling to the ground and without affecting the light transmission values of the glazing.

Graph 5 shows a typical condensation prediction chart showing the relationships between internal and external temperatures, relative humidity and the U-value. The dotted lines on the chart illustrate clearly how glass with a high U-value is more prone to condensation than LEXAN THERMOCLEAR Dripgard sheet.

Graph 5: Condensation Prediction Chart showing the relationships between internal and external temperatures, relative humidity and the U-value



Inside temperature: 20 °C
Outside temperature: -10 °C

Condensation will occur on:

- A Glass U-value 5.8 w/m²K at a humidity content of: 32%
- B LTC 6 mm U-value 3.56 w/m²K at a humidity content of: 50%
- C LTC 20 mm U-value 1.8 w/m²K at a humidity content of: 68%

Chemical resistance

LEXAN THERMOCLEAR sheet has been successfully used in combination with many building materials and glazing compounds. Taking into account the complexity of chemical compatibility, all chemicals which come into contact with polycarbonate should always be tested in the particular application. For sheet products, the most common materials are sealants, gaskets and the various cleaning media. Chemical compatibility testing is an ongoing process at SABIC and many standard products have already been tested. A complete list of recommended cleaners, gaskets and sealants is available upon request. However, a shortened list of some of the more common compounds is shown below.

When using glazing compounds it is essential that the sealant system accepts a certain amount of movement to allow for thermal expansion, without loss of adhesion to the frame or sheet. Momentive Silicones' sealants are generally recommended for use with LEXAN THERMOCLEAR sheet, see Table 14. It is strongly advised when using other sealing compounds to check compatibility before use.

Table 14: Recommended Sealants

Sealant	Supplier
Silpruf	Momentive
multiSil	Momentive

Compatible Neoprene, EPT or EPDM rubbers with an approximate Shore Hardness of the A65 are recommended, and compatibility reports for different rubber types are available upon request.

Table 15: Recommended Gasket Systems

Gasket Type*	Supplier
EPDM Chloroprene, RZ4-35-81	Helvoet
EPDM 4330, 4431, 5530, 5531	Vredestein
EPDM 3300/670, 64470	Phoenix

* more grades available

In case of doubt about any aspect of the chemical compatibility of the LEXAN THERMOCLEAR sheet range, always consult your nearest SABIC Sales Office for further advice.

GENERAL GUIDELINES

Storage

LEXAN THERMOCLEAR sheet should be stored and protected against atmospheric influences like sun, rain, etc. LEXAN THERMOCLEAR sheets of the same length should be stacked together horizontally or, if different lengths, graded with the longest sheet at the bottom of the stack in order to avoid unsupported overhangs. The stacks should be supported on timber bearers and should not be placed where they can be walked on or driven into.

Handling

As with all glazing materials, care should be exercised when handling and transporting LEXAN THERMOCLEAR sheet in order to prevent scratches and damage to sheet edges. Each sheet is packaged as follows to minimize the risk of these problems:

- The top face is covered with printed masking. LEXAN THERMOCLEAR (1UV) and Drippgard masking have a blue print, LEXAN THERMOCLEAR-PLUS (2UV) has a red print, LEXAN SUNXP and Easyclean have a green printed masking.
- The bottom face has a neutral masking.
- The edges of the sheets have colored tape on them, blue for LEXAN THERMOCLEAR (1UV), yellow for LEXAN THERMOCLEAR-PLUS (2UV), green for Drippgard, purple for Easyclean and red tape for SUNXP.
- The sheet should be kept in their packaging until immediately prior to installation.

Sawing

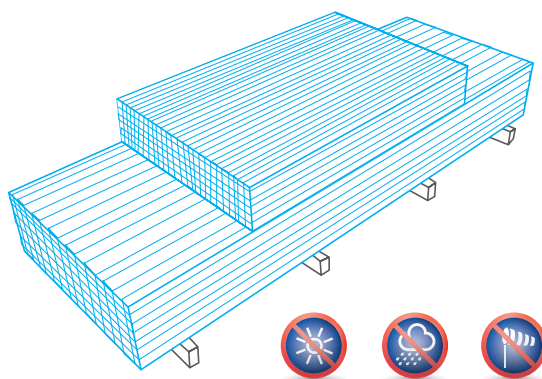
LEXAN THERMOCLEAR sheet can be cut easily and accurately with standard workshop equipment. This includes common circular, hand and hacksaws. Saw dust should be blown out of the channels using dry compressed air. Circular saws should have fine-toothed panel blades. When hand or power hacksaws are used, the sheet should be clamped to the worktable to avoid undesirable vibration. To avoid scratching the surface do not remove the protective masking. When finished the edges of the LEXAN THERMOCLEAR sheet should be free of notches and swarf build-up.

With the smaller wall section LEXAN THERMOCLEAR sheet, (up to 10 mm), it is possible to cut the sheet with a knife. However, it is important that the knife is sharp.

Drilling

Holes can be drilled by a power drill using standard high speed steel twist drills or drills with an angular wedged bit. When drilling, support should be given immediately beneath the drill to avoid vibration. Very clean holes are easily obtained. The use of liquid cooling media is not recommended.

Figure 4



Swimming Pool Shelter with LEXAN THERMOCLEAR transparent sheet



INSTALLATION

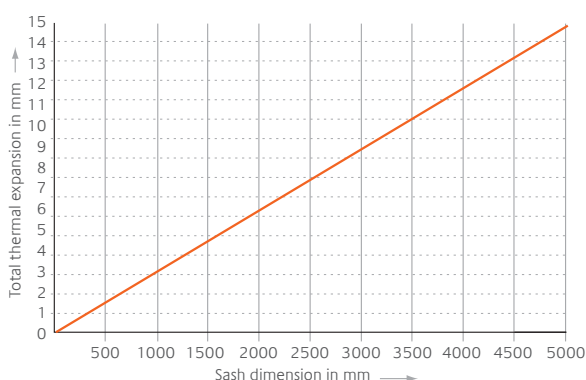
Installation

Glazing with LEXAN THERMOCLEAR sheet should be considered a finishing operation and seen as the final step in the completion of an application.

Thermal expansion allowance

Since LEXAN THERMOCLEAR sheet has a greater coefficient of linear thermal expansion than that of traditional glazing materials, care should be taken to allow for free expansion of the sheet to prevent bowing and internal thermal stress.

Graph 6: This shows Thermal Expansion Allowance at various sash dimensions



Allowance for thermal expansion must be made for both the length and the width of the LEXAN THERMOCLEAR sheet. The recommended allowances for various sheet dimensions are outlined in the graph.

The sheet must be trimmed to allow for at least as much as the indicated thermal expansion.

In general:

Thermal expansion of the sheet is approximately 3 mm per linear meter at a delta of 50 °C.

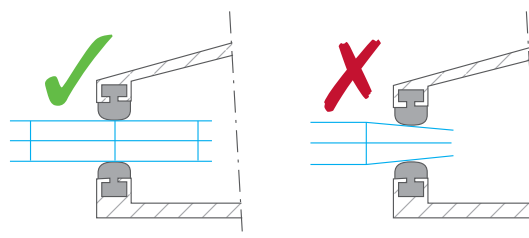
Sheet edge clamping conditions

The following recommendations apply to installations involving both flat glazing, i.e. vertical, horizontal or inclined, and curved glazing. It is extremely important when installing LEXAN THERMOCLEAR sheet that the edges are correctly clamped, whether the application involves wet or dry glazing conditions.

A cover plate, or glazing bead, with rubber gaskets or silicone sealant, hold the sheet in place and create a water-tight seal. In both cases there must be sufficient clearance to allow for thermal expansion of the sheet. It is also important that the edge of the sheet is engaged for a minimum of 20 mm into the glazing frame with at least one rib located in the clamping area. See Figures 5 and 6.

Figure 5 and 6: Indicates correct* installation when clamping the sheet in a profile

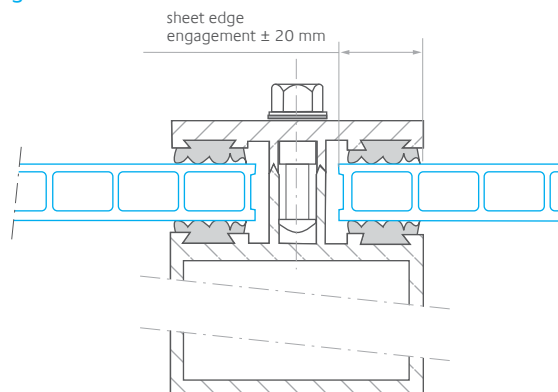
Figure 5



In general the total rebate depth for each profile should include a minimum of 20 mm sheet edge engagement and an allowance for thermal expansion.

Due to the rib geometry of LEXAN THERMOCLEAR sheet, at a thickness of ≥ 16 mm, additional precautions should be taken. In this case it is important that the sheet is cut such that at least one rib is located in the center of the rebate.

Figure 6



INSTALLATION

Dry glazing systems

This selection illustrates some glazing proposals using commercially available profiles which have proven to be successful in combination with LEXAN THERMOCLEAR sheet. Situations may occur where sheet expansion exceeds sealant limitations and, often for aesthetic reasons, this type of 'dry' glazing system provides an ideal solution.

The advantage of dry systems is that the rubber gaskets snap-fit into the glazing strips which then allow free movement of the sheet during expansion and contraction. See Figures 7 and 8.

WARNING!
Do not use PVC gaskets.

Due to the migration of additives from soft PVC, the LEXAN THERMOCLEAR sheet can be chemically affected resulting in surface cracks or even sheet breakage.

A wide range of easy to use glazing bars and fixing accessories, designed specifically for glazing LEXAN THERMOCLEAR sheet, is available from most of the approved LEXAN THERMOCLEAR sheet distributors and specialised installers.

Figure 7, 8, 9 and 10:
Different installation profile examples

Figure 7

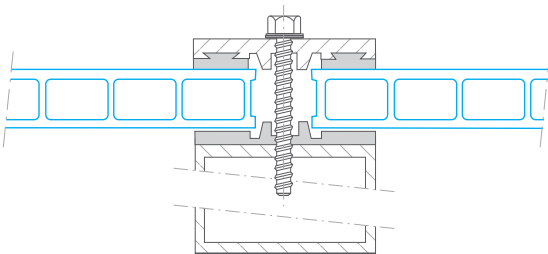
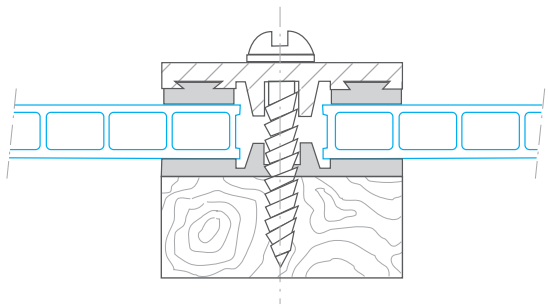


Figure 9



Wet glazing systems

This type of installation system is mainly used in small domestic type applications, car ports, warehouses, conservatories and other glass replacement situations.

With standard metal profiles or wooden sections, in combination with glazing tapes and glazing compounds, many different configurations are possible. See Figures 9 and 10.

When using glazing compounds it is essential that the sealant system accepts a certain amount of movement, to allow for thermal expansion, without loss of adhesion to the frame or sheet. Silicone sealants are generally recommended for use with LEXAN THERMOCLEAR sheet, but it is strongly advised when using sealing compounds to check compatibility before use.

Care should be taken not to use amine nor benzamide curing silicone sealants, which are not compatible with LEXAN sheet and result in crazing, particularly when stress is involved. See page 19, Table 6, for suitable sealant.

Figure 8

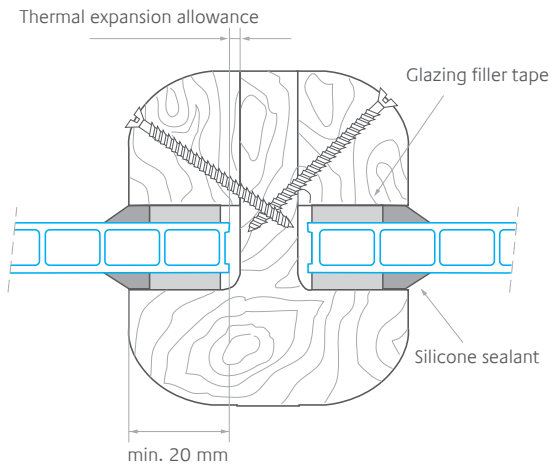
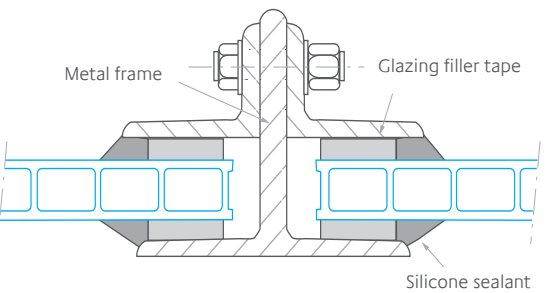


Figure 10



SEALING GUIDELINES

Edge sealing

In all cases LEXAN THERMOCLEAR sheet should be mounted with the ribs running downwards to assist condensation water drainage. Algae growth, in the form of a green deposit inside the sheet channels, may occasionally be a problem. It is the result of permanent condensation inside the channels due to particular temperature conditions.

Since moisture build-up and dust/insect contamination inside the channels can be a major problem, one of the most important aspects of installation is edge sealing, particularly of the open-ended channels. There are several techniques that can be adopted to significantly reduce contamination, the choice depending largely on the prevailing environmental conditions.

Sealing tape

It should be noted that the tape delivered on THERMOCLEAR sheet is for protection, during transportation and storage, only and is not an impermeable sealing/installation tape. This tape should be replaced prior to installation with a tape as described below.

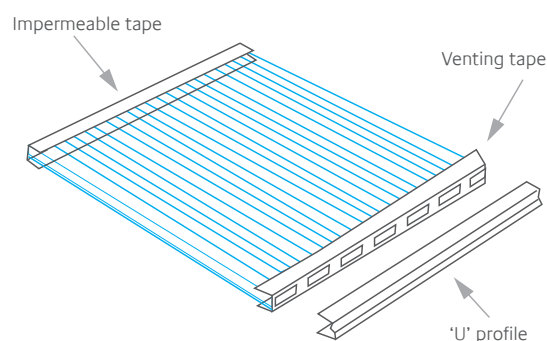
Before taping, approximately 50 mm of the masking should be removed from all sheet edges. The remaining masking should be removed only when installation is completed.

- The tape should have good weathering resistance, without loss of long-term adhesion or mechanical strength.
- The tape should have good resistance to tearing and other damage during installation and handling.
- In close co-operation with the company Multifoil, an anti-dust impermeable tape G3600 and an anti-dust venting tape AD3400/AD4500 have been developed. Multifoil will provide within Europe a 10 Year Guarantee on the operation of the tapes.

MULTIFOIL B.V.

Laanakkerweg 12
4131 PA Vianen
The Netherlands
tel. +31 347 366 717
fax. +31 347 366 718

Figure 11



Sealing guidelines

The following Guidelines are recommended to minimize sealing and contamination problems:

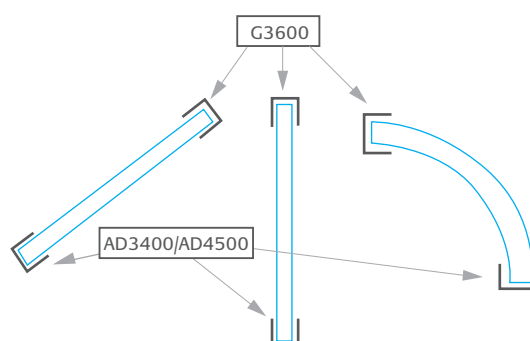
- Ensure that all sheet edges are smooth and rounded before applying the tape.
- All channels should be blown free of dust before sealing.
- Ensure tape is completely covered by glazing profiles, flashings, end closures, etc. No tape should be left exposed when installation is complete.
- Replace any damaged tape before final installation.
- Recommended sealing tapes for glazing LEXAN THERMOCLEAR sheet are available from most approved LEXAN THERMOCLEAR distributors and specialized installers.

Standard glazing conditions

In standard glazing conditions, the top end channels are sealed with an impermeable tape and the bottom end channels are sealed with a perforated filter tape. See Figures 11 and 12.

An additional 'U' profile can be installed to cover the perforated bottom tape and to facilitate condensation drainage. (See Figures 15 and 16).

Figure 12



SEALING GUIDELINES

In semicircular barrel vaults both channel ends should be sealed with perforated filter tape e.g. Multifoil AD 3400. See Figure 13.

Care should be taken to provide a clearance between both the sheet edges and the sash platform to allow for condensation drainage. See Figures 14 and 15. In general the total rebate depth for each profile should include a minimum of 20 mm sheet edge engagement and an allowance for thermal expansion.

Specific glazing conditions

In certain environments, it is recommended that both channel ends are sealed with an impermeable tape. See Figure 16. These environments include:

- Extremely dusty environments (sawmills – welding-stations, etc)
- Low humidity/dry conditions (shopping centers – warehouses, etc)
- Limited temperature difference between the interior and exterior (football stadia – metro/railway station roofing, etc)

Figure 13

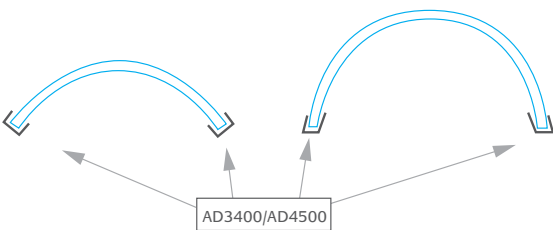


Figure 14

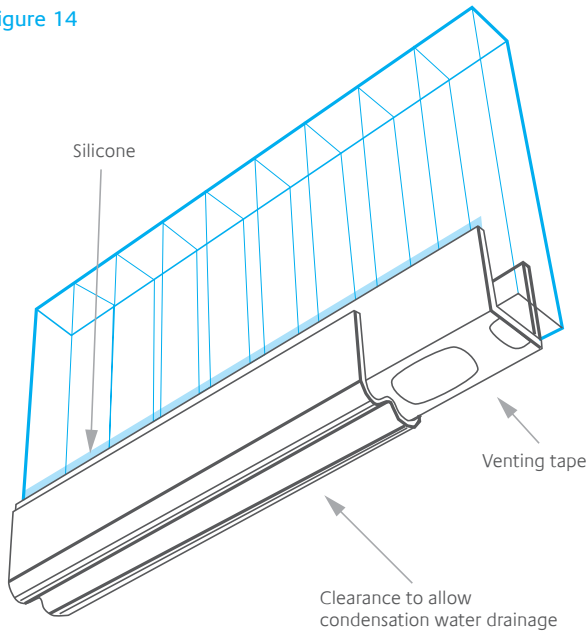


Figure 15

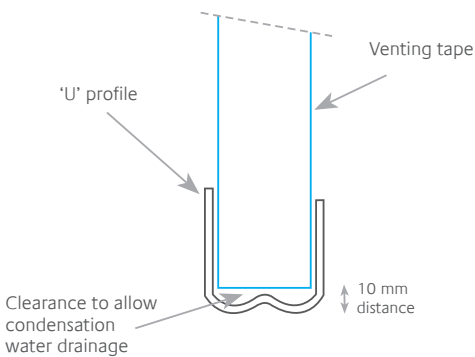
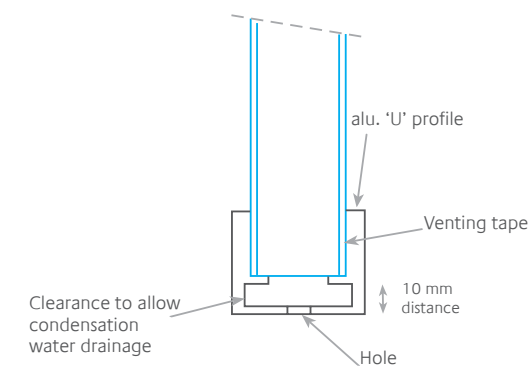
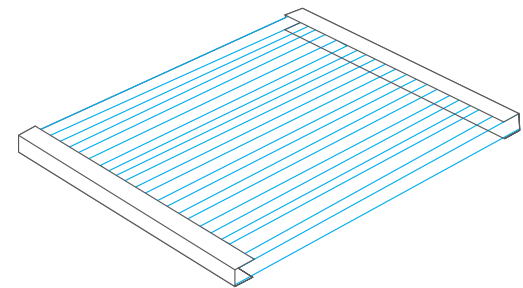


Figure 16: Impermeable tape on both sides



WIND AND SNOW LOADING

Dynamic wind pressure

The wind speed is used to determine the actual loading upon the glazing panels. In mathematical terms, the pressure loading is calculated by multiplying the square of the design wind speed by 0.613.

$$q = KV^2$$

where q = dynamic wind pressure in N/m^2
 $K = 0.613$
 V = design wind speed in meters/second

Table 16: Values of q in SI units (N/m^2)

wind speed m/s	wind pressure N/m^2
10	61
15	138
20	245
25	383
30	552
35	751
40	981
45	1240
50	1530
55	1850
60	2210
65	2590

For glazing projects with an unusual loading condition, please contact your local SABIC Sales Office

The Beaufort scale transforms wind into static pressure:

Wind	light	moderate	strong	storm
Speed (km/h)	20	40-60	80-100	120-140
Speed (m/sec)	6	11-17	22-28	33-39
Static pressure (N/m^2)	20	80-170	300-480	680-950

Table 16a: The wind pressure created through the wind speed on a building surface

Height of Building ft	wind speed ft/s	wind pressure lb/ft ²
0 – 26	93	10.4
26 – 66	117	16.7
66 – 328	138	23.0
> 328	150	26.1

Pressure coefficient

To allow for local fluctuations in the acceleration/ deceleration of the wind by building or glazing geometry, it is necessary to include an appropriate pressure coefficient.

Determine pressure coefficients requires knowledge of:

- Form and type of building
- Height of glazing
- Shape of glazing e.g.
 - Flat vertical
 - Inclined roofing
 - Curved glazing

The wind loading is obtained by multiplying the dynamic wind pressure by the pressure coefficient. The total wind loading can be positive indicating a wind pressure force or negative indicating a wind suction load. Detailed pressure coefficient values can be found in the appropriate national building norms.

Snow loading

Snow loading on roof glazing can be considered equivalent to a vertically, uniformly distributed load, acting per m^2 of the horizontal projection of the glazing. A roof made of LEXAN THERMOCLEAR sheet does not permit immediate melting of the snow, due to its excellent thermal insulation, and therefore the load produced by the snow must be carefully taken into consideration.

Snow-indicative weights per centimeter of height

fresh snowfall - 0.8 – 1.9 kg/m^2 per cmh.
 wet snowfall - 2 – 8 kg/m^2 per cmh.

Snow loading factors can be obtained from the appropriate local building norm.

Computer aided sheet engineering

A computer aided design program has been developed especially for large glazing projects, or projects with an uncommon shape or unusual loading conditions. The program creates the finite element model of a particular glazing design, applies the specified loads and edge conditions and runs the deflection analysis. Consult your nearest SABIC Technical Service Center for further advice.

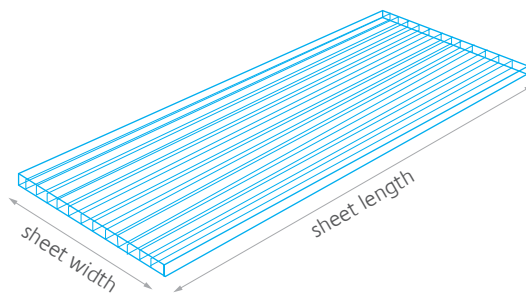
SHEET THICKNESS CRITERIA

Support conditions

Note

Regardless of the support configuration selected, the sheet should always be installed so that the rib structure channels are sloping downwards. Sheet "width" is the dimension perpendicular to the rib structure, "length" the dimension parallel.

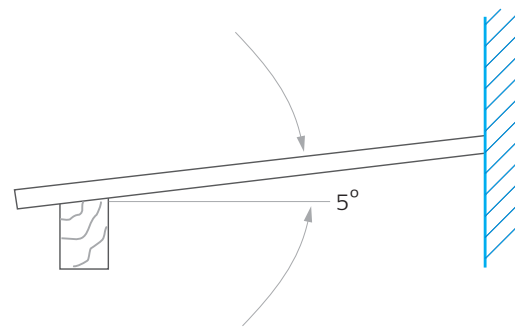
Figure 17



Sloped roofing

For sloped glazing applications a minimum slope of 5° (9 cm/m sheet length) is advised to allow for rainwater drainage.

Figure 19

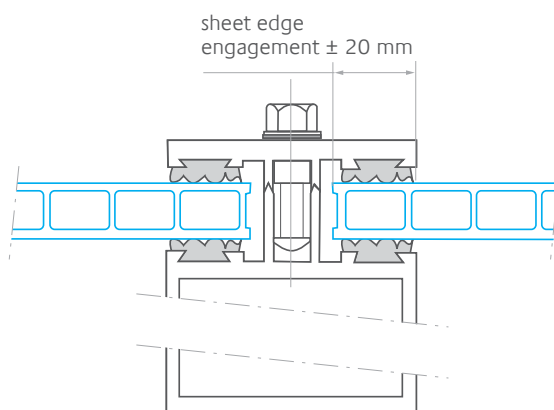


Safety factor

Tables 17, 18 and 19 indicate the maximum allowable sheet size at a specified loading which results in an acceptable sheet deflection behavior without the risk of sheet buckling or pop-out effect calculated with a safety factor of 1.5.

N.B. The values indicated in the Tables are applicable for a LEXAN THERMOCLEAR sheet edge engagement in the glazing frame of at least 20 mm.

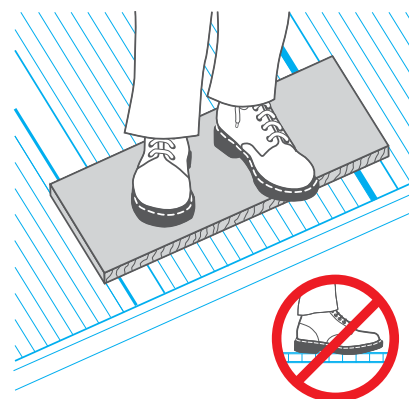
Figure 18



Site safety

On roof constructions LEXAN THERMOCLEAR sheet should not be used to support a person's weight during installation or cleaning. A temporary wooden beam or other device, supported by the roof members, should always be used.

Figure 20



FLAT GLAZING SHEET THICKNESS

The deflection characteristics in this particular configuration are dependent upon the ratio of the support bar spacing a:b, see Figure 21.

In practice “a” represents the center to center distance of glazing profiles on the short glazing side i.e. the width of sheet.

“b” represents the center to center distance of glazing profiles on the long glazing side i.e. length of sheet.

Table 17 indicates the maximum allowable short glazing side of three different ratios of glazing bar spacing.

Ratio sheet width “a”: sheet length “b” 1:1
Ratio sheet width “a”: sheet length “b” 1:<1.5
Ratio sheet width “a”: sheet length “b” 1:>1.5

Figure 21

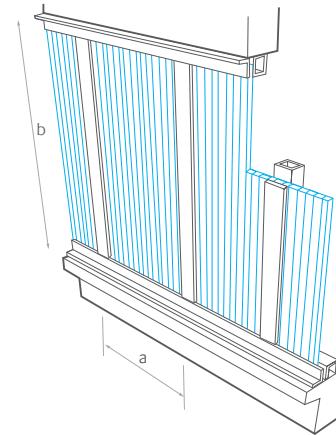


Table 17: Center to Center Distance (mm) of glazing profiles (shortest side (a))

	Ratio sheet width: sheet length																							
	1:1	1:<1.5	1:>1.5	1:1	1:<1.5	1:>1.5	1:1	1:<1.5	1:>1.5	1:1	1:<1.5	1:>1.5	1:1	1:<1.5	1:>1.5	1:1	1:<1.5	1:>1.5	1:1	1:<1.5	1:>1.5	1:1	1:<1.5	1:>1.5
Loading in lb/ft ²	12.5			16.7			20.9			25.1			29.2			33.4			37.6			41.8		
LT2UV452RS10	690	850	450																					
LT2UV62RS13	41.3	36.2	24.0	37.4	33.5	22.4	35.4	30.7	20.9															
LT2UV82RS15	49.2	43.3	28.3	45.3	40.2	25.8	42.3	37.0	24.0	40.2	35.4	22.4	38.2	32.7	21.1	36.6	30.7	20.1						
LT2UV102RS17	59.1	45.3	32.1	54.1	42.1	28.7	50.4	37.4	26.4	47.8	36.2	24.4	45.7	33.5	23.0	43.7	31.5	21.5	42.1	29.9	20.5			
LT2UV103RS19	57.9	43.7	31.5	53.3	40.7	28.7	49.8	36.8	26.6	47.4	35.2	24.6	45.3	32.7	22.6	43.5	30.7	21.3	41.9	29.3	20.1			
LT2UV103X20	70.9	49.2	35.4	66.9	46.5	34.3	63.0	44.1	31.9	59.8	41.3	29.5	57.1	39.4	28.3	53.1	37.4	27.6	51.2	35.4	26.0	47.2	33.5	24.4
LT2UV103T20	60.6	51.6	35.0	55.5	49.2	31.9	52.0	45.3	29.5	49.2	41.7	27.6	47.2	38.6	26.0	45.3	36.2	24.8	43.7	33.9	24.0	42.1	31.9	23.0
LT2UV105RS175	63.0	47.2	33.5	59.1	43.3	31.5	56.1	41.3	29.5	54.1	38.6	27.6	51.2	37.4	25.6	47.2	35.4	23.6	43.3	33.5	21.7	39.4	31.5	19.7
LT2UV163TS27	66.9	55.9	43.3	63.0	51.6	38.6	59.1	47.6	34.6	57.1	44.1	31.9	55.1	41.7	29.5	51.2	39.4	27.6	49.2	37.4	26.2	47.2	35.4	24.4
LT2UV163TS28	82.7	55.9	43.3	76.8	51.6	38.6	71.9	47.6	34.6	67.9	44.1	31.9	65.0	41.7	29.5	61.0	39.4	27.6	58.1	37.4	26.2	49.2	35.4	24.4
LT2UV163X29	82.7	66.9	47.2	82.7	63.0	45.3	74.8	57.1	43.3	70.9	53.1	41.3	66.9	47.2	39.4	63.0	43.3	37.4	59.1	39.4	35.4	55.1	37.4	33.5
LT2UV166RS27	70.9	55.1	45.3	66.9	53.1	41.3	63.0	48.0	38.6	59.1	45.3	37.4	55.9	43.3	35.4	51.2	41.3	34.6	47.2	39.4	33.5	43.3	37.4	31.5
LT2UV205RS33	82.7	63.0	47.2	82.7	59.1	45.3	78.7	55.1	41.3	74.8	51.2	38.6	66.9	47.2	35.4	63.0	45.3	33.5	59.1	41.3	31.5	55.1	39.4	29.5
LT2UV205X32	49.2	49.2	49.2	49.2	49.2	47.2	49.2	49.2	45.3	49.2	49.2	43.3	49.2	49.2	41.3	49.2	49.2	39.4	49.2	49.2	38.6	49.2	49.2	36.2
LT2UV206RS30	49.2	49.2	49.2	49.2	47.2	45.3	49.2	47.2	45.3	49.2	47.2	43.3	49.2	43.3	39.4	49.2	43.3	38.6	47.2	38.6	35.4	45.3	37.4	33.5
LT2UV255X34	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	47.2	49.2	49.2	43.3	49.2	49.2	39.4
LT2UV256RS35	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	47.2	49.2	49.2	45.3	49.2	49.2	43.3	49.2	49.2	41.3	49.2	49.2	39.4	49.2	49.2	37.4
LT2UV325X38	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2	47.2	49.2	49.2	43.3
LT2UV359X40	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2
LT2UV409X43	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2
LT2UV459X45	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2
LT2UV509X48	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2

center to center distance = maximum sheet width

Example I
Window size: width 800 mm
length: 1200 mm
(Ratio a:b = 1 : 1.5)
Loading: 1600 N/m²
Required sheet type: LT2UV10/2RS17

Example II
Window size: width 1100 mm
length 3000 mm
(Ratio a:b = 1 : >1.5)
Loading: 600 N/m²
Required sheet type: LT2UV16/3TS28 or
LTUV16/3TS27

FLAT GLAZING SHEET THICKNESS

Two sides clamped, glazing bars parallel with rib structure

a = center to center distance of glazing profiles
b = sheet length

The major factor determining the sheet deflection behavior is the distance “a” between the center points of two adjacent supports. Since any length of sheet can be selected, the measurement “b” does not influence the overall deflection performance.

Figure 22

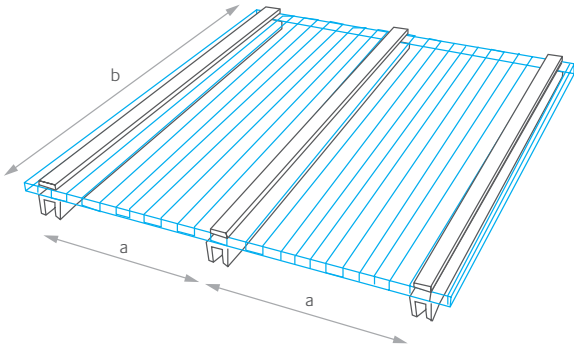


Table 18: Center to Center Distance (mm) of glazing profiles “a”; glazing profiles parallel with the rib structure

	center to center distance (inch)							
Loading in lb/ft ²	12.5	16.7	20.9	25.1	29.2	33.4	37.6	41.8
LT2UV62RS13	22.4	20.9						
LT2UV82RS15	25.8	2.4	22.4	21.1	20.1			
LT2UV102RS17	28.7	26.4	24.4	23.0	21.5	20.5		
LT2UV103RS19	31.5	28.7	26.6	24.6	22.6	21.3	20.1	0.0
LT2UV103X20	35.4	34.3	31.9	29.5	28.3	27.6	26.0	25.2
LT2UV103T20	35.0	31.9	29.5	27.6	26.0	24.8	24.0	
LT2UV105RS175	33.5	31.5	29.5	27.6	25.6	23.6	21.7	
LT2UV163TS27	43.3	38.6	34.6	31.9	29.5	27.6	26.2	24.4
LT2UV163TS28	43.3	38.6	34.6	31.9	29.5	27.6	26.2	24.4
LT2UV163X29	47.2	45.3	43.3	41.3	39.4	37.4	35.4	33.5
LT2UV166RS27	45.3	41.3	38.6	37.4	35.4	34.6	33.5	31.5
LT2UV205RS33	47.2	45.7	42.1	38.6	36.2	33.9	31.9	30.3
LT2UV205X32	49.2	49.2	49.2	45.3	41.3	39.4	37.4	35.4
LT2UV206RS30	49.2	47.2	43.3	41.3	39.4	37.4	35.4	31.5
LT2UV255X34	49.2	49.2	49.2	49.2	46.3	43.3	41.3	39.4
LT2UV256RS35	49.2	49.2	47.2	45.3	43.3	41.3	39.4	37.4
LT2UV325X38	49.2	49.2	49.2	49.2	49.2	47.2	45.3	43.3
LT2UV359X40	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2
LT2UV409X43	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2
LT2UV459X45	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2
LT2UV509X48	47.2	47.2	47.2	47.2	47.2	47.2	47.2	47.2

center to center distance = maximum sheet width

FLAT GLAZING SHEET THICKNESS

In this situation, the major factor influencing deflection behavior is the purlin spacing.

The sheet width has no influence on the deflection behavior of the sheet when exposed to loading. This means that any sheet width up to the maximum standard width can be selected.

In the case of vertical glazing, should a greater span width be required, a standard polycarbonate “H” profile is sufficient to join two sheets together to form a sound, water-tight joint. No additional vertical glazing support bars are necessary. In the case of sloped glazing, a support/glazing profile is recommended to join two sheets together, not only for a watertight joint, but also to avoid excessive sheet deflection already caused by the sheet’s own weight.

Fastening LEXAN THERMOCLEAR sheet to the intermediate purlins using conventional nuts, bolts and washers is possible. However, all joints and clamping areas require support in the form of compatible rubber washers to distribute the clamping force over as wide an area as possible. To facilitate this, large metal washers laminated with compatible rubber and assembled with spacing collars should be used. Bolts should not be tightened so that the force permanently deforms the sheet or restricts its natural expansion and contraction. An alternative method of assembly involves a specially designed polyamide “cladding button” which is available at any authorised LEXAN THERMOCLEAR sheet distributor. The button is designed so that the compatible rubber gasket is an integral part of the bolt which has a large head to distribute the clamping forces.

When using any type of bolt assembly it is important to remember that the spacing between the hole and the sheet edge should be at least 40 mm.

Note

When applying the glazing method described above, the following points must be taken into consideration.

- Penetration of water and dust between the “H” profile and the sheet surface may create streaks. By applying a recommended silicone sealant this penetration can be restricted.
- It is extremely difficult to obtain a watertight connection between the washer or button and the LEXAN THERMOCLEAR sheet surface.
- Water and dust can easily penetrate into the bolted sheet channel which consequently results in algae growth or cobweb formation.

Consider this glazing system as suitable only when appearance is of minor importance.

Figure 23

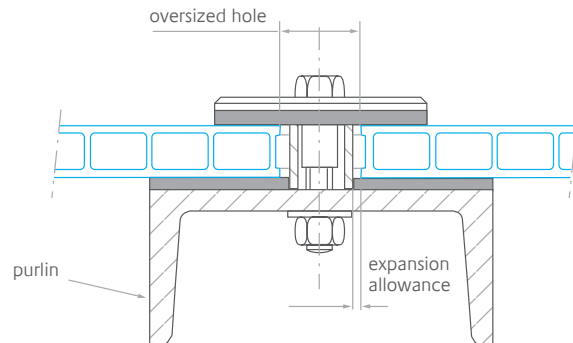


Figure 24

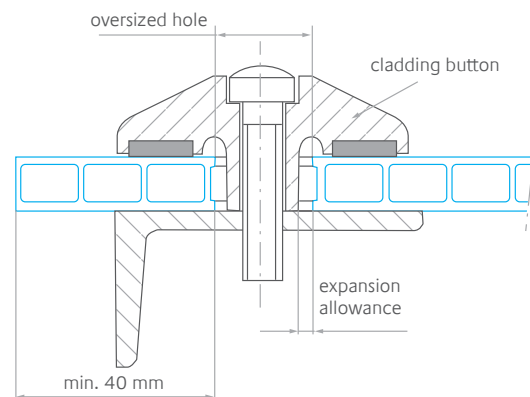
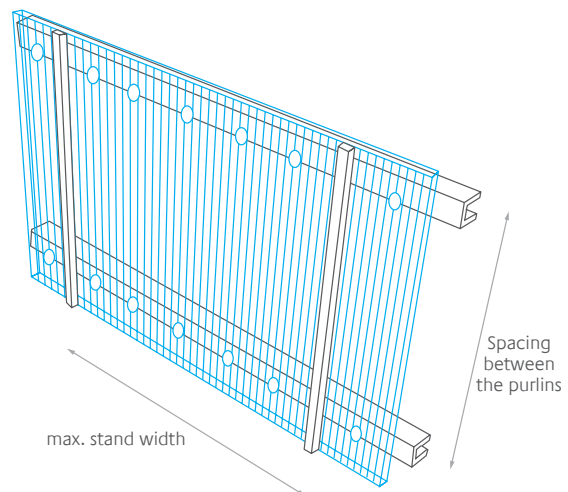


Figure 25



FLAT GLAZING SHEET THICKNESS

Table 19: Center to center distance of purlins in mm; glazing profiles 90° to rib structure

center to center distance (mm)								
Loading in Nm ²	12.5	16.7	20.9	25.1	29.2	33.4	37.6	41.8
LT2UV452RS10	500							
LT2UV62RS13	27.2	24.8	23.2	22.4	21.3	20.5	19.7	18.9
LT2UV82RS15	32.7	29.9	28.3	26.8	25.6	24.8	23.6	22.8
LT2UV103RS19	35.4	35.8	33.7	31.5	30.3	29.1	28.0	0.0
LT2UV103X19	35.4	35.8	33.7	31.5	30.3	29.1	28.0	0.0
LT2UV102RS17	39.8	36.6	34.4	32.7	31.1	29.9	28.7	28.0
LT2UV103T20	39.8	36.6	34.4	32.7	31.1	29.9	28.7	28.0
LT2UV105RS175	39.8	36.6	34.4	32.7	31.1	29.9	28.7	28.7
LT2UV163TS27	57.1	52.2	48.8	46.5	44.5	42.7	41.3	39.4
LT2UV163TS28	57.1	52.2	48.8	46.5	44.5	42.7	41.3	39.4
LT2UV163X29	57.1	52.2	48.8	46.5	44.5	42.7	41.3	39.4
LT2UV166RS27	57.1	52.2	48.8	46.5	44.5	42.7	41.3	39.4
LT2UV205RS33	61.0	56.7	53.1	50.2	48.0	46.3	44.9	43.3
LT2UV206RS30	61.0	56.7	53.1	50.2	48.0	46.3	44.9	43.3
LT2UV255X34	65.9	60.0	56.5	53.5	50.8	49.2	47.2	45.3
LT2UV256RS35	65.9	60.0	56.5	53.5	50.8	49.2	47.2	45.3
LT2UV329X38	78.7	72.8	66.9	63.0	59.1	57.1	55.1	53.1
LT2UV359X40	78.7	74.8	70.9	66.9	63.0	59.1	57.1	55.1
LT2UV409X43	82.7	78.7	74.8	70.9	66.9	63.0	61.0	59.1
LT2UV459X45	90.6	86.6	82.7	78.7	74.8	70.9	66.9	63.0
LT2UV509X48	94.5	90.6	86.6	82.7	78.7	74.8	70.9	66.9

Rooflight Office Building. Roof is made of LEXAN THERMOCLEAR 16 mm sheet in Opal White colour.



CURVED GLAZING SHEET THICKNESS

LEXAN THERMOCLEAR sheet can be successfully cold-curved over curved support glazing profiles, to suit many glazing applications, e.g. domes, roof-lights, etc. Providing the radius is not below the minimum recommended value, then the introduced stress by cold-curving will not have any adverse effect upon the mechanical performance of the sheet. Sheets must always be bent longitudinally, never across the width of the sheet.

Table 20: Minimum radius values

LEXAN THERMOCLEAR sheet thickness	Min. radius in mm
6	1050
8	1400
10	1750
16	2800
20	3500
25	4375

The loading characteristics given in Table 21 are based upon curved glazing applications clamped on all four edges. The Table shows linear buckling load values, (calculated with a safety factor of 2.0), against installation radii for different sheet widths. Sheet length 'L' needs to be greater than sheet width 'W' to facilitate curvature; in practice, a ratio of 1:2 or less is never contemplated because of the practicalities of installation geometry.

Figure 26

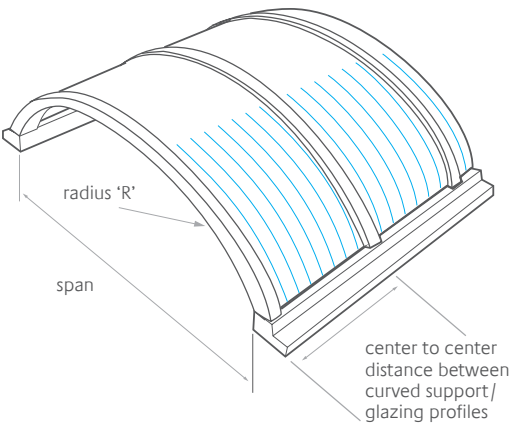


Table 21: Examples of center to center distance (mm) curved glazing profiles

LT2UV62RS13								
Loading in lb/ft ²	12.5	16.7	20.9	25.1	29.2	33.4	37.6	41.8
Radius "R" (in)	center to center distance (in) curved glazing profiles							
41.3	82.7	70.9	59.1	49.2	42.1	37.8	33.9	29.5
47.2	74.8	59.1	49.2	39.4	35.4	31.5	27.6	23.6
51.2	66.9	55.1	43.3	35.4	31.1	27.6	24.8	22.4
55.1	63.0	47.2	37.8	32.7	28.3	24.8	22.4	19.7
59.1	57.1	43.3	35.4	29.5	26.0	22.4	19.7	17.7
63.0	53.1	39.4	32.3	26.8	23.6	19.7	17.7	17.7
66.9	49.2	36.6	29.9	25.6	20.9	17.7	17.7	17.7
70.9	45.3	33.9	27.6	24.4	17.7	17.7	17.7	17.7
74.8	41.3	31.5	25.2	22.8	17.7	17.7	17.7	17.7
78.7	36.2	29.5	23.6	20.9	17.7	17.7	17.7	17.7
82.7	33.5	27.6	21.7	18.5	17.7	17.7	17.7	17.7
86.6	31.5	26.4	19.7	17.7	17.7	17.7	17.7	17.7
90.6	29.5	23.6	17.7	17.7	17.7	17.7	17.7	17.7
94.5	27.6	21.7	17.7	17.7	17.7	17.7	17.7	17.7
98.4	25.6	21.7	17.7	17.7	17.7	17.7	17.7	17.7
102.4	25.6	19.7	17.7	17.7	17.7	17.7	17.7	17.7
106.3	25.6	19.7	17.7	17.7	17.7	17.7	17.7	17.7

CURVED GLAZING SHEET THICKNESS

Table 21: Center to center distance (mm) curved glazing profiles (continued)

LT2UV82RS15								
Loading in lb/ft ²	12.5	16.7	20.9	25.1	29.2	33.4	37.6	41.8
Radius "R" (in)	center to center distance (in) curved glazing profiles							
55.1	82.7	74.8	66.9	51.2	43.3	39.4	34.3	30.7
59.1	78.7	66.9	53.1	45.7	39.4	34.6	31.5	28.3
63.0	76.8	65.0	50.0	41.7	36.2	31.9	28.3	26.0
66.9	72.0	59.4	46.5	39.0	33.9	29.9	26.4	23.6
70.9	67.3	53.9	42.9	36.2	31.5	28.0	24.4	21.7
74.8	63.0	48.4	39.4	33.1	28.7	25.6	22.8	21.7
78.7	58.3	45.3	36.2	30.7	26.8	23.6	21.7	21.7
82.7	54.3	42.1	34.3	28.7	25.2	21.7	21.7	21.7
86.6	52.0	38.6	32.3	27.6	23.6	21.7	21.7	21.7
90.6	48.0	36.6	30.3	26.0	21.7	21.7	21.7	21.7
94.5	45.3	34.6	27.6	23.6	21.7	21.7	21.7	21.7
98.4	43.3	32.7	25.6	21.7	21.7	21.7	21.7	21.7
102.4	40.2	29.5	23.6	21.7	21.7	21.7	21.7	21.7
106.3	37.4	27.6	23.6	21.7	21.7	21.7	21.7	21.7
110.2	34.3	27.6	23.6	21.7	21.7	21.7	21.7	21.7
LT2UV102RS17								
Loading in lb/ft ²	12.5	16.7	20.9	25.1	29.2	33.4	37.6	41.8
Radius "R" (in)	center to center distance (in) curved glazing profiles							
68.9	82.7	76.0	60.2	52.0	44.9	39.4	35.4	31.5
74.8	82.7	66.1	54.3	45.7	40.2	34.6	31.5	28.3
78.7	78.7	63.0	50.4	42.5	36.6	32.7	29.5	26.8
82.7	74.8	57.9	47.2	39.8	34.3	30.3	27.6	23.6
86.6	71.7	54.7	44.1	37.4	32.3	30.7	25.6	22.0
90.6	66.9	51.2	41.7	35.0	30.7	27.2	24.4	22.0
94.5	63.0	48.4	39.4	33.1	29.1	24.8	24.4	22.0
98.4	60.2	45.3	37.4	31.5	27.6	24.8	24.4	22.0
102.4	57.1	42.1	35.4	29.5	26.0	24.8	24.4	22.0
106.3	54.3	38.6	33.9	27.6	26.0	24.8	24.4	22.0
110.2	50.4	36.6	32.3	27.6	26.0	24.8	24.4	22.0
114.2	48.0	35.4	31.1	27.6	26.0	24.8	24.4	22.0
118.1	45.7	34.6	29.5	27.6	26.0	24.8	24.4	22.0
126.0	42.5	32.7	29.5	27.6	26.0	24.8	24.4	22.0
133.9	39.4	32.7	29.5	27.6	26.0	24.8	24.4	22.0
LT2UV103X20								
Loading in lb/ft ²	12.5	16.7	20.9	25.1	29.2	33.4	37.6	41.8
Radius "R" (in)	center to center distance (in) curved glazing profiles							
68.9	82.7	76.0	60.2	52.0	44.9	39.4	35.4	31.5
74.8	82.7	66.1	54.3	45.7	40.2	34.6	31.5	28.3
78.7	78.7	63.0	50.4	42.5	36.6	32.7	29.5	26.8
82.7	74.8	57.9	47.2	39.8	34.3	30.3	27.6	23.6
86.6	71.7	54.7	44.1	37.4	32.3	30.7	25.6	22.0
90.6	66.9	51.2	41.7	35.0	30.7	27.2	24.4	22.0
94.5	63.0	48.4	39.4	33.1	29.1	24.8	24.4	22.0
98.4	60.2	45.3	37.4	31.5	27.6	24.8	24.4	22.0
102.4	57.1	42.1	35.4	29.5	26.0	24.8	24.4	22.0
106.3	54.3	38.6	33.9	27.6	26.0	24.8	24.4	22.0
110.2	50.4	36.6	32.3	27.6	26.0	24.8	24.4	22.0
114.2	48.0	35.4	31.1	27.6	26.0	24.8	24.4	22.0
118.1	45.7	34.6	29.5	27.6	26.0	24.8	24.4	22.0
126.0	42.5	32.7	29.5	27.6	26.0	24.8	24.4	22.0
133.9	39.4	32.7	29.5	27.6	26.0	24.8	24.4	22.0

CURVED GLAZING SHEET THICKNESS

Table 21: Center to center distance (mm) curved glazing profiles (continued)

LT2UV105RS175								
Loading in lb/ft ²	12.5	16.7	20.9	25.1	29.2	33.4	37.6	41.8
Radius "R" (in)	center to center distance (in) curved glazing profiles							
68.9	82.7	76.0	60.2	52.0	44.9	39.4	35.4	31.5
74.8	82.7	66.1	54.3	45.7	40.2	34.6	31.5	28.3
78.7	78.7	63.0	50.4	42.5	36.6	32.7	29.5	26.8
82.7	74.8	57.9	47.2	39.8	34.3	30.3	27.6	23.6
86.6	71.7	54.7	44.1	37.4	32.3	30.7	25.6	22.0
90.6	66.9	51.2	41.7	35.0	30.7	27.2	24.4	22.0
94.5	63.0	48.4	39.4	33.1	29.1	24.8	24.4	22.0
98.4	60.2	45.3	37.4	31.5	27.6	24.8	24.4	22.0
102.4	57.1	42.1	35.4	29.5	26.0	24.8	24.4	22.0
106.3	54.3	38.6	33.9	27.6	26.0	24.8	24.4	22.0
110.2	50.4	36.6	32.3	27.6	26.0	24.8	24.4	22.0
114.2	48.0	35.4	31.1	27.6	26.0	24.8	24.4	22.0
118.1	45.7	34.6	29.5	27.6	26.0	24.8	24.4	22.0
126.0	42.5	32.7	29.5	27.6	26.0	24.8	24.4	22.0
LT2UV163TS28								
Loading in lb/ft ²	12.5	16.7	20.9	25.1	29.2	33.4	37.6	41.8
Radius "R" (in)	center to center distance (in) curved glazing profiles							
110.2	82.7	75.6	62.2	52.4	45.3	40.2	36.2	32.7
118.1	82.7	70.1	57.1	47.6	41.7	37.0	33.1	29.9
126.0	80.7	63.8	52.0	43.7	38.2	33.9	29.9	27.2
133.9	75.6	58.3	47.6	40.6	35.0	30.7	27.6	24.4
141.7	70.1	55.1	44.1	37.4	32.7	27.6	26.2	24.4
149.6	65.7	51.2	40.9	35.0	29.5	27.6	26.2	24.4
157.5	61.4	47.2	37.8	31.9	29.5	27.6	26.2	24.4
165.4	57.5	44.1	34.6	31.9	29.5	27.6	26.2	24.4
173.2	53.5	40.9	34.6	31.9	29.5	27.6	26.2	24.4
181.1	51.2	38.6	34.6	31.9	29.5	27.6	26.2	24.4
189.0	47.2	38.6	34.6	31.9	29.5	27.6	26.2	24.4
196.9	43.3	38.6	34.6	31.9	29.5	27.6	26.2	24.4
204.7	43.3	38.6	34.6	31.9	29.5	27.6	26.2	24.4
212.6	43.3	38.6	34.6	31.9	29.5	27.6	26.2	24.4
220.5	43.3	38.6	34.6	31.9	29.5	27.6	26.2	24.4
LT2UV163X29								
Loading in lb/ft ²	12.5	16.7	20.9	25.1	29.2	33.4	37.6	41.8
Radius "R" (in)	center to center distance (in) curved glazing profiles							
126.0	82.7	82.7	82.7	72.8	61.0	55.1	49.2	43.3
133.9	80.3	78.7	74.8	65.0	57.1	51.2	47.2	41.3
141.7	78.0	74.8	72.8	61.0	53.1	47.2	43.3	37.4
149.6	75.6	70.9	66.9	57.1	49.2	44.1	39.4	37.4
157.5	72.8	66.9	63.0	53.1	47.2	41.3	37.4	37.4
165.4	70.5	63.0	59.1	50.2	45.3	39.4	37.4	37.4
173.2	68.5	59.1	55.1	47.2	43.3	37.4	37.4	37.4
181.1	66.9	55.1	51.2	44.9	41.3	37.4	37.4	37.4
189.0	65.0	51.2	47.2	43.3	39.4	37.4	37.4	37.4
196.9	63.0	47.2	45.3	41.3	37.4	37.4	37.4	37.4
204.7	61.0	43.3	3.9	37.4	37.4	37.4	37.4	37.4
212.6	55.1	41.3	37.4	37.4	37.4	37.4	37.4	37.4
220.5	51.2	39.4	37.4	37.4	37.4	37.4	37.4	37.4
228.3	47.2	37.4	37.4	37.4	37.4	37.4	37.4	37.4
236.2	47.2	37.4	37.4	37.4	37.4	37.4	37.4	37.4

CURVED GLAZING SHEET THICKNESS

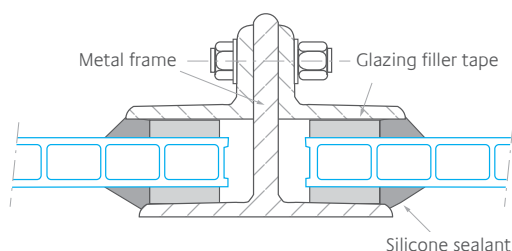
Table 21: Center to center distance (mm) curved glazing profiles (continued)

LT2UV166RS29								
Loading in lb/ft ²	12.5	16.7	20.9	25.1	29.2	33.4	37.6	41.8
Radius "R" (in)	center to center distance (in) curved glazing profiles							
110.2	82.7	82.7	76.8	65.4	55.1	50.0	45.3	41.3
118.1	82.7	82.7	70.9	59.1	52.0	45.3	41.3	37.4
126.0	82.7	78.7	65.0	53.1	47.2	41.7	37.4	35.4
133.9	82.7	72.8	59.1	50.4	43.3	39.4	35.4	35.4
141.7	78.7	67.7	55.1	46.1	40.2	37.4	35.4	35.4
149.6	76.8	63.0	51.2	43.3	37.4	35.4	35.4	35.4
157.5	70.9	59.1	47.2	39.4	35.4	35.4	35.4	35.4
165.4	66.9	55.1	43.3	37.4	35.4	35.4	35.4	35.4
173.2	63.0	51.2	39.4	35.4	35.4	35.4	35.4	35.4
181.1	59.1	47.2	35.4	35.4	35.4	35.4	35.4	35.4
189.0	55.1	43.3	35.4	35.4	35.4	35.4	35.4	35.4
196.9	49.2	39.4	35.4	35.4	35.4	35.4	35.4	35.4
204.7	43.3	35.4	35.4	35.4	35.4	35.4	35.4	35.4
212.6	43.3	35.4	35.4	35.4	35.4	35.4	35.4	35.4
220.5	43.3	35.4	35.4	35.4	35.4	35.4	35.4	35.4
LT2UV205RS33								
Loading in lb/ft ²	12.5	16.7	20.9	25.1	29.2	33.4	37.6	41.8
Radius "R" (in)	center to center distance (in) curved glazing profiles							
141.7	72.8	59.1	51.2	47.2	43.3	39.4	35.4	33.5
145.7	70.9	57.1	49.2	45.3	41.3	37.4	33.7	31.9
149.6	68.9	55.1	47.2	43.3	39.4	35.4	31.9	30.3
153.5	67.3	53.5	46.3	42.3	38.4	34.6	31.9	30.3
157.5	65.9	52.2	45.3	41.3	37.4	33.9	31.9	30.3
161.4	64.6	51.2	43.7	44.1	36.2	33.9	31.9	30.3
165.4	63.0	50.2	42.3	38.6	36.2	33.9	31.9	30.3
169.3	61.0	48.4	40.7	38.6	36.2	33.9	31.9	30.3
173.2	59.1	47.2	39.4	38.6	36.2	33.9	31.9	30.3
177.2	57.1	46.5	37.4	38.6	36.2	33.9	31.9	30.3
181.1	55.1	45.7	37.4	38.6	36.2	33.9	31.9	30.3
185.0	53.1	44.5	37.4	38.6	36.2	33.9	31.9	30.3
189.0	51.2	41.3	37.4	38.6	36.2	33.9	31.9	30.3
192.9	49.2	38.6	37.4	38.6	36.2	33.9	31.9	30.3
196.9	47.2	38.6	37.4	38.6	36.2	33.9	31.9	30.3
LT2UV205X33								
Loading in lb/ft ²	12.5	16.7	20.9	25.1	29.2	33.4	37.6	41.8
Radius "R" (in)	center to center distance (in) curved glazing profiles							
145.7	49.2	49.2	49.2	49.2	49.2	49.2	49.2	49.2
153.5	49.2	49.2	49.2	49.2	49.2	49.2	49.2	47.2
161.4	49.2	49.2	49.2	49.2	49.2	49.2	47.2	45.3
169.3	49.2	49.2	49.2	49.2	49.2	47.2	45.3	43.3
177.2	49.2	49.2	49.2	49.2	47.2	45.3	43.3	41.3
185.0	49.2	49.2	49.2	47.2	45.3	43.3	41.3	39.4
192.9	49.2	49.2	47.2	45.3	43.3	41.3	39.4	37.4
200.8	49.2	47.2	45.3	43.3	41.3	39.4	37.4	37.4
248.0	47.2	45.3	43.3	41.3	39.4	37.4	37.4	37.4
216.5	45.3	43.3	41.3	39.4	37.4	37.4	37.4	37.4
224.4	43.3	41.3	39.4	37.4	37.4	37.4	37.4	37.4
232.3	41.3	39.4	37.4	37.4	37.4	37.4	37.4	37.4
240.2	39.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4
248.0	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4

SHEET GLAZING GUIDELINES

Wet Glazing

Figure 27

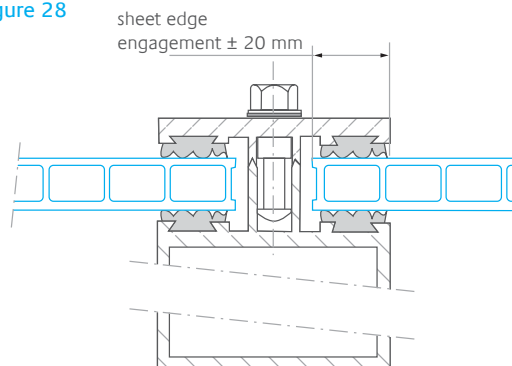


Do's

- Clean the window frame. Remove old putty or broken glass, if necessary.
- Measure the sheet edge engagement area (± 20 mm) and internal window frame dimensions, i.e. the space into which the LEXAN THERMOCLEAR sheet will be fitted.
- Calculate the sheet size, allowing clearance for thermal expansion (3 mm per linear meter).
- Select the right thickness to fulfil loading requirements, U-value, etc.
- Clamp the LEXAN THERMOCLEAR sheet to a support table to avoid vibration and rough cutting.
- Cut the sheet to the required size, using a standard electric circular or jig saw.
- Blow away saw dust build-up in the channels with dry compressed air.
- Remove any sharp edges and irregularities from the sheet.
- Peel back approximately 50 mm of the masking film from all edges of the cut sheet on both sides.
- Carefully select the sealing tape appropriate to the glazing application.
- Seal the top and the bottom sheet channels with impermeable and/or venting tape, f.i. Multifoil G3600 / AD 3400 / AD4500. Please refer to the processing instructions provided by the sealing tape supplier.
- In case of venting tape, and to allow condensation drainage, apply an alu closure profile with drainage possibilities or apply some single sided self adhesive glazing tape as distance holder between the venting holes.
- For wet glazing apply single sided self adhesive glazing tape or rubber profile to both window frame and bead.

Dry Glazing

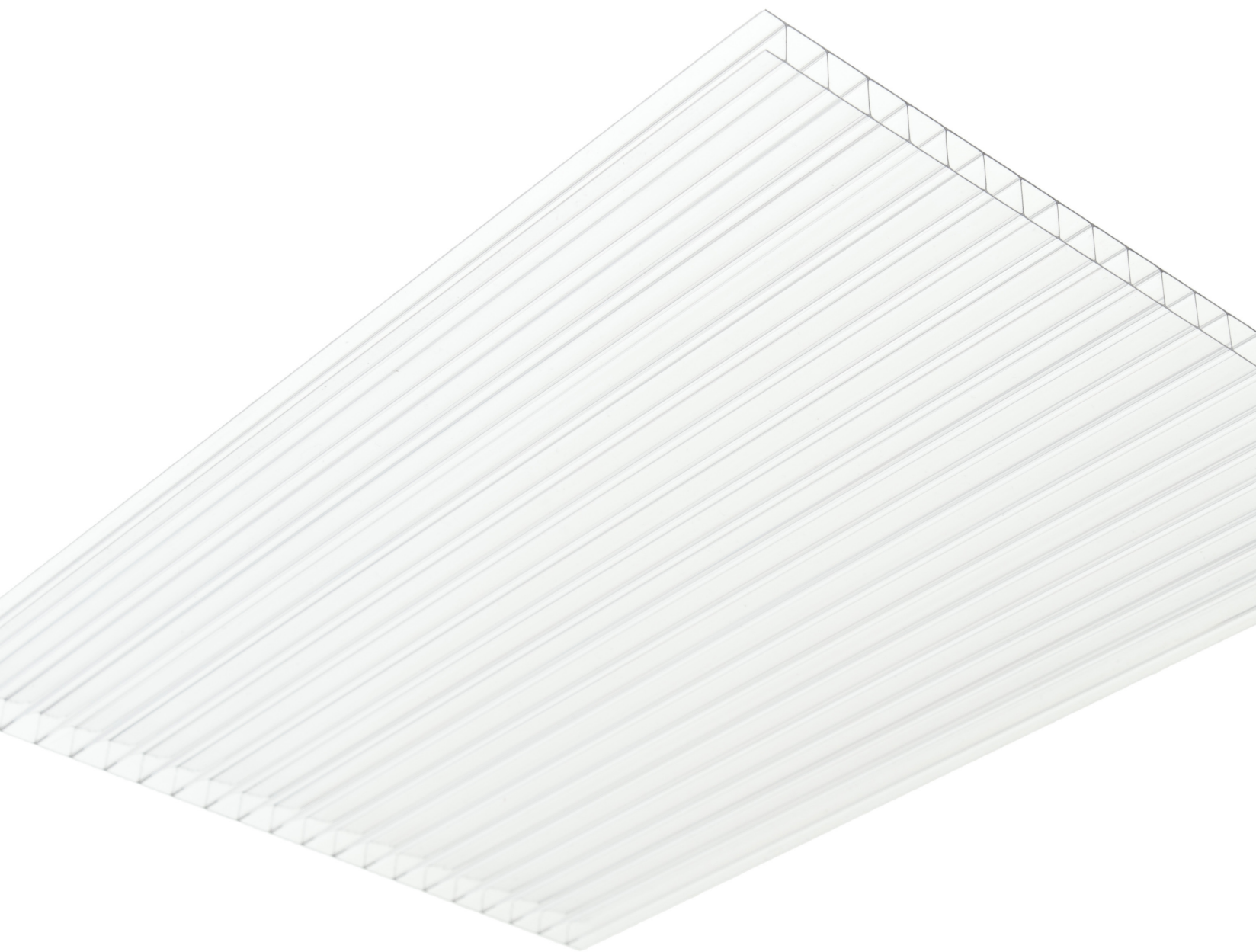
Figure 28



- For dry glazing, snap-fit compatible neoprene rubber gaskets in place in the support profile as well as in the clamping cover profile.
- Insert the LEXAN THERMOCLEAR sheet into the window frame.
- LEXAN THERMOCLEAR sheet must always be installed with the ribs running vertically. The UV protected surface should always face outwards.
- Fix the window bead or the clamping cover profile in place.
- For wet glazing apply an approved silicone sealing compound, such as Silglaze/Silpruf between the sheet and the window frame/bead.
- Remove all masking film immediately after installation.
- Clean the window carefully with warm soapy water and with a soft cellulose sponge or woollen cloth.

Don'ts

- Do not use plasticized soft PVC or incompatible rubber sealing tapes or gaskets.
- Do not use Amine, Benzamide or Methoxy based sealants.
- Do not use abrasive or highly alkaline cleaners.
- Never scrape LEXAN THERMOCLEAR sheet with squeegees, razor blades or other sharp instruments.
- Do not walk on LEXAN THERMOCLEAR sheet at any time.
- Do not install LEXAN THERMOCLEAR sheet with damaged tapes.
- Do not clean LEXAN THERMOCLEAR sheet in hot sun or at elevated temperatures.
- Benzene, gasoline, acetone, carbon tetrachloride or butyl cellosolve should never be used on LEXAN THERMOCLEAR sheet.



CONTACT US

Middle East and Africa

SABIC Global Headquarters

PO Box 5101
Riyadh 11422
Saudi Arabia
T +966 (0) 1 225 8000
F +966 (0) 1 225 9000
E info@sabic.com

Americas

2500 CityWest Boulevard
Suite 100
Houston, Texas 77042
USA
T +1 800 323 3783
T +1 713 430 2301
F +1 888 443 2033
E sales.spinside@sabic.com

Europe

Plasticslaan 1
4612 PX
Bergen op Zoom
The Netherlands
T +31 (0)164 293678
F +31 (0)164 293272
E sfs.info@sabic.com

Asia Pacific

2550 Xiupu Road
Pudong
201319 Shanghai
China
T +86 21 2037 8188
F +86 21 2037 8288
E sfs.info@sabic.com



LEXAN is a trademark of SABIC

DISCLAIMER: THE MATERIALS, PRODUCTS AND SERVICES OF SAUDI BASIC INDUSTRIES CORPORATION (SABIC) OR ITS SUBSIDIARIES OR AFFILIATES ("SELLER") ARE SOLD SUBJECT TO SELLER'S STANDARD CONDITIONS OF SALE, WHICH ARE AVAILABLE UPON REQUEST. INFORMATION AND RECOMMENDATIONS CONTAINED IN THIS DOCUMENT ARE GIVEN IN GOOD FAITH. HOWEVER, SELLER MAKES NO EXPRESS OR IMPLIED REPRESENTATION, WARRANTY OR GUARANTEE (i) THAT ANY RESULTS DESCRIBED IN THIS DOCUMENT WILL BE OBTAINED UNDER END-USE CONDITIONS, OR (ii) AS TO THE EFFECTIVENESS OR SAFETY OF ANY DESIGN OR APPLICATION INCORPORATING SELLER'S MATERIALS, PRODUCTS, SERVICES OR RECOMMENDATIONS. UNLESS OTHERWISE PROVIDED IN SELLER'S STANDARD CONDITIONS OF SALE, SELLER SHALL NOT BE RESPONSIBLE FOR ANY LOSS RESULTING FROM ANY USE OF ITS MATERIALS, PRODUCTS, SERVICES OR RECOMMENDATIONS DESCRIBED IN THIS DOCUMENT. Each user is responsible for making its own determination as to the suitability of Seller's materials, products, services or recommendations for the user's particular use through appropriate end-use and other testing and analysis. Nothing in any document or oral statement shall be deemed to alter or waive any provision of Seller's Standard Conditions of Sale or this Disclaimer, unless it is specifically agreed to in a writing signed by Seller. Statements by Seller concerning a possible use of any material, product, service or design do not, are not intended to, and should not be construed to grant any license under any patent or other intellectual property right of Seller or as a recommendation for the use of any material, product, service or design in a manner that infringes any patent or other intellectual property right.

SABIC and brands marked with TM are trademarks of SABIC or its subsidiaries or affiliates.
©2016 Copyright SABIC. All Rights Reserved.

Dripgard is a trademark of Standard Bent Glass Corp.