



FLEXIBLE+ ELEGANT

LEXAPANEL™ STANDING SEAM SYSTEM DIY TECHNICAL GUIDE



CHEMISTRY THAT MATTERS™



Introduction

LEXAPANEL™ STANDING SEAM SYSTEM

LEXAPANEL™ standing seam system from SABIC' made with polycarbonate (PC) sheet technology provides architects and builders exceptional flexibility to create sustainable and beautiful translucent roofing and other glazing elements such as skylights, barrel vaults, fenestrations, conservatories, and commercial buildings.

Compared with other standing seam solutions, LEXAPANEL system provides customers with far more glazing options, including choice of width, thickness, coating, color, structure and type of connection. Further, LEXAPANEL sheet delivers the strength, weatherability, clarity and thermal insulation of SABIC's renowned LEXAN™ THERMOCLEAR™ multiwall sheet. This high-performance solution demonstrates SABIC's commitment in developing sustainable solutions that promote energy conservation while providing customer focused day-lighting solutions to improve working and living environments.

SABIC's Specialty Film and Sheet business of Innovative Plastics 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 Polycarbonate sheet portfolio includes a wide variety of 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.

Our portfolio is backed by advanced technical support and application development services around the world to meet our customers' global specification needs with local supply.

WHY LEXAPANEL™ STANDING SEAM SYSTEM?

LEXAPANEL™ standing seam system is an innovation that addresses many different building and construction challenges - including cost and design freedom - with one versatile concept. The standing seam product benefits architects, builders and integrators by simplifying the use of standing seam designs and encouraging integration of transparent glazing and roofing elements that admit natural light, reduce heating and cooling demands for greater energy efficiency, and add style to any building.

POTENTIAL BENEFITS

- Virtually any length and width customized to the load requirements needed for the project, providing maximum uninterrupted spans.
- Choice of structure, thickness and color of the LEXAN sheet, as well as the coating required.
- Both sides have proprietary UV protection against outdoor weathering (DIN53387 / ASTM G26).
- Reduced system costs through simplified installation thanks to the snap-on connection and elimination of aluminum profiles, reducing installation time and cost while increasing the total light coming through the roof.



LEXAPANEL™ SHEET MECHANICAL PROPERTIES

Thermal insulation

The multi-wall structure of LEXAPANEL sheet offers potential advantages where thermal insulation is a major consideration.

The amount of energy transmitted through the material per square area and per degree temperature difference, referred to as U-Value is 0.34 Btu/hr ft² F (1.93 W/K m²). This is equivalent to an R value of 3. These measurements are per ASTM C 1363-2011 (NFRC 101).

Temperature resistance

LEXAPANEL sheet is characterized by its excellent retention of impact strength and stiffness at elevated temperatures, even over an extended period. LEXAPANEL sheet has a continuous use temperature rating of -40 to 212°F (-40 to 100°C).

Fire test performance

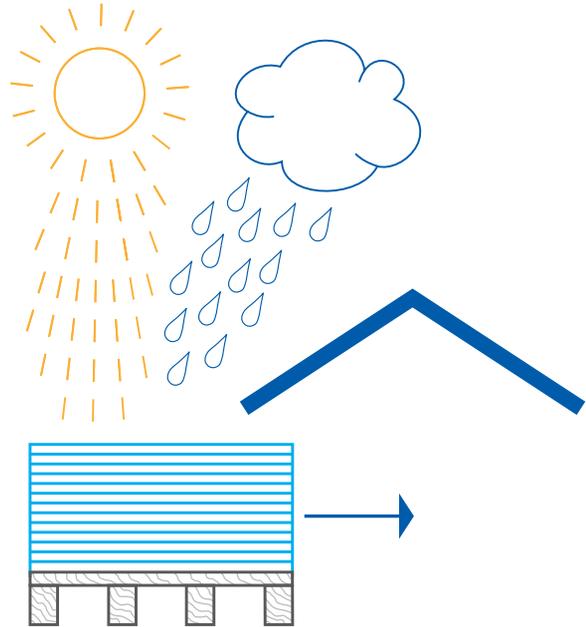
LEXAPANEL sheet has good fire performance in accordance with many national fire standards. It has class A performance per ASTM E84 and CC1 performance per ASTM D 635.

Sawing

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

Storage

Prior to installation, LEXAPANEL sheet should be stored and protected against atmospheric influences like sun, rain, etc. Failure to properly store the product can result in the masking welding to the sheet surface. Care should be exercised when handling and transporting LEXAPANEL sheet in order to prevent scratches on the panel surface and damage to the panel edges.



Installation guidelines

Sealing recommendations

In order to minimize moisture build-up and dust contamination inside the channels, edge sealing of the open ended channels is very important. An impermeable tape and a perforating venting tape have been developed by the company Multifoil. Both tapes are available via your local authorized dealer.

Standard glazing

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

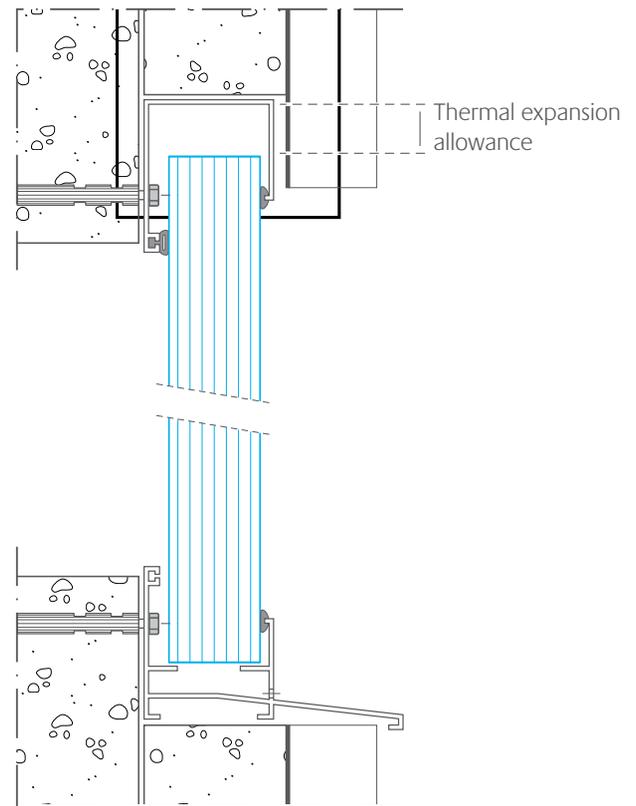
Specific conditions

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

Thermal expansion allowance

Take into account a clearance of approximately 0.04 in per linear foot or 3 mm per linear meter between panel top edge and top glazing profile platform. This thermal expansion clearance is typically designed into the glazing profiles used by system integrators. Allowance for thermal expansion between adjacent panels is designed into the standing seam legs.

Fig.: Typical glazing detail Thermoplastic/alu glazing profile



LEXAPANEL™ SHEET CLEANING RECOMMENDATIONS

These cleaning recommendations apply to all LEXAN polycarbonate sheet products, including, but not limited to, LEXAN solid sheet and signs, LEXAPANEL, coated MARGARD sheet and LEXAN multiwall 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. 100bar or 1,450psi) 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 LEXAPANEL, Multiwall, Corrugated and Sign sheet:

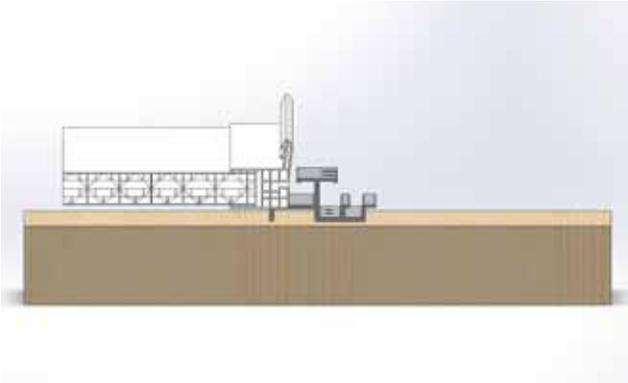
- Cleaners and solvents generally recommended for use on polycarbonate are not necessarily compatible with the UV-protected surfaces of LEXAN multiwall, corrugated and sign polycarbonate materials.
- Do not use alcohols on the UV-protected surfaces of LEXAN sheet.

INSTALLATION GUIDELINES

Vertical wall or Sloped roof glazing

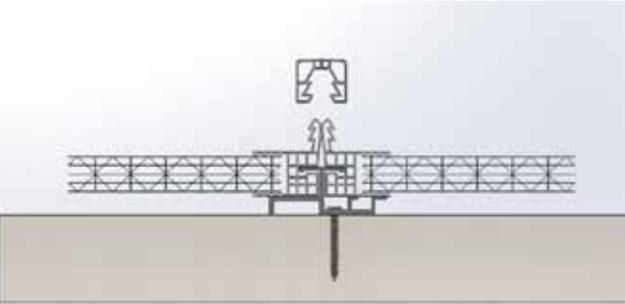
A wide range of easy to use aluminum glazing profiles are available at the vast majority of authorized LEXA-PANEL sheet distributors and specialized installers. It is critical to use SABIC designed or approved fastener clips to ensure maximum load characteristics.

Step 1



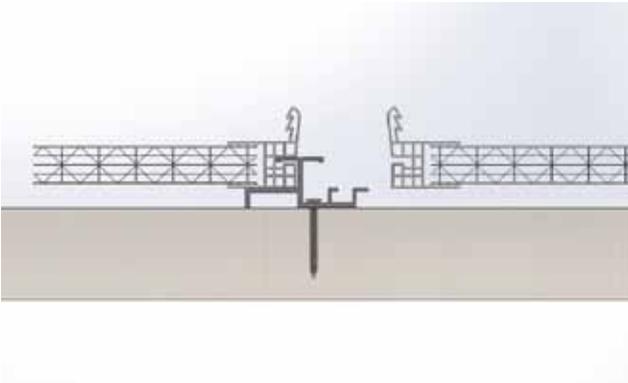
Slide metal fastener clip in place

Step 3



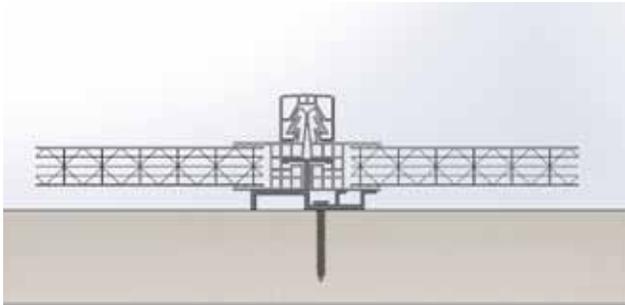
Slide next pannel into place

Step 2



Bolt/screw clip to purlin

Step 4

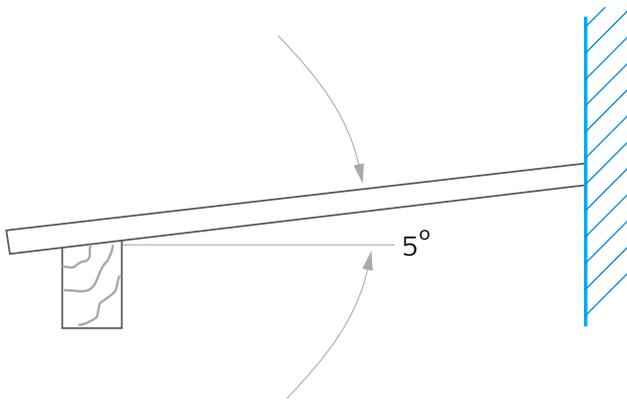


Snap batten onto standing seam

CONSTRUCTION MADE SIMPLE...

Sloped roofing

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

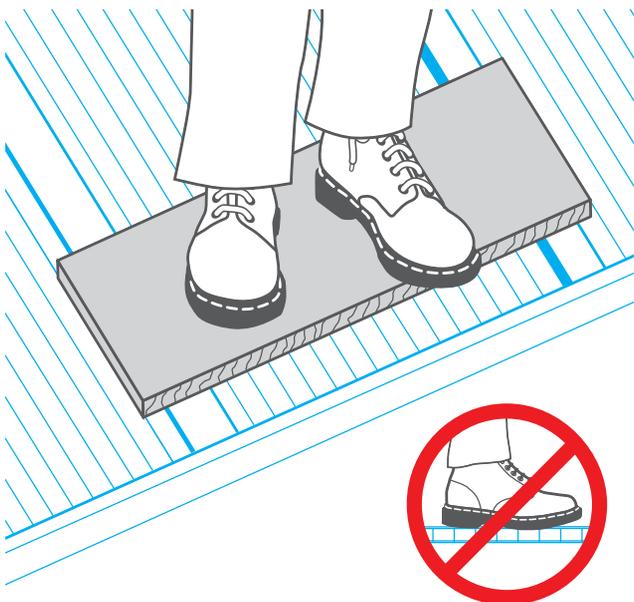


LEXAPANEL™ standing seam sheet can help to deliver measurable return on investment through ease of installation; lower insurance costs through resistance to break-ins, weather damage, and vandalism; lower utility costs from better heat management; and less need for replacement due to weathering and breakage. LEXAPANEL is covered by a minimum 10 year limited written warranty against excessive yellowing, loss of light transmission, and loss of integrity and strength due to weathering.

It is recommended that LEXAPANEL standing seam sheet be incorporated into one of the aluminum framing systems offered by many systems integrators. For those smaller projects where using a system integrator is not feasible, the following suggestions are provided as a DO IT YOURSELF guide to installing a LEXAPANEL standing seam system.

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.



Apply aluminum tape to the ridge edge of each panel and batten.



Once building has been framed to code and horizontal purlins installed, install ridge cap to framed building

- A metal standing seam roof ridge cap may be used.
- Use rubber gasketed metal standing seam roof screws.



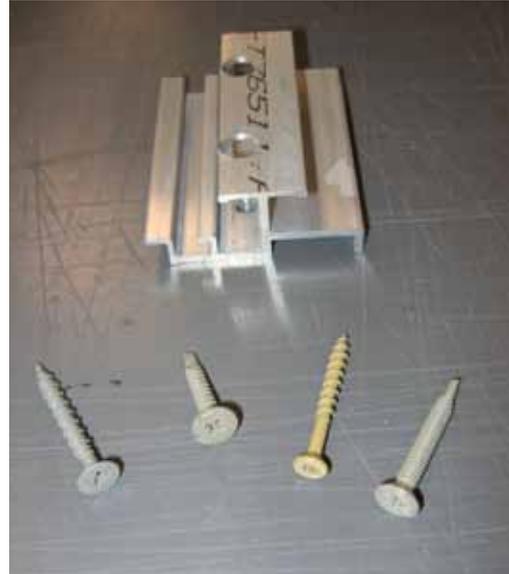
Install rake cap and first partial panel

- Ensure rake cap and first panel are square to the frame and ridge cap.
- Predrill holes oversized by 1/8 inch (3 mm) for each screw that penetrates the panel to ensure room for thermal expansion.



Install LEXAPANEL™ Clips

- Clips should be pre-cut to length and pre-drilled to accept your fastener of choice.
- Slide into the slot in the panel.
- Use one clip per purlin.
- For wood construction, it is suggested to use 1.5 inch (38 mm) deck screws and to install with an extended bit.
- A minimum of two screws or bolts is suggested per clip.
- A minimum length of 3 in (75 mm) is suggested for the clip length.





Install full size panel

- It is often necessary to catch the edge of the installed clips and angle the sheet up to easily engage the clip.
- It is also possible to engage by tapping the panel with a rubber mallet.
- Use warm water and mild soap if needed for radiuses of no less than 18 feet (5500 mm).
- Once engaged into all clips the panel can be slid up or down along clips.
- Ensure a thermal expansion gap is left between panel and ridge. 1/8" per 3 feet per 100oF (3 mm per meter per 45°C).



Install batten using rubber mallet

- Do not use a dead blow or hammer.
- Once batten is installed it can be tapped up under the ridge cap by striking with a rubber mallet from the drip edge .
- Ridge end of batten should be taped with aluminum tape and the drip edge should be taped with vent tape



Install foam spacer between ridge cap and panel

- Fit should be snug between battens and between ridge cap and panel.
- Use rubber grometed metal standing seam screws to screw through the ridge cap and into the foam spacer.
- Screws must not penetrate into the panel



Secure drip edge of the panel to final purlin

- Either use drip edge flashing or a predrilled piece of LEXAN™ sign grade sheet if the overhang is longer than available flashing options.
- Using a piece of LEXAN sign grade may also act as a snow and ice stop which may help minimize large roof slides.



Oversize holes by at least 1/8 inch to reduce thermal expansion issues

- Use rubber gasketed metal standing seam screws.
- Ensure that an adequate thermal expansion gap exists between the panel and the ridge. 1/8" per 3 feet per 100°F (3 mm per meter per 45°C).
- Fasten LEXAN sign grade sheet or metal flashing through LEXAPANEL panel and into final purlin.



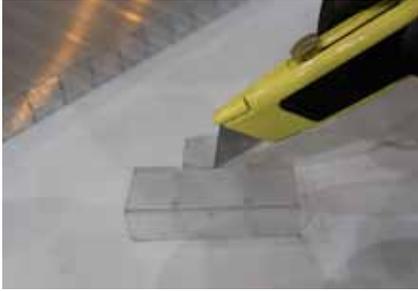
Continue installation across the roof.



Install final partial panel and rake cap

- Use rubber grometed metal standing seam roof screws.
- Fasten through rake cap and panel on roof face at each purlin using predrilled holes oversized by 1/8 in (3 mm) to allow for thermal expansion.
- Fasten through rake cap and into purlin along rake edge.

Optional End Caps



Scoring end cap along groove.



Pieces separated by scoring and bending along groove



Cap in place



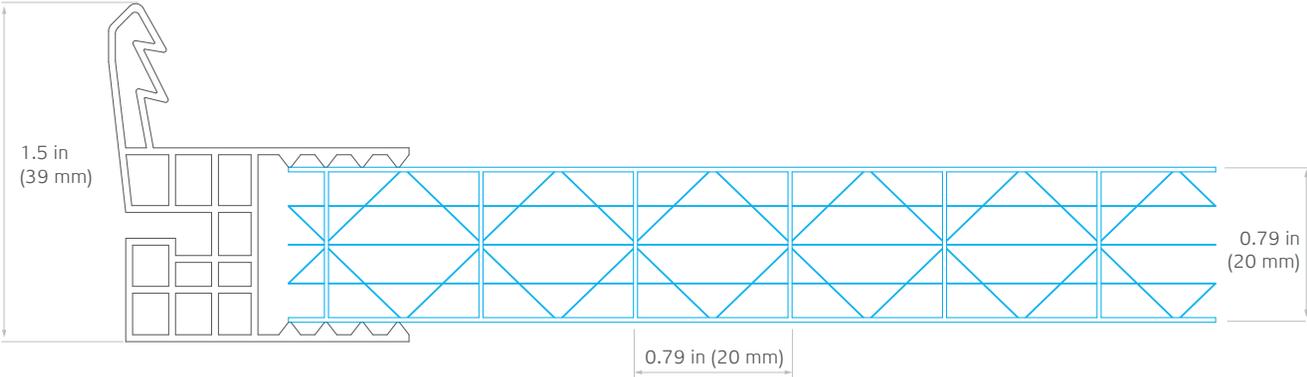
Attach optional extruded U channel or metal drip edge flashing to drip edge

- Use vibrating blade to create slot under battens for drip edge flashing.
- Use painted ½ inch (12 mm) long pan head screws to secure flashing to LEXAPANEL panels.
- If necessary, apply compatible silicone sealant to seal edge.

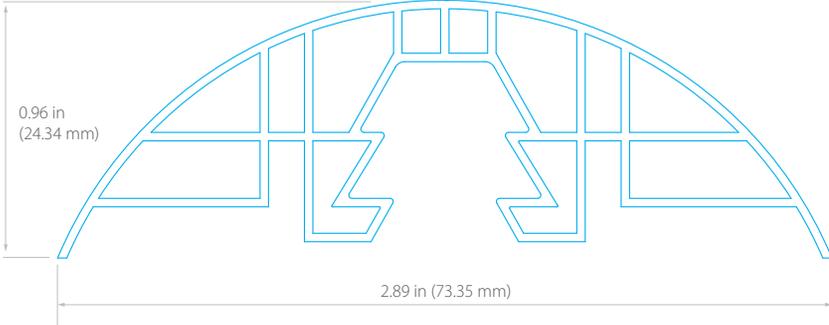
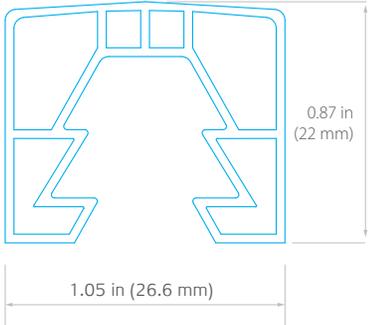


TECHNICAL DRAWINGS

Panel and L Collector (PART # SS205XP)



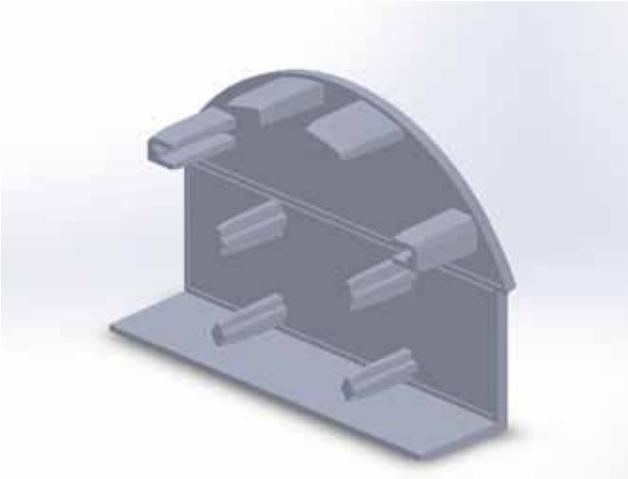
SQUARE and ROUND BATTENS (PART #s LPS20C2 and LPR20C2)



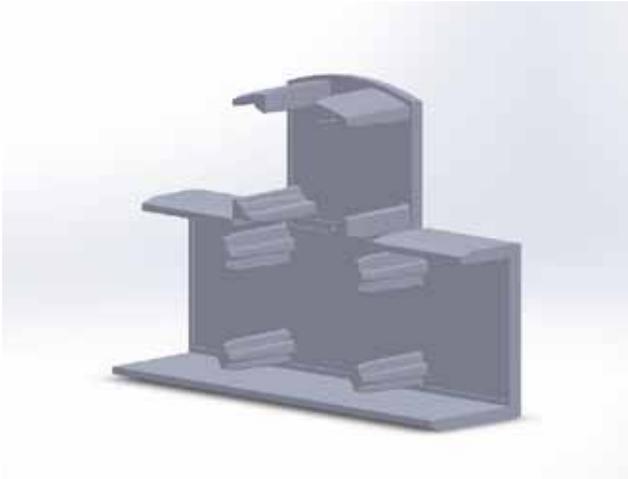
Optional End Caps:

Optional U profile end cap part # LPUVU20 (not shown)

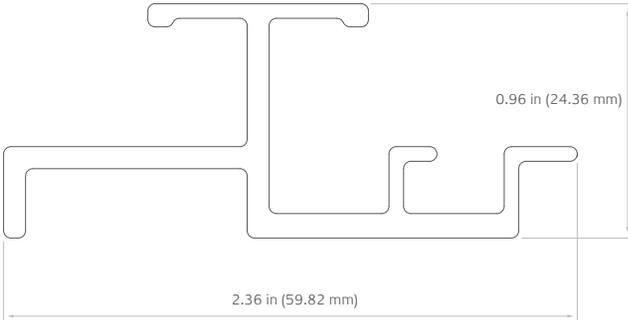
Curved End CAP (part # LPREC20),
use with batten LPR20C2



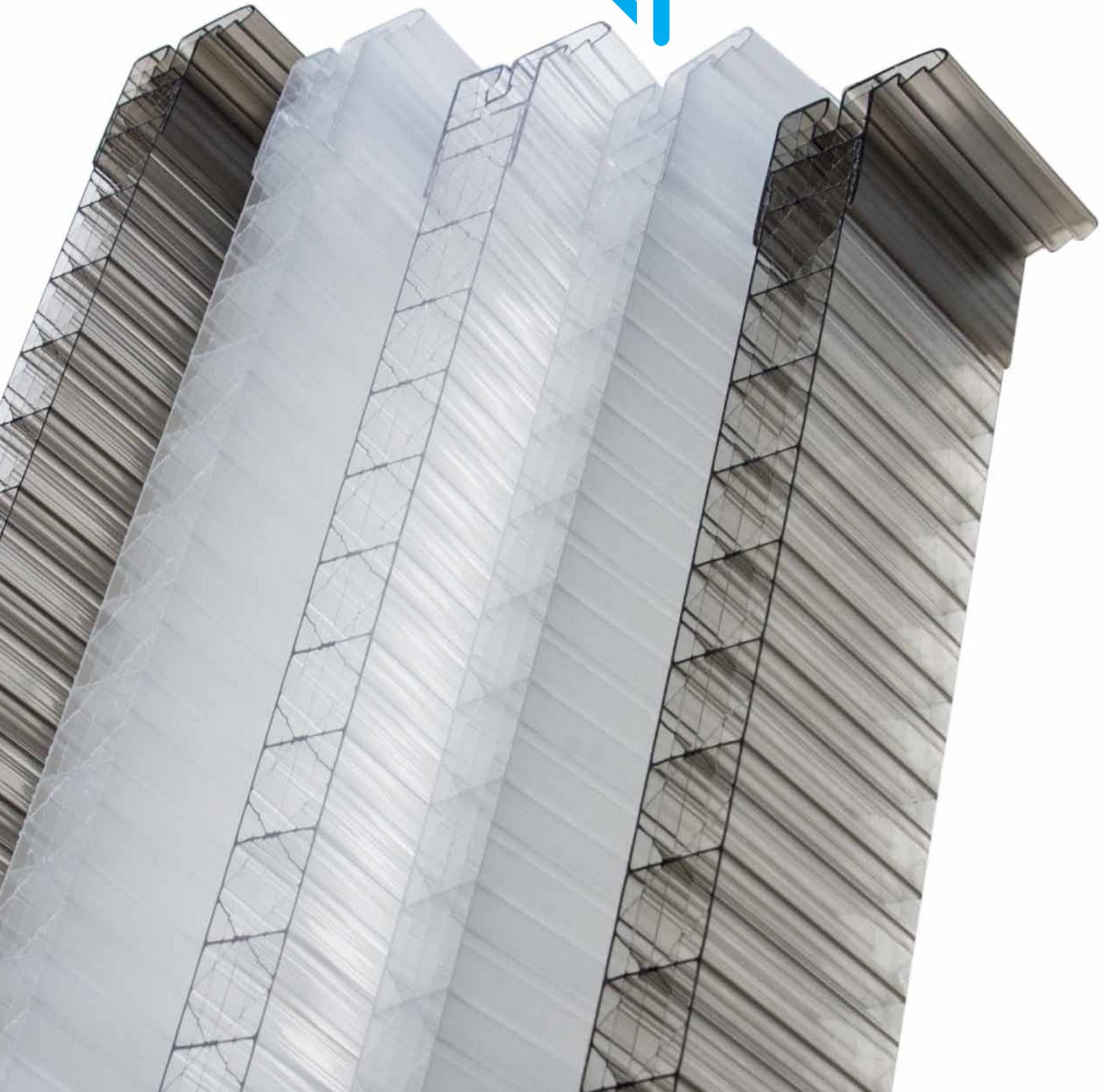
Square End Cap (part # LPSEC20),
use with batten LPS20C2



CLIP (part # SSCL003) Standard Length 3 inches.
Custom lengths available.



LEXAPANEL FROM SABIC
AVAILABLE IN VARIOUS
STRUCTURES, COLORS
AND WIDTHS; EXCELLENT
CHOICE FOR YOUR DAY-
LIGHTING NEEDS.



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