ENABLING CREATIVE & SUSTAINABLE BUILDING DESIGNS
WITH LEXAN™ POLYCARBONATE SHEET
Lexan* sheet helps to meet tough challenges facing architects and builders
SABIC Innovative Plastics has been working to bring its portfolio of leading edge materials to bear in architectural glazing applications for over 40 years. Virtually unbreakable, high optical quality solid and multiwall Lexan* (PC) sheet products with highly specialized properties are often a top choice for answering the specific needs of a variety of structures.
Widespread concerns about the negative environmental effects of traditional building materials and methods are driving the adoption of sustainable design. Lexan® multiwall sheet products can make a significant contribution by helping our customers achieve sustainable designs. For example, Lexan® sheet far surpasses double- and triple-pane glass windows in thermal insulation performance, and its lightweight saves energy in transportation and installation. Plus, it's 100 percent recyclable. By incorporating Lexan® sheet into your designs, you can make any building more sustainable.
Conserving Energy

Sustainable design is the practice of creating healthier and more resource-efficient models of construction, renovation, operation, maintenance and demolition. Plastics can enhance sustainability in a variety of ways, including energy conservation and the potential for recyclability.

One key focus of sustainable design is energy efficiency. For example, builders must balance the increasing demand for designs that admit large amounts of light with concerns about energy costs. The use of specialized PC glazing instead of traditional glass can achieve both.

Lexan® PC sheet allows natural daylight to enter a building, creating a more aesthetically pleasing working or living environment while saving on electricity for artificial lighting. However, while letting light in, the material also offers ultraviolet (UV) protection for occupant health, and exceptional thermal insulation to enhance energy conservation. With new Lexan® Thermoclear® 9-wall sheet, U-values as low as .89 W/m²K (acc. ISO 10077 test) can be achieved – surpassing the insulation performance of double- and even triple-pane glass. Improved insulation reduces the use of energy for heating during cold periods and air conditioning during hot periods.

The use of specialized PC sheet that blocks infrared radiation (IR) can reduce the build-up of interior heat for lower energy consumption, while admitting plenty of light. This material is an excellent choice for skylights, walkways and roof domes where it is important to admit high light levels while reducing heat that would otherwise require air conditioning.

Another area where Lexan® sheet conserves energy is in handling. This lightweight material – at least three times lighter than a comparably sized glass panel with the same thermal insulation value – saves fuel in shipping and installation. Less weight also allows Lexan® sheet to be supported by lighter-weight glazing bars and substructure, reducing the amount of support material required.

Even during manufacture, Lexan® sheet offers environmental advantages over glass. Typical operating temperatures during the sheet extrusion process are in the 240°C range. Therefore the energy used during the extrusion process in which Lexan® polycarbonate resin is converted into Lexan® polycarbonate sheet, is just a fraction of the energy needed to manufacture the flat glass that goes into the same building & construction applications. During the Lexan® polycarbonate sheet extrusion process, up to 15 percent of recycled content is used to produce virgin material.
Building a Case for LEED Certification

In the United States, the Leadership in Energy and Environmental Design (LEED) rating system is used to recognize whole-building sustainability. The LEED Green Building Rating System™ recognizes sustainable performance in major categories of a construction project and has become one of the most widely used systems in the United States. For example, many municipalities mandate that new public buildings must be designed and built with the goal of achieving LEED certification.

Under the LEED system, credits are awarded for a number of different aspects of a project: sustainable sites; energy and atmosphere; materials and resources; and indoor environmental quality, to name a few. By incorporating Lexan® sheet glazing, roofing and cladding solutions into the design, builders can help win credits in the following areas:

**Sustainable Sites**
Credit 8 – Light Pollution Reduction (1 point): Lexan® SoftLite sheet, a new addition to SABIC Innovative Plastics’ portfolio, offers light-diffusing characteristics that prevent direct-beam illumination from leaving the building interior. Also, the use of opaque Lexan sheet and Lexan multiwall sheet can block up to 100 percent of light pollution.

**Energy & Atmosphere**
Credit 1 – Optimize Energy Performance (1 point each, up to 10 points): Lexan® sheet provides superior winter and summer energy efficiency while transmitting diffused daylight.

**Materials & Resources**
Credits 4.1 and 4.2 – Recycled Content (1 point each): Lexan® sheet utilizes different percentages of pre-consumer recycled content that can help builders to obtain the credits.

**Indoor Environmental Quality**
Credit 6.2 – Controllability of Systems (1 point): Lexan® Solar Control IR sheet (monolithic and multiwall sheet versions) can help increase comfort in the building by up to 20 percent. Credits 8.1 and 8.2 – Daylight & Views (1 point each): Lexan sheet for walls, curtain walls and window replacement systems can easily and effectively integrate fixed and operable windows glazed with PC sheet for connection to the outdoors.

Virtually unbreakable, high optical quality Lexan polycarbonate (PC) sheet materials from SABIC Innovative Plastics are often a top choice due to the versatile glazing solutions that they may help provide.

SABIC Innovative Plastics’ Lexan polycarbonate sheet combines crystal-clear transparency with value-added performance that features light weight, high stiffness, design freedom, impact and fire resistance and weatherability. This high-tech sheet product – solid and multiwall products with highly specialized properties – is an excellent candidate to help answer the specific needs of a variety of structures.
Typical properties of the Lexan* sheet include

This unique sheet portfolio is amongst the most extensive on the market today, offering hundreds of possible combinations of structure, color, coating and finish.

- Outstanding balance of **light weight** and **high stiffness**
- **Ease of installation**
  it can be easily cut on site using conventional tools and can be cold-formed.
- **Excellent thermal insulation** performance
- **Excellent flame resistance**
- **UV resistance**
- Long-term **high light transmission**.
- **Broad portfolio**
  a range of structures, coatings, colors, dimensions and gauges
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Current residential and commercial designs increasingly call for roofing structures that admit large amounts of natural light, both to improve aesthetics and to reduce energy needed for interior lighting.

Rooflight and skylight structure with Lexan® sheet provides natural, high quality light and significantly improves the aesthetics, comfort and energy efficiency of your working place and home.
SKYLIGHTS
1 Rooflight Shopping Mall
Lexan Exell-D sheet transparent

2 Skylight Office Building
Lexan Exell-D sheet transparent

3 Skylight Shopping Centre
Lexan Exell-D sheet transparent

4 Curved Rooflight Office Building
Lexan Exell-D sheet transparent

5 Rooflight Office Building
Lexan Thermoclear sheet opal white colour
SKYLIGHTS
6 Rooflight of a metro station in Rotterdam, The Netherlands
Lexan® Exell®-D sheet
transparent

7 Skylight of an office building
Lexan Exell-D sheet
transparent

8 Skylight of The Shopping Centre
Lexan Exell-D sheet
transparent
9 Khalifa Stadium, pyramid roofing structure in Doha, Qatar
Lexan® Exell®-D
Solar Control IR sheet
blue colour

10 Roof Glazing of the Warsaw University library
Lexan® Thermoclear® sheet

11 Domed Conservatory
India’s Butterfly Park
Lexan Exell-D sheet
transparent

12 Domed Conservatory
India’s Butterfly Park
Lexan Exell-D sheet
transparent

13 Domed Conservatory
Lexan Thermoclear sheet
opal white colour

14 Skylight
Lexan Exell-D sheet
transparent
India’s Butterfly Park

The highlight of the new 7.5 acre Butterfly Park within the Bannerghatta Biological Park in Bangalore, India, is a stunning 10,000-sq.-ft. domed conservatory. The dome admits optimal sunlight to sustain the enclosed tropical rain forest, while protecting the delicate butterflies from wind and storms. To construct this signature dome, the architects sought a material that would provide maximum transparency combined with light weight, impact resistance and design flexibility. Although glass provided good light transmission, its heavy weight, design restrictions, and potential for breakage made it unacceptable. Instead, the architects decided to find a thermoplastic material that would deliver the properties needed for this unique structure.
Curved Roofing

Lexan* sheet can be installed with a curve under stress. The flexible sheets lend themselves to unique designing for various applications such as skylights, canopies and walkways.
Curved Roofing
Lexan® Exell®-D sheet
Solar Control IR
blue colour

Curved Roofing
Lexan Exell-D sheet, Solar Control IR
blue colour

Curved Roofing
Shopping Center
Leclerc Romilly Acrolux, France
Lexan Exell-D sheet with
10 years limited written warranty
Lexan® Thermoclear® Sheet

Lexan® Thermoclear® Sheet is high insulation multiwall sheet product with excellent thermal insulation values. A sheet range of high quality, multi-wall polycarbonate glazing sheets extruded from Lexan® resin. The complete range offers remarkable impact strength, high light transmission, light weight, long term weather resistance and, due to the multi-wall construction, outstanding thermal insulation properties and is 2 sides UV protected. Lexan Thermoclear Plus 2UV sheet grades are available in Clear (112), Opal White (WH7A092X), Bronze (515055), Opaque White (GY8D201), Solar Control IR Green (GN8B038T) and Metallic (GY6A744M).

Lexan® Thermoclear® SunXP Sheet

In addition to the inherent properties of the Lexan Thermoclear range, this range of products offers UV protection on both sides, but with even higher resistance to UV radiation, yellowing and loss of light transmission. This exceptional material is awarded a unique 15 years limited written warranty.

Lexan® Thermoclear® Easy Clean Sheet

This is the world’s first self-cleaning polycarbonate sheet. UV protected on both sides, Lexan Thermoclear Easy Clean sheet features a unique hydrophobic coating on the outside surface that 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, leaving the sheet almost spotless. Furthermore, it stays clean for longer, thereby reducing the frequency and the associated cost of cleaning.

Lexan® Exell*-D Sheet

Lexan® Exell*-D Sheet is a transparent polycarbonate solid sheet with proprietary UV protection on both sides offering excellent weathering properties. With its excellent impact resistance it is an excellent candidate for a wide variety of building and construction applications. Lexan Exell D sheet can be easily cold formed into gentle curves which makes it a good material choice for skylights, covered walkways, barrel vaults etc. Lexan Exell D sheet is thermoformable and can be thermoformed into the desired geometry whilst retaining the UV resistant coating specially developed for weather resistant applications.

Lexan® Solar Control IR Sheet

Is a proprietary Solid and/or Multiwall sheet that absorbs infrared (IR) radiation, the largest cause of heat build-up in buildings, while maintaining high light transmission. Keeping heat-out

Lexan® Corrugated sheet

Corrugated panels offering high impact strength and excellent light transmission. This product is an excellent candidate for greenhouse coverings. The fine matte texture on the surface scatters light for more uniform distribution of sun light within the greenhouse canopy.

Lexan® Thermopanel* sheet

Standard Roof Systems. The solution for in plane insulated roof lights to match with standard metal panels.

Lexan® Thermoroof* sheet

Custom Roof Systems. Custom made insulated roof light products.
The wide range of Lexan® polycarbonate glazing materials provides architects with broad design flexibility in applications for both inside and outside the home.

From intelligent glazing materials for conservatories and verandas that help to block heat by reflecting heat and cut down glare, to robust glazing with double-sided UV protection for porches and carports that can withstand high wind and snow loads. Lexan solid and multiwall sheets are lightweight, unobtrusive and flexible materials to be able to design the optimal pool cover.
1. Veranda
Lexan® Thermoclear®
Solar Control IR sheet
green colour

2. Veranda Office Building
Lexan Thermoclear
Solar Control IR sheet
blue colour

3. Veranda Restaurant
Lexan Thermoclear
Solar Control IR sheet

4. Conservatory – Art Gallery
Lexan Thermoclear sheet
opal white colour

5. Veranda Hotel & Restaurant
Lexan Thermoclear sheet
opal white colour

6. Veranda – Apartment Building
Lexan Thermoclear sheet
transparent
Centerpoint® Roofing Structure Housing Project

Lexan® Thermoclear® sheet opal white colour offers exceptional sound and energy insulation.

Centerpoint® Roofing Structure Housing Project

Lexan Thermoclear sheet opal white colour offers exceptional sound and energy insulation.

Conservatory Restaurant Entrance

Lexan Thermoclear sheet opal white colour

Centerpoint® Roofing Structure Housing Project

Lexan Thermoclear sheet opal white colour

Bathroom Glazing

Lexan Thermoclear sheet opal white colour

Conservatory Restaurant Entrance

Lexan Thermoclear sheet opal white colour
RESIDENTIAL GLAZING AND CONSERVATORIES
Restaurant Roofing
Astoa, Greece

Curved, transparent Lexan® Solar Control sheet from SABIC Innovative Plastics helps absorb infrared (IR) and near-IR radiation from the sun, potentially reducing interior heat buildup by up to 40 percent. The tough virtually unbreakable SABIC Innovative Plastics material also helps protect restaurant customers from inclement weather conditions while allowing penetration of natural daylight into living, working or sitting areas.
13  Crown Paradise Hotel in Cancun, Mexico  
Lexan® Solar Control IR sheet

14  Swimming Pool Shelter  
Lexan® Thermoclear® sheet transparent

15  Swimming Pool Shelter  
Lexan Thermoclear sheet transparent

16  Swimming Pool Shelter  
Lexan Thermoclear sheet transparent

17  Swimming Pool Shelter  
Lexan Thermoclear sheet transparent

Swimming pool shelters with Lexan Thermoclear Plus sheet demonstrate extreme endurance in this low profile pool cover.
### Product Solutions for Wall Cladding

| **Lexan® Thermoclick® Sheet Facade Systems** | Lexan® Thermoclick® sheet LTC40X4000 is an impact resistant, energy-saving multi-wall sheet with profiled tongue and groove connection, including a groove for double sided tie on the inside. This inter-connecting system eliminates the need for vertical profiles, thereby saving costs and enhancing aesthetics. |
| **Lexan® SG305-OB Sheet** | Lexan®SG305-OB sheet is an optical bright light diffuser sign grade. This extruded polycarbonate sheet offers significant advantages over many other sign materials in terms of design freedom, aesthetics and weathering properties. |
| **Lexan® Thermoclear Sheet** | Lexan® Thermoclear® Sheet is a high insulation multiwall sheet product with excellent thermal insulation values. A sheet range of high quality, multi-wall polycarbonate glazing sheets extruded from Lexan resin. The complete range offers remarkable impact strength, high light transmission, light weight, long term weather resistance and, due to the multi-wall construction, outstanding thermal insulation properties and is 2 sides UV protected. Lexan Thermoclear Plus 2UV sheet grades are available in Clear (112), Opal White (WH7A092X), Bronze (515055), Opaque White (GY8D201), Solar Control IR Green (CN88038T) and Metallic (CY6A744M). |
| **Lexan® Exell-D Sheet** | Lexan® Exell®-D Sheet is a transparent polycarbonate solid sheet with proprietary UV protection on both sides offering excellent weathering properties. With its excellent impact resistance it is an excellent candidate for a wide variety of building and construction applications. Lexan Exell D sheet can be easily cold formed into gentle curves which makes it a good material choice for skylights, covered walkways, barrel vaults etc. Lexan Exell D sheet is thermoformable and can be thermoformed into the desired geometry whilst retaining the UV resistant coating specially developed for weather resistant applications. |
| **Lexan® Solar Control IR Sheet** | Is a proprietary solid sheet and/or multiwall sheet that absorbs infra-red (IR) radiation, the largest cause of heat build-up in buildings, while maintaining high light transmission. Keeping heat out. |
| **Lexan® Corrugated Sheet** | Corrugated panels offering high impact strength and excellent light transmission. This product is an excellent candidate for greenhouse coverings. The fine matte texture on the surface scatters light for more uniform distribution of sun light within the greenhouse canopy. |
| **Lexan® Thermopanel® Sheet** | Standard Roof Systems. The solution for in plane insulated roof lights to match with standard metal panels. |
| **Lexan® Thermoroof® Sheet** | Custom Roof Systems. Custom made insulated roof light products. |
Wall cladding has an important influence on the character of a building. Lexan® sheet systems provide exciting design opportunities that are a world apart from the drab uniformity of traditional flat panels.

With their inherent design freedom, Lexan sheet systems allow designs that are visually striking and yet extremely practical.
1. Facade of the building in Barcelona, Spain by night
   Lexan® Thermoclick® sheet System

2. Facade of the building in Barcelona, Spain by daylight
   Lexan Thermoclick sheet System

3. Industrial Warehouse, Austria
   Lexan Thermoclick sheet
   opal white colour

4. DackeStop Museum of Arts in Virserum, Sweden
   curved Lexan Thermoclick sheet
   opal white colour
Blue Cube Massachusetts

Building a giant, luminescent “blue cube” with Lexan® Polycarbonate Thermoclick® sheet system

The New Bedford Seaport in Massachusetts is a historic coastal site nicknamed the “Whaling City” because it was formerly a key port for whaling. With its maritime heritage, the seaport has focused on marine education. The most recent attraction is the Ocean Explorium, a joint partnership between the University of Massachusetts, Dartmouth and the New Bedford Oceanarium, which takes a new approach to the concept of aquariums and marine education. The focal point for the new facility is an exhibit called Blue World Pavilion, an educational exhibit featuring advanced technology to depict a three-dimensional view of the planet on a large sphere suspended in space. To enclose this sphere, the Ocean Explorium contracted with cosestudi, an exhibit design group. In turn, cosestudi worked with EXTECH/Exterior Technologies to build a translucent cubical structure. The material chosen for the walls of the “blue cube” was Lexan Thermoclick sheet from SABIC Innovative Plastics.
5. Sports centre
Lexan Thermoclick sheet system

6. Hangar facility in New York, USA
Lexan Thermoclear sheet
opal white colour

7. Haestens Office Building in Sweden
Lexan Thermoclick sheet system

8. Wall Cladding Warehouse
Lexan Thermoclick sheet system

9. Wall Cladding Sport centre
Lexan Thermoclick sheet system

Lexan Corrugated sheet
11 Philips Science Park
Wall Cladding
Lexan® SG305 SLG sheet

12 Philips Science Park
Wall Cladding
Lexan SG305 SLG sheet

13 Philips Science Park
Wall Cladding
Lexan SG305 SLG sheet

14 Warehouse Wall Cladding
Thermoformed Lexan® Sheet
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<td><strong>Lexan® Margard® sheet</strong></td>
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<tr>
<td>Lexan® Margard® MR5E sheet is a transparent UV and mar resistant glazing material for flat applications only. The intrinsic properties of Lexan polycarbonate combined with its dual hard coated surface provide: high impact strength and forced entry protection, graffiti resistance, excellent all weather performance.</td>
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<tr>
<td><strong>Lexan® Soundglaze® sheet</strong></td>
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<tr>
<td>Lexan Margard Soundglaze and Soundglaze SC sheets are virtually unbreakable, UV protected transparent polycarbonate sheet products which have ideal properties for demanding sound screen and noise reduction barrier applications in urban, road, rail, and airport environments.</td>
</tr>
<tr>
<td><strong>Lexan® Margard® FMR5 XT sheet</strong></td>
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<tr>
<td>Lexan® Margard® FMR5 XT sheet is a transparent UV and abrasion resistant glazing material. Extremely high impact strength, with the capacity to be cold curved or drape formed. Two side formable hard-coated, offers resistance against wear and tear.</td>
</tr>
<tr>
<td><strong>Lexan® Lookout Clear Storm Panels</strong></td>
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<tr>
<td>Clear storm panels from Lookout® Shutters, Inc. are made with SABIC Innovative Plastics’ Lexan® sheet for windows and doors. Lookout clear storm panels help protect homes and businesses from the devastating damage caused by hurricanes and storms.</td>
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Lexan* Margard* sheet can be an excellent candidate for safety and security glazing to suit a wide range of applications. Lexan Margard sheet will resist a burglar from forcing an entry. It will delay him to a point where he simply gives up the attempt, or is detected. Either way, the premises and property are protected and re-glazing costs are eliminated.

Lexan Margard sheet will not shatter or splinter, so greatly reduces the risk of accidental injury in applications like internal partitions and doors...
1 Soundwall used for highway in Holland
Lexan* Margard* sheet
transparent

2 Soundwall used for Metro Line in Poland
Lexan* Soundglaze* SC sheet
blue colour

3 Soundwall used for Highway in China
Lexan Margard sheet
transparent

4 Soundwall Highway Crossing in Poland
Lexan Margard sheet
transparent

5 Abbot Bridge near Los Angeles, USA
Lexan* Thermoclear* sheet
opal white colour
6 Ski Jump Barrier Olympic Winter Games Torina 2006
Lexan* Soundglaze SC* sheet transparent

7 Safety Glazing for Ice Skating Centre
Lexan* Margard* MR5E sheet transparent

8 Rollershutter of a Shop in Rotterdam, Netherlands
Lexan Margard sheet transparent

9 Separation Wall of a Stadium
Lexan Margard MR5E sheet transparent

10 Dug Out of a Football Stadium
Lexan Margard sheet opal white colour
11 Clear Storm panels from Lookout® Shutters Inc. Lexan® sheet transparent

12 Window Storm Panel Lexan sheet transparent

13 Light home interior through using Lookout® clear storm panels Lexan sheet transparent
See-through Hurricane Protection!

Clear storm panels from Lookout® Shutters, Inc. are made with SABIC Innovative Plastics’ Lexan® sheet for windows and doors. Lookout® clear storm panels help protect homes and businesses from the devastating damage caused by hurricanes and storms.

The difference is clear with see-through hurricane protection!

Lookout® Shutters, Inc., has chosen to utilize SABIC Innovative Plastics’ Lexan sheet to help protect homes and businesses from the forces of nature. Lookout’s patented system (utilizing Lexan sheet as a component) is quick and easy to install, and can be used with standard f-tracks and headers.

Benefits

• Lets light into your home and office
• Aesthetically pleasing and may stay-up seasonally
• Lightweight—easily installed and removed
• No glass breakage
• Serves as vandal deterrent
### Product Solutions for Home Construction and Interior Applications

| **Lexan® Thermoclear® Sheet** | Lexan® Thermoclear® Sheet is high insulation multiwall sheet product with excellent thermal insulation values. A sheet range of high quality, multi-wall polycarbonate glazing sheets extruded from Lexan resin. The complete range offers remarkable impact strength, high light transmission, light weight, long term weather resistance and, due to the multi-wall construction, outstanding thermal insulation properties and is 2 sides UV protected. Lexan Thermoclear Plus 2ULV sheet grades are available in Clear (112), Opal White (WH7A092X), Bronze (515055), Opaque White (GY8D201), Solar Control IR Green (GN8B038T) and Metallic (GY6A744M). |
| **Lexan® Thermoclear® Hammered Glass Sheet** | Lexan Thermoclear® “Hammered Glass Look” sheet offers: totally new aesthetics with improved light diffusion, twin, triple and X-structure wall structure, both sides U.V. protected, long-term weather resistance, high impact strength, excellent light transmission, light weight, easy installation and outstanding thermal insulation properties. |
| **Lexan® Margard® sheet** | Lexan® Margard® MR5E sheet is a transparent UV and mar resistant glazing material for flat applications only. The intrinsic properties of Lexan polycarbonate combined with its dual hard coated surface provide: high impact strength and forced entry protection, graffiti resistance, excellent all weather performance. |
| **Lexan® Exell*-D Sheet** | Lexan® Exell*-D Sheet is a transparent polycarbonate solid sheet with proprietary UV protection on both sides offering excellent weathering properties. With its excellent impact resistance it is an excellent candidate for a wide variety of building and construction applications. Lexan Exell D sheet can be easily cold formed into gentle curves which makes it a good material choice for skylights, covered walkways, barrel vaults etc. Lexan Exell D sheet is thermoformable and can be thermoformed into the desired geometry whilst retaining the UV resistant coating specially developed for weather resistant applications. |
| **Lexan® Thermoclick® Sheet Facade Systems** | Lexan® Thermoclick® sheet LTC404X4000, is an impact resistant, energy-saving multi-wall sheet with profiled tongue and groove connection, including a groove for double sided tie on the inside. This inter-connecting system eliminates the need for vertical profiles, thereby saving costs and enhancing aesthetics. |
While the characteristics of glass – weight and brittleness – limit its design versatility, Lexan® sheet products can provide exceptional design freedom mainly due to their light weight, ability to be formed and bent into complex shapes. Next to that it offers easy installation, resistance to yellowing, graffiti, scratching and breakage.
Ceiling Topographies

By using textured Lexan sheet The Topo™ 3-Dimensional System by USG transforms flat interior ceiling planes into gently rolling landscapes and adds aesthetic interest while filtering overhead light. USG is a leading manufacturer of building materials for construction and remodeling. From major commercial developments, to residential housing and simple home improvement projects, USG products turn vision into reality everywhere people live and work.
1 Ceiling Office Building
Lexan* sheet

2 Ceiling Nailstudio
Lexan* sheet

3 Wall DackeStop Museum of Arts in Virserum, Sweden
Lexan Thermoclick* sheet
opal white colour

4 Apartment Partition Wall
Lexan Thermoclear
Hammered Glass Look sheet

5 Interior Partition Walls in 100% Design EXPO Restaurant
Lexan Thermoclear
Hammered Glass Look sheet

6 Partition Wall
Lexan Thermoclear
Hammered Glass Look sheet

7 Façade and interior
Theater Building,
Lexan Corrugated* Sheet

8 Interior The Spike Cyberworks
Lexan* sheet system
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Building on a legacy of leading-edge products and long-term experience in large architectural projects like stations and stadium glazing, SABIC Innovative Plastics continues to push forward with state-of-the-art materials designed to help our customers to achieve competitive differentiation through new designs, safety, durability and comfort.
LARGE ARCHITECTURAL PROJECTS
For over a quarter of a century, Lexan® polycarbonate glazing materials have been the materials of choice in stadiums and arenas around the world. From balconies, dugouts and walkways to bowl cladding, separation walls and roofing, architects and installers value the materials’ different coating surfaces, lightweight and formability into the most complex designs.

Beginning with its first application in a stadium in Split, Croatia in 1979, Lexan® Thermoclear® sheet has been selected for several Olympic arenas, including the Barcelona and Sydney facilities, as well as six stadiums that hosted the UEFA Euro 2004™ football championship in Portugal and four stadiums of the UEFA Euro 2008™ football championship in Austria and Switzerland.

Lexan sheet glazing materials can help to deliver measurable return on investment through ease of installation; lower insurance costs through resistance to break-ins, weather damage, and vandalism; and less need for replacement due to UV degradation, weathering, and breakage. Most of these products are covered by a minimum 10-year limited written warranty against excessive yellowing, loss of light transmission, and loss of strength due to weathering.

Building on a legacy of leading-edge products, SABIC Innovative Plastics continues to push forward with state-of-the-art materials designed to further help our customers to achieve competitive differentiation through new designs, safety, durability and comfort.

For the most of the large architectural projects SABIC Innovative Plastics, Specialty Film & Sheet business engages its global team of experts and manufacturing facilities around the world.
4 Arrival & Departure Hall
Shanghai Railway Station
Lexan™ Thermopanel™ multiwall sheet

5 The installation of the Roofing
Shanghai Railway Station
Lexan Thermopanel
multiwall sheet

6 The completed Shanghai
Railway Station
Lexan Thermopanel
multiwall sheet
55,000 m² Of a new tailor-made Lexan® Thermopanel® multiwall sheet is installed for the roof of the Shanghai South Railway station. Not only does this ambitious construction project represent one of the largest building with polycarbonate sheet ever used, but more importantly underscores SABIC’s commitment to help revitalize the Chinese infrastructure with some of the world’s most advanced materials technologies.

Much of the roof of the Shanghai South Railway Station covers the upper departure area of the station, which is around 300 meters in diameter and capable of holding up to 10,000 people. The custom-designed sheet is being manufactured using procedures developed specifically for this demanding project. The company engaged a global team of experts from Specialty Film & Sheet business in China, France, Italy, India and European headquarters in Bergen op Zoom, The Netherlands.
Lexan® Thermoclear® sheet from SABIC Innovative Plastics is an impact-resistant, multi-wall polycarbonate (PC) glazing material. It features a proprietary surface treatment on one or both sides that provides excellent resistance against degradation from UV radiation, while transmitting visible light very well. It withstands high wind and snow loads, and storms.

The multi-wall construction of Lexan Thermoclear sheet also ensures excellent thermal insulation. It is available in X-structure and rectangular-structure configurations, and a variety of special coatings and finishes to address special challenges:
- Lexan Thermoclear Easy Clean sheet products feature a patented hydrophobic coating that offers self-cleaning properties.
- Lexan Solar Control IR solid and multi-wall sheet grades reduce heat build-up by blocking near-infrared radiation.

More than 74,000m² Lexan Thermoclear sheet has been used for the roof glazing in 6 stadiums that hosted the UEFA Euro 2004™ in Portugal.

Lexan Thermoclear sheet is also used for the roofs of four stadiums for the UEFA Euro 2008 football championship in the Tivoli NEU Stadium in Innsbruck, Salzburg Wals-Seisenheim Stadium in Salzburg, Wörthersee Stadium in Klagenfurt, all three based in Austria, and Stade de Suisse Wankdorf stadium in Bern, Switzerland.
Wörthersee Stadium
Klagenfurt - Austria

Newly built stadium, opened in September 2007. Capacity: up to 30,000. 11,000 m² of transparent roof is made of Lexan® Thermoclear® 25mm 6RS sheet up to 18.5 meter length.

Architect: Albert Wimmer
Installer: PORR AG
Distributor: Interlux
Chongqing’s Olympic Stadium, West China
*Lexan® Thermoclear® Easy Clean sheet*
Lexan® Thermoclear® Easy Clean sheet glazes Chongqing’s first Olympic stadium rooftop. The patented technology of Lexan Thermoclear Easy Clean sheet was chosen by Chongqing Urban Development Co. Ltd. for the roof glazing of the first Olympic stadium in Chongqing, west China. With over 60,000 people to please over an area of around 36,000 square meters, this comes as no surprise. Lexan Thermoclear Easy Clean sheet needs minimal cleaning, provides excellent light transmission, delivers a high stiffness performance, and helps protect spectators from changing weather conditions.

Luz stadium Lisbon, Portugal
*Lexan® Thermoclear® X-structure sheet*
Luz is Portugal’s biggest stadium with a fully covered seating capacity of 65,000 spectators. It incorporates a series of high quality facilities and has been specially designed to withstand long-term exposure to sunlight and harsh weather conditions.

Dragão stadium Porto, Portugal
*Lexan® Thermoclear® X-structure Sheet*
Dragão stadium, the stadium has a 50,000-seat capacity, incorporates 280 tonnes of metal in its structure and has an array of pillars to support its translucent roof. The roof incorporates 35,200m² of Lexan Thermoclear X-structure sheet.
8 Chongqing’s Olympic Stadium, West China
Lexan* Thermoclear*
Easy Clean sheet

9 Chongqing’s Olympic Stadium, West China
Lexan Thermoclear
Easy Clean sheet

10 Luz Stadium Lisbon, Portugal
Lexan Thermoclear
X-structure sheet

11 Salzburg Wals-Seisheim Stadium in Salzburg, Austria
Lexan* Thermoclear*
X-structure sheet transparent

12 Dragão Stadium Porto, Portugal
Lexan Thermoclear
X-structure sheet

13 Olympic Stadium of Sydney, Australia
27,000 m² of Lexan Thermoclear* sheet was used for the most challenging engineering feature of the stadium, the 300-metre span roof structure. Suspended from a huge arch structure, the roof is constructed from a translucent grade of Lexan polycarbonate to help minimize any shadows and patches of direct sunlight on the sporting area.

14 Wankdorf Stadium in Bern, Switzerland
Lexan Thermoclear SunXP sheet
Amsterdam Arena in Amsterdam, The Netherlands is Europe’s first stadium with a sliding roof, made from transparent sheet. 20,000m² - The sliding roof was necessary to allow events to be staged regardless of the weather.

The Amsterdam Arena, in addition to major sports and concert events, is also popular for smaller events. Altogether, the Arena with a total capacity of 52,000 seats, hosts about 70 major events per year, with around 2.1 million visitors in total, including tours.
While the characteristics of glass – weight and brittleness – limit its design versatility, Lexan® sheet products can provide exceptional design freedom, mainly due to their light weight, ability to be formed and bent into complex shapes. Next to that it offers easy installation, resistance to yellowing, graffiti, scratching and breakage.
ENABLING CREATIVE DESIGNS
Enabling Creative Designs

A successful architectural requires a well-designed concept, the right material and an appropriate construction process. While these factors are individually of great importance, it is in the areas where they meet that they become truly critical to the final building. Creating a design, which uses a particular construction technique, and tuning this design to a selected material can be especially complicated areas.

For architects, contractors and installers around the world, SABIC Innovative Plastics Specialty Film & Sheet is much more than a supplier of high quality glazing materials. We offer our assistance with an insight into the considerations necessary when designing buildings in polycarbonate sheet. From the conceptual design phase to actual result, we offer our assistance to our customers on:

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Based on your designs, we can offer experience and knowledge about:

- Anticipated structural requirements
- Anticipated environments
- Assembly and profile requirements
- Secondary operations and maintenance
- Cost limits
- Regulations/standards compliance
The design for the new Lansdowne Road, Aviva Stadium in Dublin, Ireland has been created by international stadium architects, HOK Sport Architecture. The undulating design makes wide usage of translucent Lexan* sheet materials that are reflecting the color of the sky and light conditions, making the building’s façade ever changing.

The distinctive transparent form of the new Lansdowne Road stadium will be an important addition to the skyline of Dublin, symbolizing the positive future for sport in Ireland. It will be a sporting and entertainment venue with 50,000 seating that provides facilities and comfort levels comparable to the best in the world.

Architect:
HOK Sport Architecture
London - UK

Engineering office:
Buro Happold
London – UK

Installation:
William Cox
Dublin - Ireland
1. Engineering drawing of cold line bended Lexan sheet louvers
2. Engineering drawing of Lexan sheet louvers
3. Lexan sheet louvers
4. Lexan® Excel D sheet with matte finish on the outside surface to reduce reflection and glare fixed with bolts onto support profiles
Computer Analysis
Prediction of Sheet Performance During Wind Load

Sheet length = 3750 mm
Sheet width = 1000 mm
Wind suction load = 1600 N/m2
Sheet thickness = 5.75 mm
Metal support c/c 1500 mm

Max. Deflection = 27.81 mm
Max. Von Mises Stress = 29.57 MPa

Sheet length = 3750 mm
Sheet width = 1000 mm
Wind pressure load = 1940 N/m2
Sheet thickness = 5.75 mm
Metal support c/c 1500 mm

Max. Deflection = 27.36 mm
Max. Von Mises Stress = 19.53 MPa

Total Deflection Plot (mm)  Von Mises Stress Plot (MPa)

Indicative analyses based on Lansdowne road stadium design.
Real life testing of final assembly (sheets and profiles) is required to validate the application.
This section of the book is based on a variety of extruded Aluminum glazing profile systems that can be used for Lexan® polycarbonate sheet glazing and offered by the global network of installers.

The roof of the Wörthersee Stadium in Klagenfurt, Austria, developed by Interlux, utilized SABIC Innovative Plastics’ Lexan® Thermoclear® sheet for its stiffness and UV resistance. We would like to give you this stadium as an example to how to use possible profile solutions.
Roofing Structure of Wörthersee Stadium

Aluminum and steel profiles that are used in the click system of the Wörthersee Stadium, are absorbing different thermal expansions.

Wörthersee Stadium Lexan® Thermoclear® glazing profile overlap

Alternative Butt joint connection of Lexan Thermoclear Sheet on the short side
Alternative Lexan Thermoclear sheet glazing proposals

Proposal 1

- Aluminium clamping profile
- Neoprene rubber gasket fixed onto metal support profile
- Metal support profile

Proposal 2

- Aluminium clamping profile
- Neoprene rubber gasket
- Metal support profile

Drawings are conceptual only, verification by project architect or engineer is required.
Aluminum glazing profiles for rooflights

- Different Aluminum profiles to install Lexan* sheet for roof lights

Different Aluminum profiles to install Lexan sheet for roof lights

Flat rooflight

Curved rooflight

section A- A

section B - B

section C - C

section D - D
Installation
For architects, contractors and installers around the world, SABIC Innovative Plastics Specialty Film & Sheet is much more than a supplier of high quality glazing materials. From its network of technical centers in the Netherlands, Japan, China and India, the company helps to offer hands-on engineering support. Founded on a history of innovation and technology that spans over 40 years, SABIC Innovative Plastics offers customers services that extend from glazing material selection to profile design and installation guidelines.

SABIC Innovative Plastics Specialty Film & Sheet operates a worldwide network of sales, research, manufacturing and technical service facilities. With the manufacturing sites across the US, Canada, the Netherlands, Italy, Austria, China, India and Japan, the company serves customers around the world in a broad spectrum of industries and applications.

As a business unit of SABIC Innovative Plastics, Specialty Film & Sheet benefits from global cross-business resources and expertise. At the state-of-the-art polymer processing development center in the USA, engineers, designers and technologists explore and extend the boundaries of film and sheet application development through sophisticated material analysis and advanced processing technology.

Installation

Low weight of the Lexan* sheet allows small and fewer support profiles, offering easy handling and installation. We also offer our customers handling and installation training supervision on the site.
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