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AVRAMS | AKMA GLASS
COMPANY

LEADING INNOVATION

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AKMA is one of the leaders in the glass industry in the EAEU. The company was established in 1991 and since then it has become third large glass processing company in the EAEU

- Total glass processed: 21 517 800 ft²/year
- Tempered glass produced 10 763 900 ft²/year
- Various glass products produced*: 120,000 pcs/year
- Total area of the plant: 10.4 ac
- Number of processing facilities: 10
- Number of departments: 14
- Number of Processing equipment: ≈ 300 units
- Number of employees: ≈ 1000 people

OUR ADVANTAGE

Continuous investments in equipment upgrades and training and professional education of employees allow us to expand range of services we provide and to offer our customers the most innovative and exclusive hi-end products that meet all international industry standards.

*Glass doors, shower enclosures, furniture and showcases, backpainted glass, mirrors

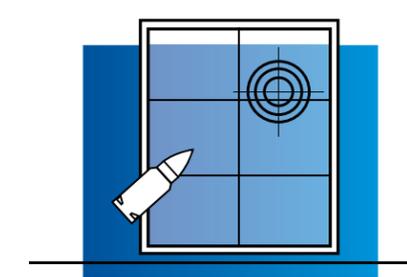
AKMA Company has its own state-of-art facilities to produce wide range of glass products, but its main activity is fabrication of architectural and interior glazing, as well as high-tech glass including switchable glass and heated glass.



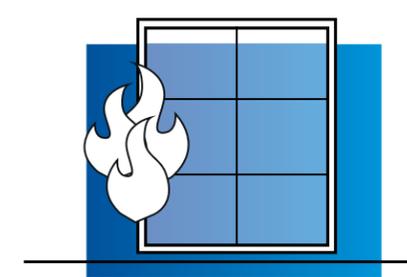
Architectural glazing



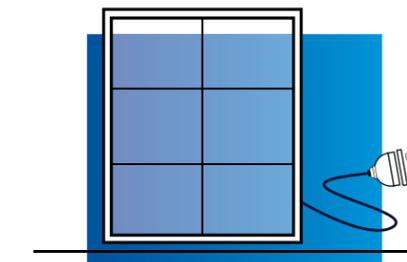
Interior glazing



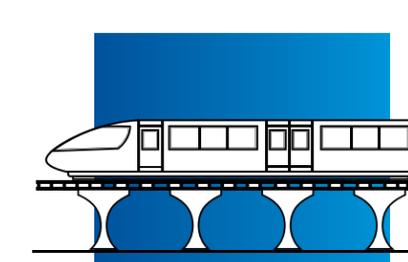
Bullet resistant



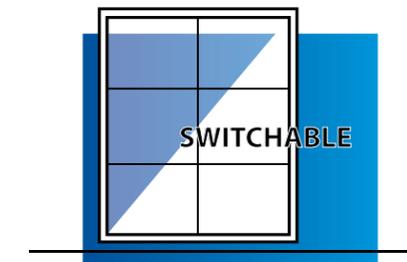
Fire rated glass



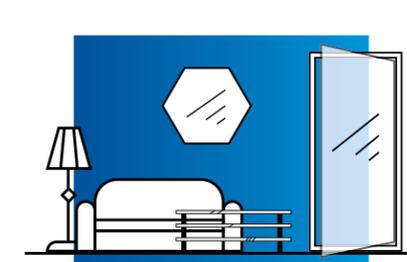
Electrically heated glazing



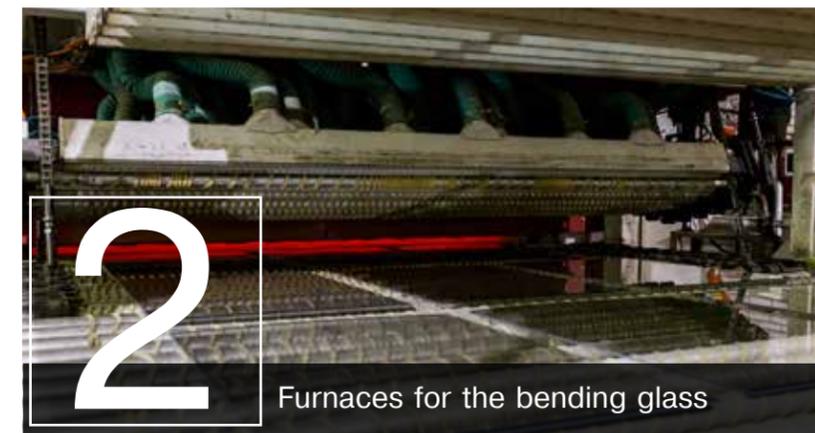
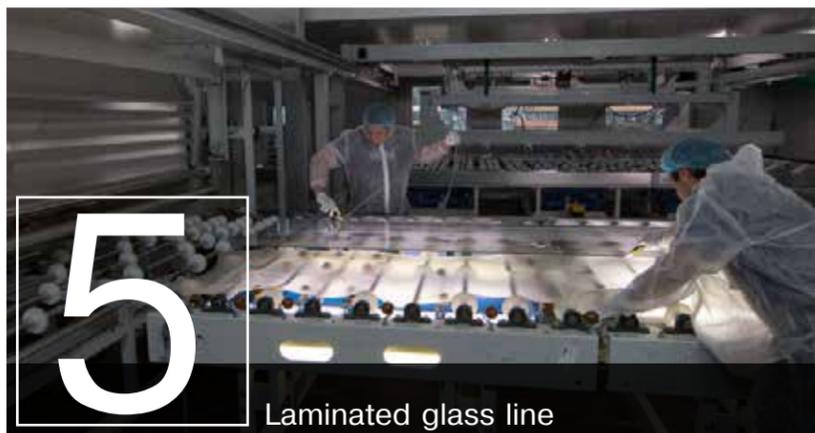
Transportation glazing



Functional smart glass



Various glass products*





AKMA Company has developed a network of partners throughout the world including glazing contractors, engineering and architectural design companies, glass product distributors.

We produce glass for residential windows and doors, commercial fenestration projects, airports, railway stations envelopes, sea vessels and speed boats, speed trains etc.

Beneficial location of production facility allows us to ship products by any means of transport that suits our customers the best:

1. Direct access to railway track from production facility
2. Access to federal and international highways
3. Close to the Sea Port of St. Petersburg
4. Close to Pulkovo International Airport



ARCHITECTURAL GLAZING



Contemporary construction trends call for larger and more sophisticated glass.

Glass, as a part of building envelope brings more natural light and expands visually living space.

Development of glass processing techniques allowed to upgrade glass properties and thus opened endless possibilities for architects.

Today glass possesses outstanding mechanical properties and can be produced to almost any size required by a project. Variety of fasteners, brackets and framing for glass put this material into high demand in the construction industry.



THE LAKHTA CENTER MIX-USE DEVELOPMENT

PRODUCT DESCRIPTION: Jumbo size flat and curved shaped insulated glass with use of laminated and monolithic panes. Total area 193,750 ft²

PROJECT DESCRIPTION: The largest and most sophisticated commercial development of the city of St. Petersburg with an area of 4,305,000 ft². The Lakhta tower is the tallest building in Europe as of today and has a height of 1,515 ft. The Lakhta Center contains Eco-friendly offices, conference halls, public spaces, sport arena, kids area exhibition space and more.

LOCATION: Russia, St. Petersburg, Lakhtinsky Prospect.



Photo: Joint-Stock Company Mixed-Use Complex Lakhta Center, www.lakhta.center

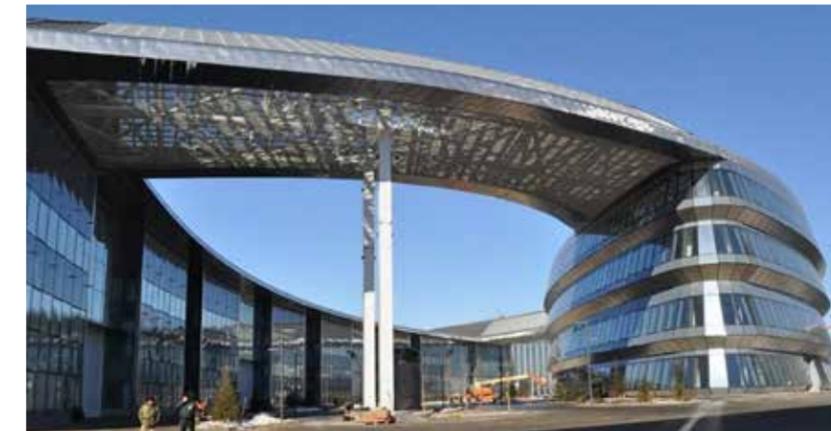


EXPO-2017 PAVILIONS

PRODUCT DESCRIPTION: Triple-pane Low-E coated structurally glazed facades with operable windows. Part of glass units has digitally printed pattern.

PROJECT DESCRIPTION: Expo-2017 is located on the area of 432ac. It consists of exhibition pavilions, hotels, restaurants, commercial areas and cultural centers.

LOCATION: The Republic of Kazakhstan, Nursultan, Orynbor Street.





HUAMING PARK BUSINESS CENTER

PRODUCT DESCRIPTION: Double and Triple-pane Low-E coated glazing. Glass units have ceramic frit perimeter bands that conceal spacers and seals and bring a consistent look to all building.

PROJECT DESCRIPTION: A large scale business center with an area of 2,153,000 ft². The center, comprising office, conference, retail, hotel, apartment hotel and entertainment facilities surrounded by a traditional Chinese landscape park.

LOCATION: Russia, Moscow, Wilhelm Pieck Street.



Project owner: Creative Production Association Reserve

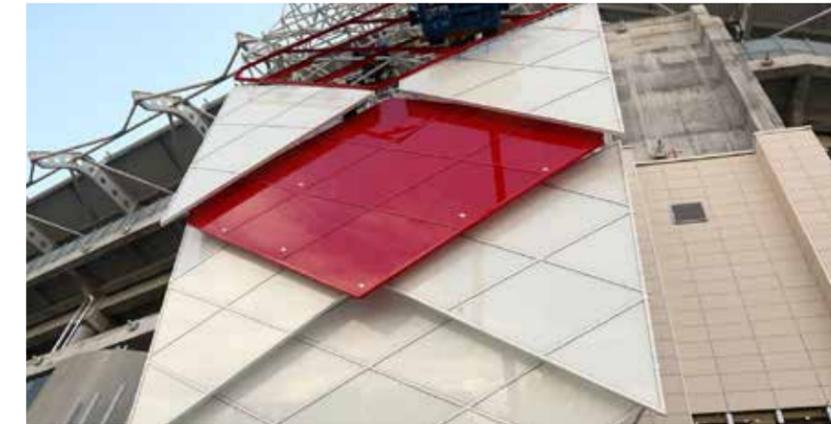


OTKRITIE ARENA F.C. SPARTAK GROUND

PRODUCT DESCRIPTION: Multilayer heat-strengthened laminated glass with backpainted glass layers. Backpainting technique - roller printing.

PROJECT DESCRIPTION: Otkritie Arena is the ground for F.C. Spartak. This UEFA category 4 stadium seats up to 45,000. Completed in August 2014. Project cost \$230,000,000.

LOCATION: Russia, Moscow, Volokolamskoe Highway.





AFIMALL CITY SHOPPING MALL

PRODUCT DESCRIPTION: Monolithic tempered backpainted glass. Ceramic printed images and patterns. Printing techniques - digital and roller printing.

PROJECT DESCRIPTION: Afimall City is located in the center of the most ambitious European development projects - Moscow Cit International Business Center. Total area of Afimall City is 3,048,000 ft².

LOCATION: Russia, Moscow, Presnenskaya Naberezhnaya.





PLATOV INTERNATIONAL AIR-PORT

PRODUCT DESCRIPTION: Architectural glass units made up with laminated glass panes with sound insulating interlayer Trosifol Sound Control+ and monolythic tempered Low-E coated glass panes. This combination provides both solar energy control and maximum light transmission and at the same time protects against excessive noise.

PROJECT DESCRIPTION: The terminal area is 538,000 ft² with a capacity of 5 million passengers per year. This is the largest infrastructure project in the Rostov Oblast. Its implementation was a part of the Federal Program of Preparation for the World Cup - 2018 in Russia. Total project budget is over \$11,000,000,000.

LOCATION: Russia, Rostov Oblast, Aksaysky District.



THE CENTER OF OCEANOGRAPHY AND MARINE BIOLOGY “MOSKVARIUM”

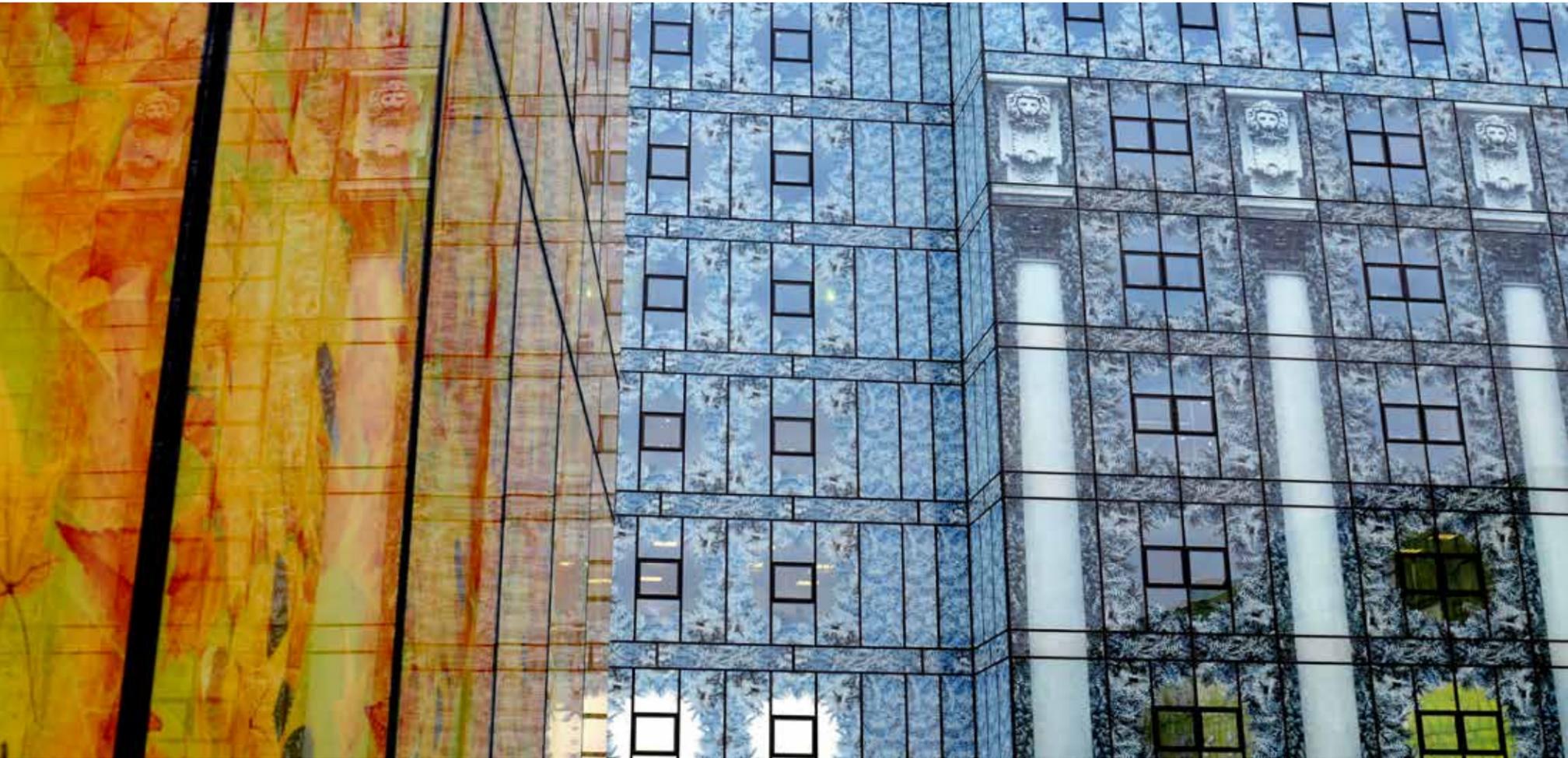
PRODUCT DESCRIPTION: Glass units and monolithic tempered glass with ceramic printing on the outside surface of glass using the technique of silk screen printing.

PROJECT DESCRIPTION: Research education and entertainment center including:

- aquarium;
- dolphinarium;
- audience hall for 2,300 seats;
- marine mammal park.

LOCATION: Russia, Moscow, Prospect Mira.





VREMENA GODA (THE SEASONS) BUSINESS CENTER

PRODUCT DESCRIPTION: Glass units and monolithic tempered glass with digital ceramic printing by silk screen printing.

PROJECT DESCRIPTION: Contemporary business center. Thanks to its eye-catching facades The Seasons became an integral part of the city's landscape design. Original images help to bring individuality to relatively simple architectural shapes.

LOCATION: Russia, St. Petersburg, Sverdlovskaya Naberezhnaya.





RHYTHMIC GYMNASTIC CENTER

PRODUCT DESCRIPTION: Structurally glazed insulated glass units with Low-E coating. Part of the units have silk screen printings.

PROJECT DESCRIPTION: The Rhythmic Gymnastic Centre is a part of the architectural and park ensemble of the Olympic complex Luzhniki. The building shape resembling a ribbon wave carries an associative link between the building design and its purpose.

LOCATION: Russia, Moscow, Luzhniki.



Design by CPU «PRIDE»

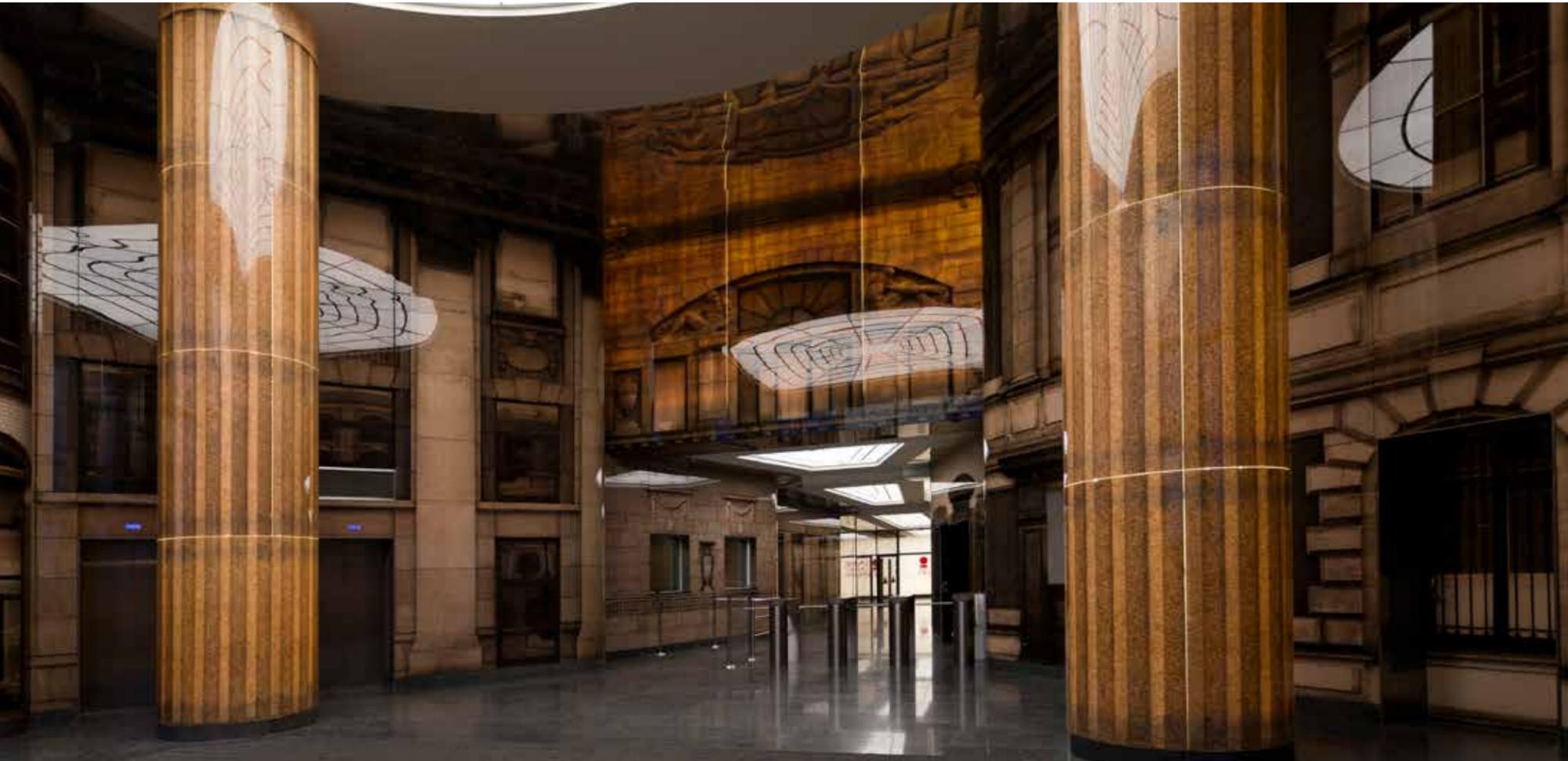
An aerial photograph of a coastline with a glass panel reflection. The image shows a dark blue sea on the left, a white sandy beach in the middle, and a dark green forested area on the right. A small, rectangular, metallic-looking object is visible on the beach, which appears to be a reflection of a glass panel. The text 'INTERIOR GLAZING' is overlaid in white, sans-serif font on the left side of the image.

INTERIOR GLAZING

Using of glass for interior projects has a series of advantages.

Firstly, glass can survive stress, impact and abrasion. It is resistant to chemicals and preserve it's original look over years.

Secondly, thanks to the variety of decoration techniques, such as printing, notching, engraving, bending, incrustation, notching, sandblasting etc, one may create a real piece of art.



BANK SAINT PETERSBURG HEADQUARTERS

PRODUCT DESCRIPTION: Multilayer tempered laminated glass panels with artistic digital printing made with ceramic paints.

PROJECT DESCRIPTION: Interior design of the building reminds of traditional style of interior decoration of financial institutions. Shape of glass and prints contribute to the modern look of the interior and at the same time connect it to the architectural heritage.

LOCATION: Russia, Saint Petersburg, Malookhtinsky Prospect.





VREMENA GODA (THE SEASONS) BUSINESS CENTER

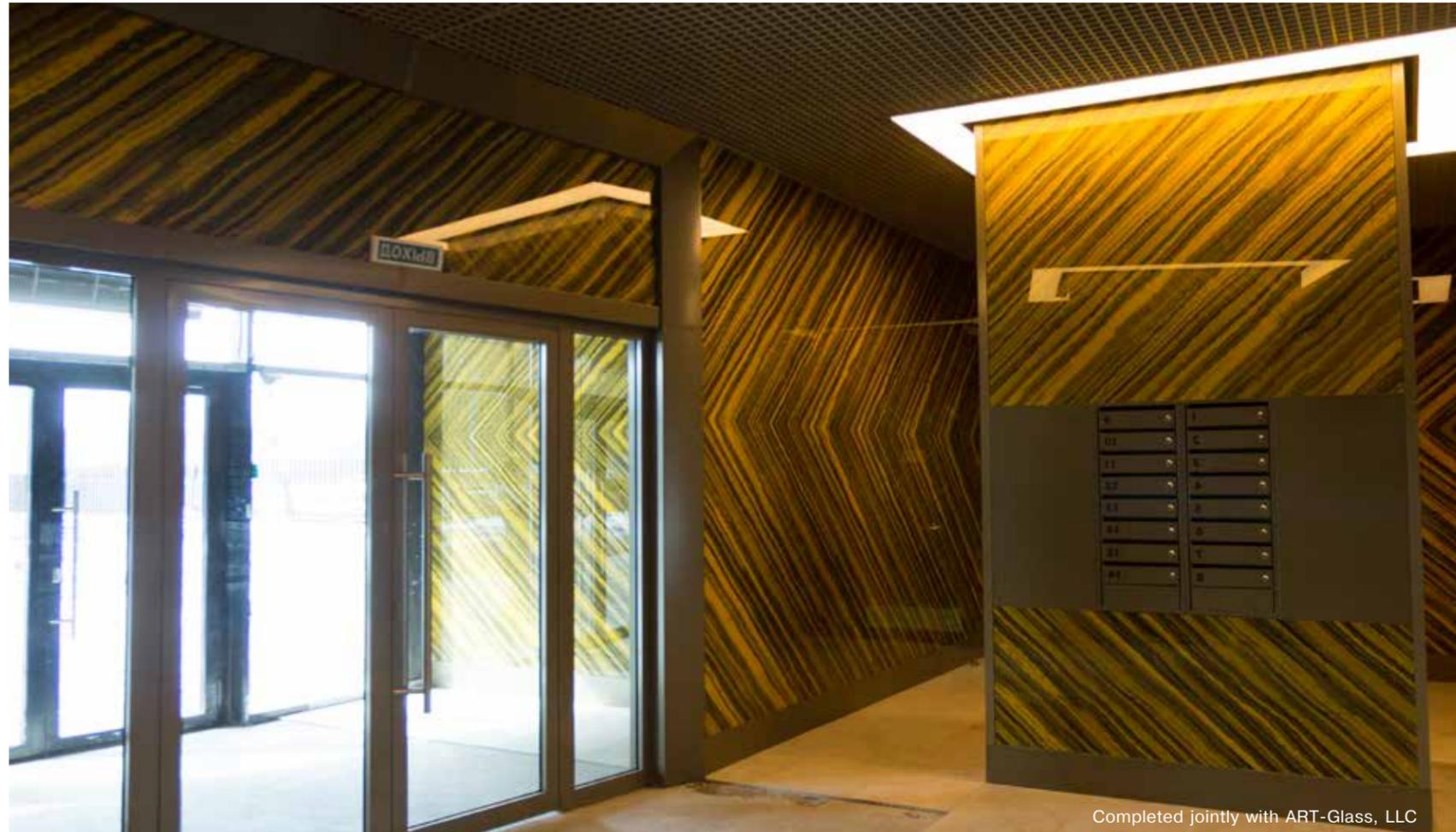
PRODUCT DESCRIPTION: Tempered laminated glass panels with artistic digital printing made with ceramic paints. Concealed fasteners system contributes to its hi-end look.

PROJECT DESCRIPTION: Interior decoration of the center is a smooth transition from the building's exterior. Glass panels depicting columns, fretworks, arches, pine branches create an inspirational atmosphere.

LOCATION: Russia, Saint Petersburg, Sverdlovskaya Naberezhnaya.



Completed jointly with ART-Glass, LLC

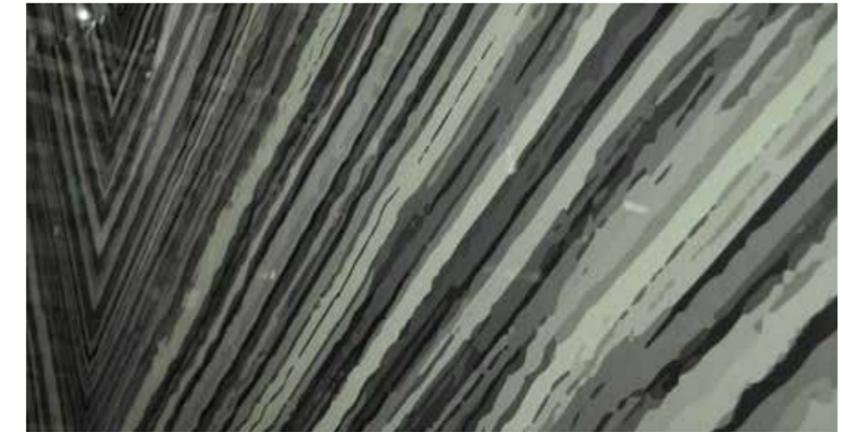


FIVE STARS RESIDENTIAL COMPLEX

PRODUCT DESCRIPTION: Backpainted tempered monolithic glass (cellulose dope) with patterns digitally printed as the first layer, and roller printed finish layer of mono color paint.

PROJECT DESCRIPTION: Exclusive design of the lobbies of these residential buildings is similar to their facade decorations. All five buildings have similar pattern, but the combination of colors is unique for each tower.

LOCATION: Russia, Saint Petersburg, Zhukov Street.





OBVODNY KANAL SUBWAY STATION

PRODUCT DESCRIPTION: Backpainted tempered monolithic glass with images digitally printed with ceramic paints.

PROJECT DESCRIPTION: The design of this subway station is industrial style interior design. The walls are decorated with glass panels illustrating the late 19th century panoramas of the Obvodny Kanal. The total length of glass panels panoramas 1,181 ft.

LOCATION: Russia, Saint Petersburg, Zhukov Street.



TRANSPORTATION GLAZING



AKMA Company supplies glazing products for transportation sector including glazing for subway cars, insulated glass units for speed trains Sapsan, Lastochka, glazing for tram cars, trolleybuses and buses as well as glass units for yachts, speed boats and other vessels.

The company has passed all tests and obtained all certificates required by the transportation glazing industry. Product range include but is not limited to: laminated glass tempered and raw, monolithic glass tempered and raw, insulated glass and combination of the above.



EVS1/EVS2 SAPSAN VELARO RUS SPEED TRAINS

PRODUCT DESCRIPTION: Double pane bent tempered laminated tinted glass unit.

PROJECT DESCRIPTION: Speed electrical train manufactured by Siemens Company. Trains cruise between Moscow and Saint Petersburg and Nizhny Novgorod. Maximum train speed 155mph.

PRODUCT PROPERTIES: Can resist up to 600J vibrational load. Provides outstanding noise reduction, safety and upgrades overall comfort in the cabin.



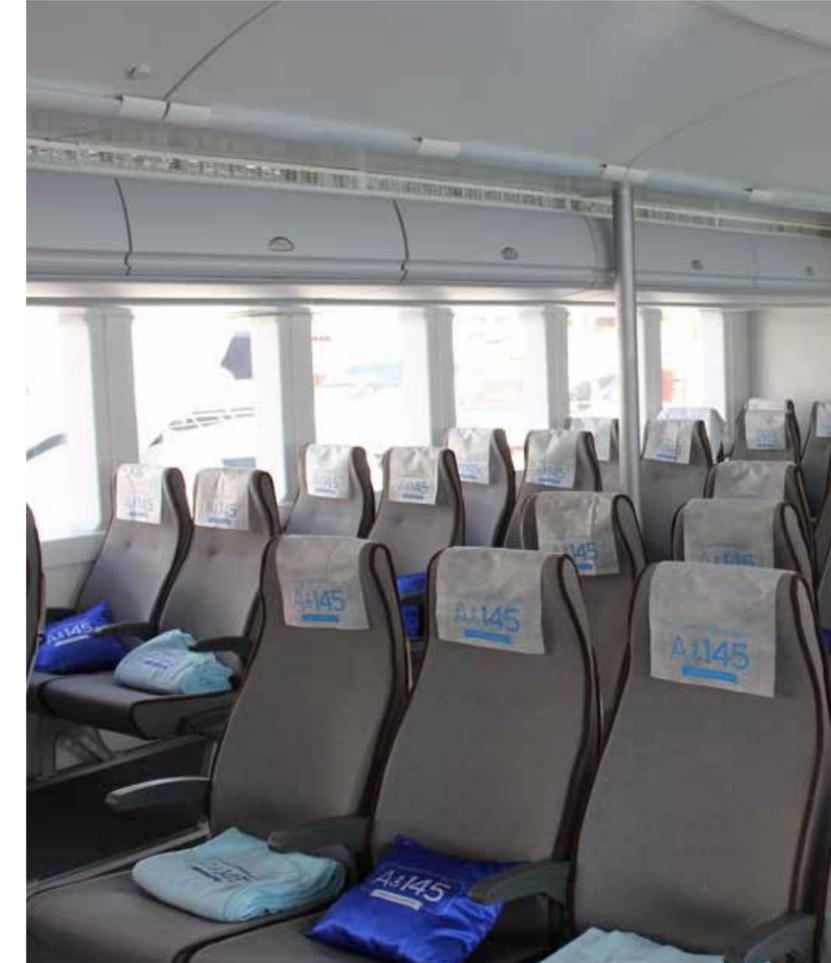


A145 SPEED PASSENGER VESSEL

PRODUCT DESCRIPTION: 8mm thick tinted tempered glass.

PROJECT DESCRIPTION: Speed passenger vessel for transfers along shorelines at distances up to 250 miles. Cruise speed 40 knots.

PRODUCT PROPERTIES: Protects passengers from excessive solar energy reflected from water.



HIGH-TECH GLAZING

Besides its original properties, glass can be specifically fabricated in a way that allows final product to act as:

- electrical heater
- protection against firearms assault
- protection against electromagnetic weapon
- fire barrier
- privacy protection (switchable glass)

Such high-tech glass products can be produced in a form of:

- monolithic glass tempered and raw
- insulating glass tempered and raw
- laminated glass tempered and raw
- combination of the above



PHILHARMONIC CONCERT HALL AT ZARYADYE PARK

PRODUCT DESCRIPTION: 3300 ft² of electrically heated glass units have been produced for roofing of the philharmonic concert hall. The glass protects roof from icing and snow loads.

PROJECT DESCRIPTION: The philharmonic concert hall is located 1640 ft from the Moscow Kremlin. It has become one of the best music venue thanks to its unusual acoustics, architecture and state-of-art equipment. Acoustic part of the project was performed under supervision of a famous Japanese engineer Yasuhisa Toyota.

LOCATION: Russia, Moscow, Varvarka Street.





TERMINAL T2 SEGMENT OF DOMODEDOVO AIRPORT

PRODUCT DESCRIPTION: Double pane insulated glass units with Low-E coating for solar heat protection. Part of the units acquired electrically heated interlayer for the laminated outside pane. These units protect the main facade of the building from icing and snow loads.

PROJECT DESCRIPTION: T2 Terminal of Domodedovo airport has 2,529,500 ft² floor area. It's a 7-levels building with 2 levels located below ground. T2 was built as a part of the airport expansion project with an aim of increasing the airport's annual passenger handling capacity.

LOCATION: Russia, Moscow Oblast





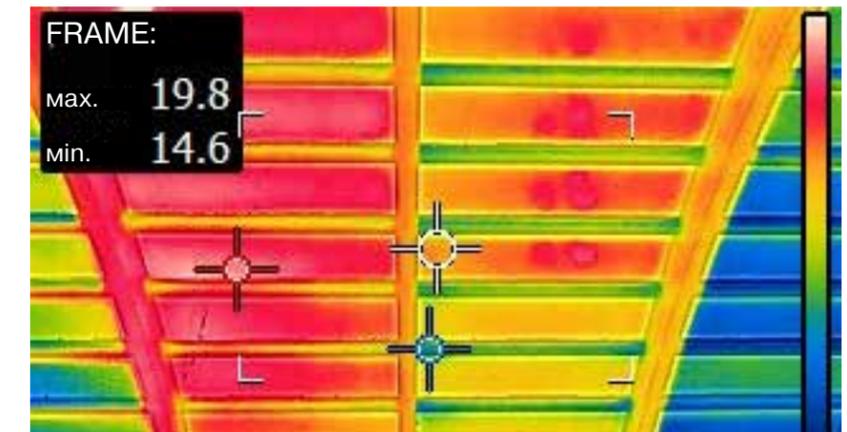
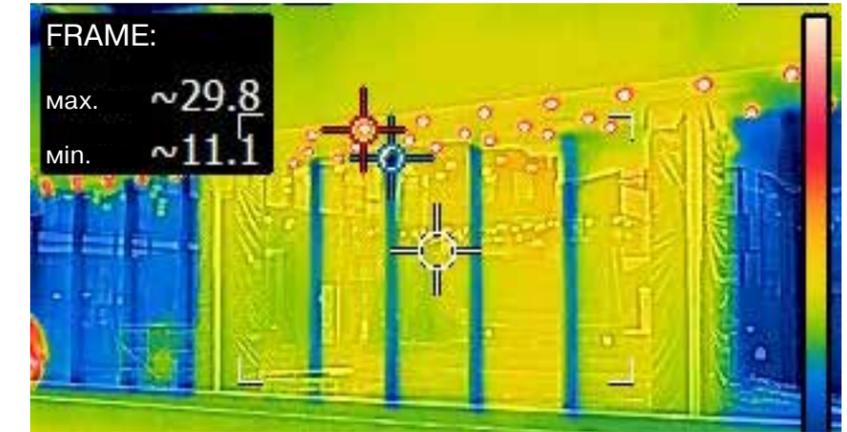
HILTON HOTEL SPA ZONE

PRODUCT DESCRIPTION: Facade: Electrically heated laminated insulated glass serves for condensation removal on the inside surface.

Roof: Double pane insulated laminated electrically heated glass units serve as protection against snow on the outside surface and condensation removal on the inside surface.

PROJECT DESCRIPTION: The hotel's Spa zone has a swimming pool with panoramic glazing for walls and roof. This advanced technology is used to keep temperature comfortable inside spa zone and allow for snow and ice removal from the roof.

LOCATION: Russia, Saint Petersburg, Petersburg Highway





NURLY ZHOL RAILWAY STATION VIP LOUNGE

PRODUCT DESCRIPTION: Unique bullet resistant double pane glass units with Low-E coating. Glass unit thickness: 4 3/4", Average unit dimensions: 40"x120", Weight: 1,763lbs each protection class BR6 (sniper rifle). Similar glass units are widely used in banks, celebrities houses and other premises where ultimate protection is required.

PROJECT DESCRIPTION: The main railway station of the country is a 6-level building with a total area of 1,356,000 ft². The railway station is able to handle up to 35,000 passengers daily

LOCATION: The Republic of Kazakhstan, Nursultan, A-82 Street



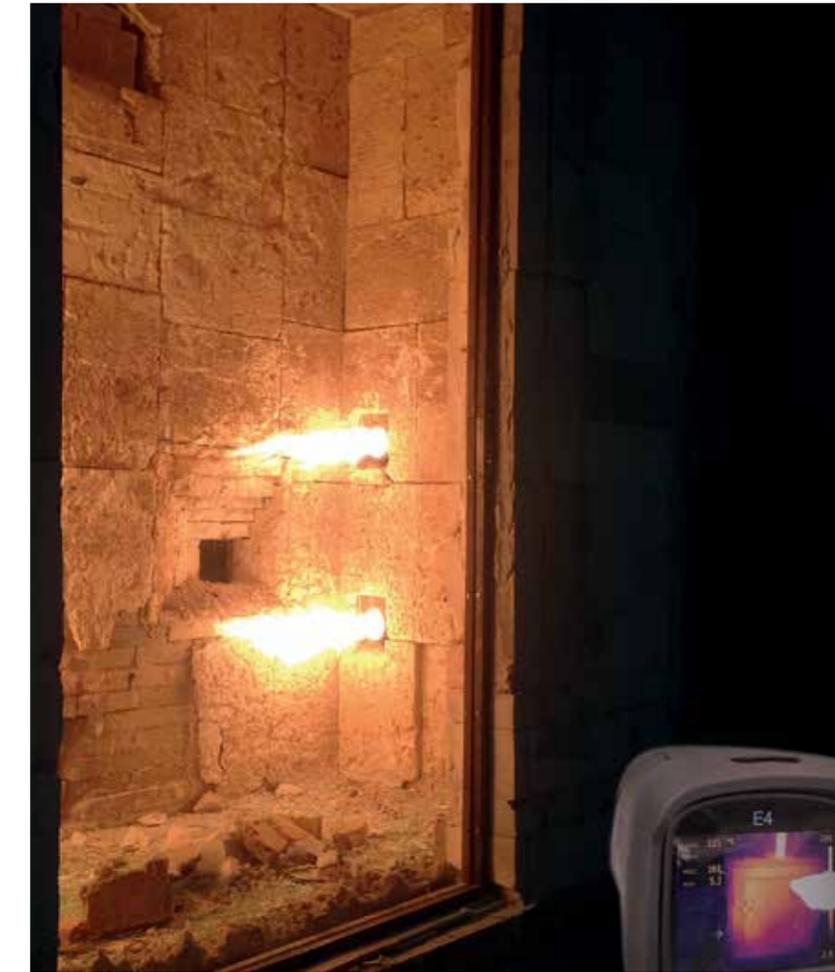


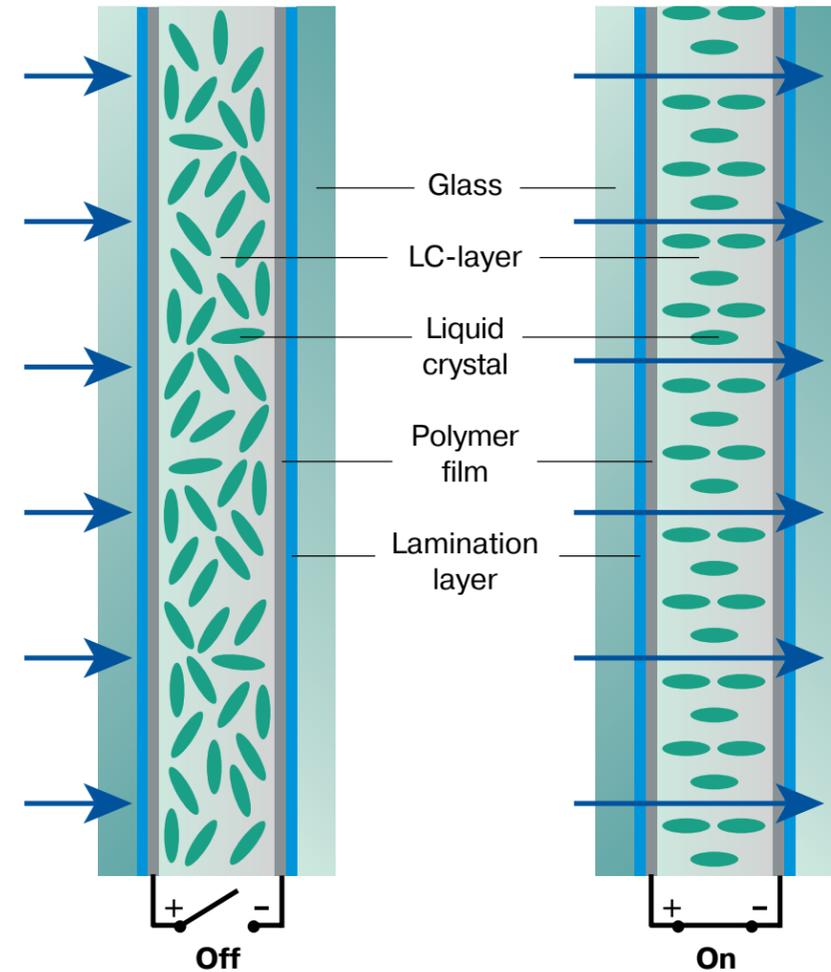
FIRE RATED GLASS TESTING

PRODUCT DESCRIPTION: Fire rated glass acts as a barrier to help prevent the spread of flames and smoke in the event of a fire. AKMA Company produces glass rated for 15, 30, 45, 60 minutes

PROJECT DESCRIPTION: During the test the glass does not break, but it melts down. The time period required for the glass to melt in minutes corresponds to the rating above.

LOCATION: Translucent protection of egress ways, prevention from fire spread, reduction of open fire sources, protection of humans and property.





SWITCHABLE GLASS TECHNOLOGY

PRODUCT DESCRIPTION: Switchable glass (or Smart glass) is a material with variable optical properties: change of transparency, light transmission coefficient, heat absorption, etc. under electric voltage supply.

PRODUCT DESCRIPTION: Widely used for interior applications, space zoning, privacy rooms. Can be used on transportation or can be easily turned into multimedia screed for image broadcasting.



QUALITY ASSURANCE

Quality of our products guaranteed by the quality of the products of our premium suppliers. We work with world leading raw materials producers and suppliers. Additionally we conduct quality control test for each batch of goods that comes in from our suppliers at our own test lab.



CERTIFICATION

AKMA Company has all certificates required by the industry for the products it supplies. We keep all test reports and certificates updated and carry out product testing constantly at accredited independent labs.



CE

BS EN 12150-1:2002
Safety Glass for intended use as per annex ZA
Declaration of performance
 THIS IS TO CERTIFY THAT
AKMA LLC
 pr. Bakunina, d. 29, lit. A, pom. 17H
 191144, St. Petersburg
 HAS CONFORMED TO EN 12150-1:2002
 BY
 SUBMITTING GLASS SAMPLES FOR TESTING TO
 BS EN 12150 pt 1

TESTING TO:	NOTIFIED TEST HOUSE:	PRODUCTS:	TEST REPORT NO:
BS EN 12150-1	TUV Rheinland Nederland B.V	float glass 4, 5, 6, 8mm	89210503-01 d.d. 07/03/2017

A TECHNICAL FILE HAS BEEN PRODUCED CONTAINING THE TEST REPORT AND PERFORMANCE INDICATED PAPERS FOR ALL COMPONENTS

Name: Alexey Kinder
 Position: Director
 Place and date: AKMA LLC 13/06/2017

Signed:

CE

BS EN 1279:2002
Glass in buildings insulated glass units
Declaration of performance
 THIS IS TO CERTIFY THAT
AKMA LLC
 pr. Bakunina, d. 29, lit. A, pom. 17H
 191144, St. Petersburg
 HAS CONFORMED TO EN 1279-3 ANNEX ZA
 BY

(a) SUBMITTING SAMPLES OF INSULATING GLASS UNITS
 FOR TESTING TO BS EN 1279 PART 3
 AND SUCCESSFULLY MEETING ALL REQUIREMENTS
 Please refer to Test Report No: 89210503-6 d.d. 16.05.2017
 System Description: FGC1
 ITT conducted by: TUV Rheinland Nederland B.V.

(b) PRODUCING A TECHNICAL FILE CONTAINING THE TEST REPORT AND PERFORMANCE INDICATED PAPERS FOR ALL COMPONENTS

Name: Alexey Kinder
 Position: Director
 Place and date: AKMA LLC 13/06/2017

Signed: