

PERFORMANT PROTECTION



HEALTHCARE GUIDE

Innovative glazed solutions to maximise well-being,
safety and recovery in healthcare buildings



vetrotech
SAINT-GOBAIN

ENSURING COMFORT FOR ALL

Did you know that we spend 90% of our time indoors?

That's why the buildings in which we live, work, play, and receive treatment can significantly impact our health and comfort.

It is therefore vital that the homes, factories, shops, offices and other buildings in which we spend our lives offer the comfort necessary to ensure the well-being of all those who use them.

Having spent more than 35 years providing development, consultancy and technical assistance solutions to our customers, we have learned to understand and appreciate the specific requirements and expectations of each end user of the buildings we service. Our solutions are therefore fully modular and tailored to your needs.



Well-being, safety and asepsis for all

Hospitals, nursing homes, medical centres, clinics, mental health facilities, etc. all contain circulation spaces that present multiple issues for patients, care staff, maintenance staff and visitors, including:

- Optimisation of user well-being
- Safety for all
- Maintaining a clean environment

Discover how Vetrotech solutions can address these issues

Fire and burglar resistance with integrated alarm

Fire resistance with special treatment for complete asepsis and integrated blinds

Fire resistance with integrated blinds

Fire resistance with x-ray protection

Fire and burglar resistance with anti-panic system

Burglar resistance

Fire resistance (skylight)

Fire resistance to prevent fire from spreading to upper floors (C+D)

Curtain wall burglar resistance

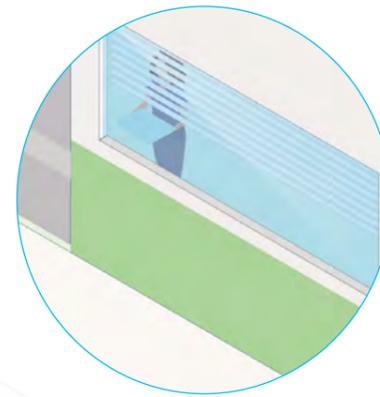
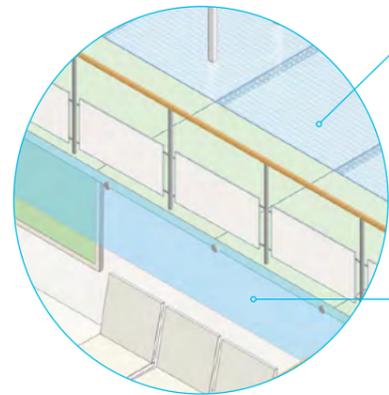
Extra-large scale fire resistance

Fire resistance with dynamic occultation control

Fire resistance with anti-slip treatment floor

Smoke barrier system

Butt-jointed fire resistance with screen printing





OPTIMISING WELL-BEING

LIGHT, TRANQUILLITY AND TRANSPARENCY

Benefits of glass for patient recovery and the comfort of all

22%

is the reduction in analgesics administered when patients are placed in a light-filled environment.¹



8,5%

A view of a natural environment can reduce the length of a patient's postoperative stay by 8.5%.

According to a number of studies, **natural light** and **outside views**¹ are of great benefit to healthcare institutions:

- Reduced postoperative recovery time and length of patient hospital stays²
- Reduced patient stress and agitation³ (blood pressure, heart rate⁴, muscle relaxation)
- Lower stress and better performance of staff⁵
- Improved adaptability, alertness and mood

Visibility **reduces the sense of confinement**, a new, high-priority architectural objective for specialist institutions.

Finally, the design of spaces offering a peaceful atmosphere and an optimal sound environment helps to:

- Stabilise blood pressure⁶
- Improve sleep quality⁷
- Reduce medication⁸
- Reduce the number of readmissions⁷
- Improve staff well-being and the perception of their performance⁷

In some rooms, however, there is still a need to prioritise the privacy of patients and staff over outside views and light. The obscuration solutions are highly valued, and make private spaces such as bedrooms less institutional and more customisable. In particular, it has been shown that controlling both natural light and privacy is a factor in **reducing the sense of vulnerability**⁹.



Vetrotech solutions

Our glazed solutions help to provide a pleasant environment which is conducive to patient recovery and effective healthcare.

For maximum visibility and light, we offer the **extra-large scale CONTRAFLAM MEGA protection solution** and the **CONTRAFLAM STRUCTURE butt-jointed glazed protection solution** with no intermediate frame.

For bedrooms, corridors, offices and collective spaces, we offer the **CONTRAFLAM STRUCTURE SCREEN glazed protection solution with integrated blinds** and the **PRIVA-LITE solution with dynamic control**, which guarantee privacy as required.



To guarantee **well-being and tranquillity**, extra treatments can be applied to our protection solutions to add **thermal insulation (SGG PLANITHERM/SGG PLANISTAR SUN)** and/or **acoustic insulation (SGG STADIP SILENCE)** to the room.

Finally, to make living and circulation spaces more welcoming, we also offer **design protection solutions**. Patterns, colours, images, screen printing, etc. create a more positive perception of the space among users. These are included with the **SGG MASTERGLASS, SGG DECORGLASS, SGG STADIP COLOR, SGG SERALIT, PICTURE IT** and **SGG PARSOL solutions**.

¹ Keep et al. (1980). 'Windows in the intensive therapy unit'. Beute, F. (2014). 'Powered by nature: the psychological benefits of natural views and daylight'.

² Choi et al. (2012). 'Impacts of indoor daylight environments on patient average length of stay (ALOS) in a healthcare facility'. Joseph (2006). 'The Impact of Light on Outcomes in Healthcare settings'. Beauchemin et al. (1998). 'Dying in the dark: Sunshine, gender and outcomes in myocardial infarction'. Federman et al. (2000). 'Relationship between climate and psychiatric inpatient length of stay in Veterans Health Administration hospitals'.

³ Sloane et al. (1998). 'Environmental correlates of resident agitation in Alzheimer's disease special care units'. Lovell et al. (1995). 'Effect of bright light treatment on agitated behavior in institutionalized elderly subjects'.

Verderber et al. (1987). 'Windows, views, and health status in hospital therapeutic environments'.

⁴ Tang & Brown (2006).

⁵ Verderber et al. (1986). 'Dimensions of person-window transactions in the hospital environment'. Edwards et al. (2002). 'A Literature Review of the Effects of Natural Light on Building Occupants'.

Pricewaterhousecoopers et al. (2004) 'The role of hospital design in the recruitment, retention and performance of NHS nurses in England'. Zadeh et al. (2014). 'The Impact of Windows and Daylight on Acute-Care Nurses' Physiological, Psychological, and Behavioral Health'.

⁶ Blomkvist et al. (2005). 'Acoustics and psychosocial environment in intensive coronary care coronarians'.

⁷ Berg, S. (2001). 'Impact of reduced reverberation time on sound-induced arousals during sleep'.

⁸ Minckley, B. (1968). 'A study of noise and its relationship to patient discomfort in the recovery room'.

⁹ Steelcase (n.d.). 'Un cerveau haute performance - Les neurosciences au service de l'entreprise'.



SAFETY FOR ALL



SAFETY, SURVEILLANCE AND PROTECTION

Optimising the health and safety of people and equipment

Safety is a major priority in healthcare environments and must be factored into the design of these buildings.

Aside from the fire risk, there are other risks inherent to the activities of these institutions that must be taken into account:

- Slips, trips and falls
- Theft (from equipment, medication, computer rooms, etc.)
- Intrusion by patients or visitors
- Radiodermatitis, genetic mutations, cancer, etc. caused by exposure to x-rays
- Assaults on staff in specialist institutions



3 à 20%

Slips, trips and falls are the most frequent undesirable events: 3 to 20% of patients have a fall during their hospital stay.

Good light illuminates potential obstacles and **prevents tripping and injuries**.

Visibility enables surveillance, which is vital in preventing assaults or identifying the need for intervention. In particular, it reduces the reaction time of staff attending to patients in difficulty. We offer specific solutions in order to optimise this visibility while seeking to prevent the above risks.

Les solutions Vetrotech

For partitions or doors, shared living spaces and bedrooms in specialist institutions: the **VETROGARD and POLYGARD** glazed solutions with adapted framing systems and environments, tested against the objects and implements most commonly used in these buildings (cutlery, scissors, etc.), offer protection **against breakage and attempted intrusion**.

Testing of the complete system (framing system, glazing and environment) of partitions, doors and windows in the bedrooms of specialist institutions is paramount: **most patient security breaches are due to defects in the window framing systems or locks**.

For the partitions and doors of rooms used for storing medical or computer equipment, the **SGG SECURIT ALARM** glazed solutions include **an integrated alarm which is triggered as soon as the glass pane is struck**.

3600

More than 3600 crimes against property in health institutions were recorded in 2013, with theft accounting for two thirds of these. That's ten times more than in 2008. The crimes affected 38 AP-HP¹⁰ (Paris public hospitals authority) institutions.

LITE-FLOOR glazed protective floors are specially designed with an **invisible grip that prevents slips, trips and falls**, and can bear loads of up to 400 kg.



For partitions and doors of radiology rooms: the glazed protection systems consist of a layer that **blocks x-rays**, as offered by the **SGG SUPERCONTRYX** solution.



© Hennie Raaymakers/Sanquin Hoofdkantoor, Amsterdam, Netherlands /Architect: KuiperCompagnons

¹⁰ Observatoire national des violences en milieu de santé (2014). « Rapport Annuel 2014. Observatoire national des violences en milieu de santé. Rapport 2014 sur les données 2013. »



MAINTAINING A CLEAN ENVIRONMENT

ASEPSIS AND EASE OF MAINTENANCE

Reducing contamination to create a clean environment

According to numerous studies, the transmission of infections in health institutions is common, and not confined to institutions in countries affected by poverty.

Furthermore, it is essential that spaces are designed so as to prevent the transmission of germs via the hands of staff or medical devices. In particular, this requires the use of materials and surfaces which are easy to clean.¹¹



¹¹ Direction Générale de la santé & Direction de l'hospitalisation et de l'organisation des soins (2000). 'Circulaire DGS/DHOS/E2 - N° 645 du 29 décembre 2000, relative à l'organisation de la lutte contre les infections nosocomiales dans les établissements de santé'.

1 of 19

In Europe, 1 patient in every 19 develops a nosocomial infection in hospital.¹²

3000

3000 to 5000 people die every year as a result of a nosocomial infection - the main cause of death.¹²

Vetrotech solutions

Thanks to its composition, glass facilitates maintenance and contributes to asepsis. **CONTRAFLAM SCREEN** partitions and doors comprising glazed protection solutions with integrated blinds facilitate maintenance of premises – no dust can accumulate between the blind slats.

CONTRAFLAM STRUCTURE wide butt-jointed glazed protection partitions, which are ideal for waiting rooms or reception areas, are developed with a specific joint compatible with the use of household products.



© Hennie Raaymakers/St. Antonius Ziekenhuis, Utrecht, Netherlands



© Zahnklinik, Tübingen, Germany/Architect: E + K Architekten GmbH

The glazed protection solutions for partitions and doors of clean rooms are **specially designed for these rooms**, and conform to the strict standards governing them (NF EN ISO 14644-1 of 1999).

¹² info nosocomiale (n.d.). 'Chiffres et statistiques sur les infections nosocomiales'.

VETROTECH EXPERTISE

vetrotech
SAINT-GOBAIN

ADVANTAGES OF VETROTECH SAINT-GOBAIN



Choice: We offer a wide range of glazed protection solutions providing resistance of various types (fire resistance, burglar resistance, explosion resistance and/or bulletproofing).



Customisation: Do you have aesthetic, acoustic or thermal requirements? Do you need obscuration? All the protection solutions are able to meet one or more environmental requirements.



Listening: Whatever the project and its challenges, our technical and sales teams will ensure you are offered the solution best suited to your needs.



Expertise: The bespoke nature of the protection solutions requires our teams to constantly check and certify their resistance, while conforming to the standards and requirements imposed by different environments and countries.



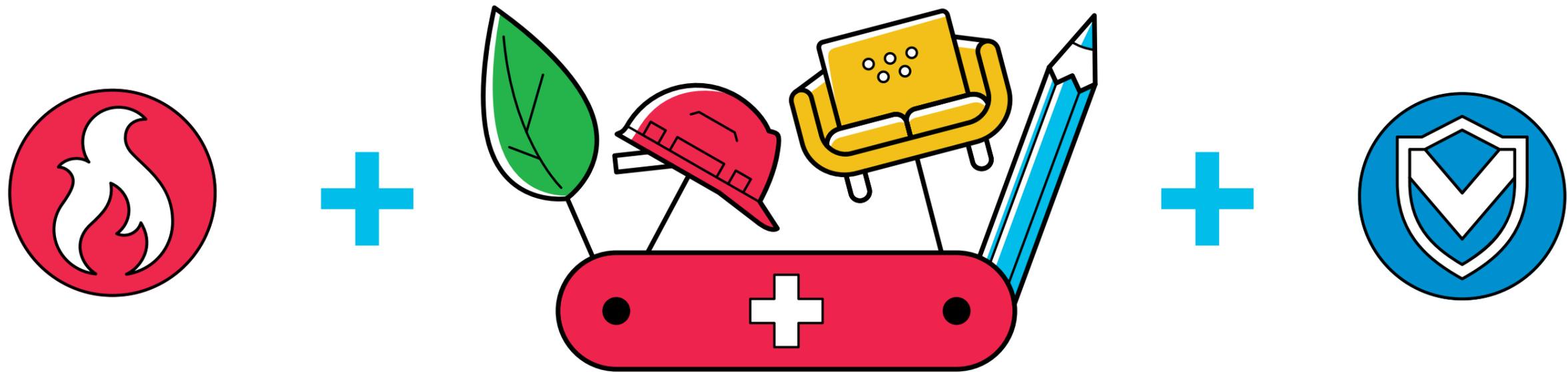
Reliability: Vetrotech is a subsidiary of the Saint-Gobain Group, an expert in glazed solutions for over 350 years.



FIRE RESISTANCE AND SAFETY: PROTECTING PEOPLE AND EQUIPMENT

Vetrotech is a Saint-Gobain Group company that specialises in consultancy and provision of glazed protection systems to combat fire and ensure the safety of people and equipment.

All Vetrotech glazed protection solutions are tested in specific environments and with framing systems made from steel, wood and aluminium. The report, which is issued by an approved test laboratory, is the document that attests to successful resistance testing of the glazed elements (specific glazing, framing systems and environments), and therefore constitutes the authorisation for sale.



FIRE RESISTANCE

PYROSWISS, VETROFLAM, CONTRAFLAM

The Vetrotech glazed fire resistance ranges allow for compliance with the different protection classes defined in standard EN 357 for fire resistant glazed elements:

- Class E, integrity against flames, smoke and hot gases: PYROSWISS.
- Class EW, integrity and reduction of heat radiation: VETROFLAM, CONTRAFLAM LITE, CONTRAFLAM LITE STRUCTURE.
- Class EI, integrity and insulation against heat radiation: CONTRAFLAM, CONTRAFLAM MEGA and CONTRAFLAM STRUCTURE.

30' to 120'

The glazed elements have fire resistance durations from 30 to 120 minutes.



Added safety

- Integrated alarm** – SECURIT ALARM
- X-ray protection** – SUPERCONTRYX
- GSM protection**
- Radar protection** – CONTRARADAR



Sustainability

- Double or triple glazing** – SGG CLIMAPLUS/ SGG CLIMATOP
- Solar control** – SGG COOL-LITE/SGG ANTELIO
- Self-cleaning glazing** – SGG BIOCLEAN

Specific solutions for clean rooms

Vetrotech develops specific glazed fire resistance solutions for clean rooms which conform to the requirements of applicable standard NF EN ISO 14644-1 of 1999.



Comfort

- Obscuration control** – CONTRAFLAM SCREEN (integrated blinds)/PRIVA-LITE
- Thermal insulation** – SGG PLANITHERM, SGG PLANISTAR SUN
- Acoustic insulation** – SGG STADIP SILENCE
- Dynamic glazing** – SAGEGLASS



Design

- Colour film, printing, glass deformation pattern, tinted** – SGG STADIP COLOR/ PICTURE IT/ SGG MASTERGLASS/ SGG DECORGLASS/ SGG PARSOL
- Screen printing** – SERALIT EVOLUTION
- Butt-jointed** – CONTRAFLAM STRUCTURE LITE/CONTRAFLAM STRUCTURE
- Glazed floor** – LITE-FLOOR
- Extra-large scale** – CONTRAFLAM MEGA
- Extra-light** – DIAMANT
- Anti-reflective** – SGG VISION LITE
- Mirror** – SGG MIRALITE
- Shaped glazing**, curved, etc.

PROTECTION OF PEOPLE AND EQUIPMENT

VETROGARD, POLYGARD

The VETROGARD and POLYGARD ranges of safety glazing for protecting people and equipment are only sold under test success of the entire system (glass, frame and environment).

They conform to the highest levels of resistance defined by European standards (EN):

- Burglar resistance
Glazing standard EN 356B (P6B to P8B).
- Bulletproofing
Glazing standard EN 1063 (BR1 to BR7 + SG1/SG2 specific to shotguns).
- Explosion resistance
Glazing standard EN 13541 (ER1 to ER4).

These glazing solutions are classified as either Splinters or No Splinters (S or NS) for the side opposite the impact.

For more information on our glazing ranges, please refer to our technical documentation.





Vetrotech Saint-Gobain International AG

Bernstrasse 43
3175 Flamatt
Switzerland

© Vetrotech Saint-Gobain
Concept/Design: L.Bourcellier
Photo credits: Neil Bowler,
Hennie Raaymakers, Zahnklinik,
Maurice Vinken, iStockphoto,
Shutterstock
Edition: May 2017

For more information:

www.vetrotech.com

Tel: (+41) 31 336 81 81

