

Ritec's Multiple Award Winning **CLEARSHIELD**

embarks on...

...The Good Glass Campaign
to challenge "Indifference"



"Stop ignoring solutions for Problem Glass!!!"

Face up to the consequences of ignoring known solutions for “Problem Glass”

The Good Glass Campaign, launched by Ritec International Limited, highlights the causes of Problem Glass and shows ways that proven solutions add real value at every step in the architectural glass supply chain – specifier, processor, fabricator, contractor, installer, end user.

Problem Glass is glass - exterior or interior – that is losing, or at risk of losing, its original performance standards or values such as light transmission, clarity and cleanability.

These standards or values easily drop when glass is unprotected against its ever-present enemies of moisture, alkalinity and dirt (‘MAD’).

Until the early 1980’s, when Ritec introduced new technology for durable, “non-stick” glass surface protection, the dropping of performance against glass standards was ignored or overlooked because there was no practical solution.

Since that time there is a growing awareness that glass, like other materials of construction, requires surface protection and that practical, cost-effective solutions exist.

In spite of this increased awareness, Problem Glass continues to cause glass performance standards and values to drop. This situation raises serious questions for everyone in the glass supply chain. Why is Problem Glass still all around us? Why are readily available solutions not being used more widely?

Stephen Byers, Managing Director of Ritec, believes that answers to these questions lie in the fact that glass is ubiquitous and often taken for granted. As a result, there is general indifference to Problem Glass and its causes. Stephen discusses ways the Good Glass Campaign is challenging this lack of care and attention for the benefit of everyone in the glass supply chain.

Good Glass vs Problem Glass

The ‘Good Glass Campaign’ is growing in numbers and strength by focusing on ways of adding real value at all steps of the architectural glass supply chain by maintaining or restoring the original performance standards or values of glass.



Problem Glass before installation



Problem Glass during installation

When new, glass is ‘good’ because it meets industry standards and has values such as –

- **light transmission – for visibility and day-lighting**
- **clarity – for “sparkling” appearance**
- **cleanability – for low maintenance and hygiene.**

Architects and designers specify glass to meet such standards or values, but ‘Good Glass’ easily loses these attributes and becomes ‘Problem Glass’ when attacked by its biggest enemies – moisture, alkalinity and dirt (‘MAD’). Either

singularly or in combination, these enemies can easily reduce visibility, day-lighting, appearance, cleanability and hygiene.

MAD can easily cause glass, exterior or interior, to become Problem Glass with serious consequences for specifiers, fabricators, contractors, installers, building owners and occupants.

Without protection against MAD, glass becomes increasingly difficult to clean and keep clean – a high-maintenance material of

construction. In spite of frequent and intensive cleaning, Problem Glass can easily lose its original standards and values.

By resisting the causes of Problem Glass, architectural glass has “green” performance as a result of greatly reduced energy requirements for routine washing and less carbon emissions. Of course “green” is not just a label or certification. It is a state of mind that should be applied to all buildings with the objectives of keeping glass looking and performing like new – with its original visibility, clarity and cleanliness.

Where is Problem Glass Most Likely to be Found and What are its Causes?

Problem Glass is most likely to be found anywhere one or more of the aggressive trio of MAD is present. This includes:

- **construction sites**
- **sloped glazing - conservatory roofs, rooflights**
- **buildings with difficult access for routine washing**
- **glazing exposed to run-off from concrete, bricks, mortar, stonework, lead flashing, silicone sealants**
- **glazing in polluted areas - city centres, industrial estates, near railways, coastal**
- **interior glass – shower enclosures, sand-blasted glass, kitchen splashbacks.**

The two biggest causes of Problem Glass are moisture and alkalinity. Either individually or together, they can etch or dissolve the surface of glass, making it appear dull and sometimes white in appearance. Some dirt will damage the surface, and further harm can be caused in efforts to remove it.

Moisture can be in its liquid form, such as rainfall, or as a vapour in high humidity locations. Alkalinity comes from hard tap water, sea water and construction materials such as cement dust and building run-off from concrete, bricks or mortar.

Organic dirt does not normally attack glass but can attach firmly to the surface and be difficult to remove. For exterior glass, this includes traffic film, bird droppings and tree sap. For interior glass, organic dirt includes fingermarks and cooking oil vapours.

Inorganic dirt bonds chemically to glass and is difficult, if not impossible, to remove using



Problem Glass after installation

conventional cleaning methods. Inorganic dirt on exterior glass includes sea spray, industrial emissions, metal oxides from railways and construction materials such as cement dust and building run-off. For interior glass, an example is limescale from hard tap water.

The Dangers of 'Indifference' towards the Causes of Problem Glass

Architectural glass meets in theory, but not in practice, industry performance standards for light transmission, solar control and energy efficiency – unless its surface is protected against the causes of Problem Glass.

Glass is a marvellous substance but, like other materials of construction, does not have a built-in defence system against attack by its enemies. The surfaces of most materials are bare or “raw” and therefore highly susceptible to attack by moisture, alkalinity and dirt ('MAD').

As a result, surface protection is taken very seriously in most industries because the risks of

unprotected surfaces are so high. Unprotected materials of construction are at risk of unsightly appearances, increased costs for upkeep and reduced service lives.

To protect against such risks, automobile manufacturers apply paint and rust-proofing for protection against metal corrosion and chemical attack. Suppliers of architectural metals apply paint, anodising, powder coating or galvanising.

Unprotected wood stains and discolours, so it is painted or varnished. Even the paint applied to protect metal and wood can fade and discolour, so it is waxed and polished.

The concept of “non-stick”, easy-clean surface protection is well established in kitchen cookware. More and more carpets, upholstery and other fabrics have “non-stick” surface protection because of increased awareness of the benefits in terms of ease of cleaning and resistance to staining.



A building looking old before its time

In these and many other industries, the risks of unprotected surfaces are known to be so high that indifference is not a real factor. Glass should not be an exception, but it is!

The Costs of 'Indifference' in the Glass Supply Chain

Glass is no exception in vulnerability to surface attack by its enemies, but for various reasons glass is often left unprotected. In many cases, exposure to moisture, alkalinity and dirt ('MAD') at each step of the glass supply chain is not considered. In other situations, the risks of MAD causing Problem Glass are ignored or overlooked due to general indifference.

The diagram overleaf shows sources of MAD at each step of the glass supply chain. Indifference towards the risks of Problem Glass at any of these steps can result in glass that is:

- increasingly difficult to clean and keep clean
- high in energy requirements for routine washing, i.e. not 'green'
- low in day-lighting, with reduced well-being and productivity of occupants
- not hygienic

As a result, buildings look old before their time and their glass fails to achieve its original

standards and values – light transmission, clarity and cleanability. This wastes a lot of time, effort and money throughout the glass supply chain.

What Happens When Problem Glass Reduces Glass Standards and Values?

Much time, effort and money are wasted. All the hard work devoted to establishing and fulfilling industry performance standards is lost and values diminish unless glass is protected against MAD, the causes of Problem Glass.

Building developers, owners and occupants do not benefit. Those paying, either directly or indirectly, for glass meeting industry performance standards and achieving value will not benefit from their investment unless the glass surface is protected.

What Happens When Light Transmission of External Glass is Reduced?

Industry Standards are not met

A great deal of time, effort and money are spent establishing and fulfilling industry performance standards for architectural glass. Building designers and engineers, glass suppliers, trade organisations and governmental bodies work

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The Ritec ClearShield System™ provides 'prevention' for new installations and 'cure' for glass already installed - reducing or eliminating the risks of call-backs, delays in construction and complaints

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very hard to ensure that industry standards, such as visible light transmittance (t-value), are established and fully met.

These industry performance standards have clear and valid objectives, but they also have a major drawback. They prove, in effect, that the product achieved a certain standard only on "Day One" - the date of testing.

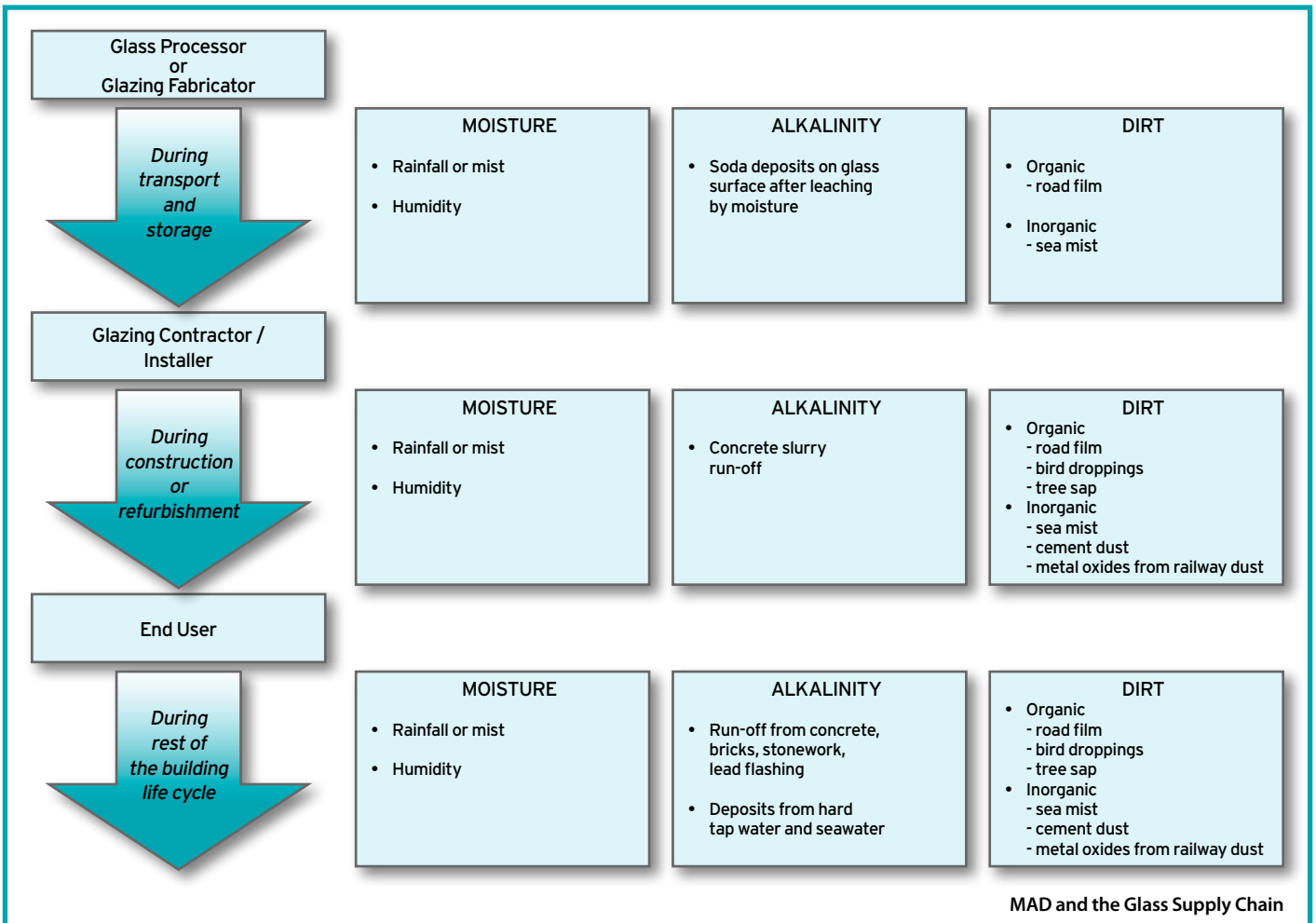
When new, glass meets standards and values for light transmission, clarity and cleanability. However, glass is highly susceptible to surface degradation before, during and after construction. Unless preventative measures are taken to protect the glass against declining performance, glass meeting light transmittance or t-value standards when supplied is unlikely to meet the same standards once building construction has been completed.

As a result, building owners and occupants do not benefit from all the time, effort, and money invested – all of this becomes wasted. Performance against standards drops, and the standards themselves become meaningless.

The solution is glass surface protection before, during and after construction – helping to maintain glass performance against industry standards well beyond the date of supply.



Solution for Problem Glass in progress



Goals for 'daylighting' are not achieved

By failing to meet industry standards for light transmission, Problem Glass can have negative effects on daylighting in a building as well as reducing the well-being and productivity of its occupants.

Sunlight is an essential part of our lives and glass is a very important part of building design. Historically the primary functions of glass have been to provide the building occupants with light and view. These functions are still paramount and illustrate the importance of glass that is easy to clean, keep clean and see through.

Daylighting uses glass and natural light to illuminate buildings. The use of sunlight costs nothing to the environment but pays big dividends to building occupants by connecting them with the outside world, reducing the need for artificial lighting and cutting the costs of heating.

Daylighting provides lighting solutions that are environmentally-friendly and energy-efficient. By consuming less energy, daylit buildings reduce the use of fossil fuels that generate carbon dioxide emissions associated with global warming and climate change.

These advantages of glass have made daylighting a central theme in the design of high-performance buildings. As with other glass performance standards, a huge amount of time, effort and money is spent in establishing and meeting the standards for light transmittance (t-Value). Daylighting performance soon diminishes unless external glass is protected against MAD.

Lighting conditions in the workplace can deteriorate

Building consultants and designers have known for some time that environmental lighting has major influences on the health and well-being of humans. Illumination appears to be so important that even seasonal mood changes as strong as depression have in some cases been treated successfully merely by increasing the natural lighting in a person's environment.

Many studies have been carried out on the differences between natural lighting and white fluorescent lighting commonly used

in commercial, industrial and institutional environments such as offices, factories and schools. As examples, studies have shown that students had less fatigue after a study session in natural light than in an environment with artificial lighting and effective use of natural lighting significantly reduces energy costs.

The biological clock can be affected

Light is not only necessary to see well, but has a tremendous influence on the health and welfare of humans as it enters the eye and influences the biological clock, mood and performance.

A small nucleus of the brain, called the suprachiasmatic nucleus (SCN), constitutes the biological clock which controls or influences many body functions, such as production of hormones, sleep and wake rhythm, body temperature and alertness. Many research studies show that light and dark are important stimuli to these biologic clock functions.

What Happens When Clarity and Cleanability are Diminished?

Visual properties of the glass can deteriorate

MAD causes deterioration of the visual properties of glass through staining, discolouration, pitting, surface erosion and other factors. As this condition worsens, the building occupant's connection with the outside world looks increasingly dim and dirty. This can easily cause detrimental effects to the general attitudes and well-being of building occupants, unless the glass is protected against the causes of Problem Glass.

The glass cannot be 'green'

Problem Glass cannot be considered as 'green' because it is much higher in frequency and difficulty of maintenance – requiring greater energy consumption through increased use of cleaning chemicals, water, fuel and other resources.

Even with frequent and intensive washing, Problem Glass becomes increasingly difficult to clean and keep clean. Its bare, unprotected surface is exposed to MAD and easily becomes stained or discoloured by contaminants that bond firmly and cannot be removed by conventional cleaning methods.

Buildings look old before their time

Problem Glass can easily tarnish the overall appearance image of a building, making it appear old and dull at an early age. As a result, the building fails to meet expectations of its designer, owner and occupants.

Today there is no Excuse for Problem Glass - Join the Good Glass Campaign!

In the past, failure of glass to meet its original performance standards and values was ignored or overlooked because there was no effective solution. Today there is no excuse for ignoring the need for protection of glass against MAD.

Technology now exists for preventing Good Glass from becoming Problem Glass by protecting its surface against MAD – which also protects the original performance standards and values.

For more than 30 years, Ritec International Limited has developed and supplied innovative and cost-effective solutions for Problem Glass. These solutions include the award-winning Ritec ClearShield System™ for glass renovation, "non-stick" protection and maintenance. This unique System is winner of 11 awards for innovation, and is the first and only technology for glass proven to add value at all steps in the supply chain.

The Ritec ClearShield System™ provides either 'prevention' for new installations or 'cure' for glass already installed - reducing or eliminating the risks of call-backs, delays in construction and complaints. Either in a factory or on-site, this innovative system converts ordinary glass into "non-stick" glass with easy-clean, low-maintenance, stain-resistant performance.

The Good Glass Campaign continues to challenge the causes of Problem Glass for the benefit of everyone in the glass supply chain - specifier, processor, fabricator, contractor, installer, end user. This includes challenging 'indifference' at any of these steps of the supply chain towards known solutions for 'prevention' or 'cure' of Problem Glass, helping to avoid buildings failing to be "green" or looking old before their time.

The time is right – join the Good Glass Campaign now!

Ritec Awards 1987 to date



Working Neighbourhood Fund Export Award,
Winner
Enterprise Enfield, 2010



Best Entrant from a Business,
Runner-up
Enfield Innovators Competition, 2009



G09 Glass Company of the Year Award
British Glass Awards, 2009



Innovative Business of the Year Award, Runner-up
Enterprise Enfield, 2008
Sponsored by Barclays Bank



ClearShield: Best New Technology, Third place
US Awards and Recognition Association (ARA), 2008



G05 Specialist of the Year Award
British Glass Awards, 2005



ClearShield: Product of the Year Award, Voted #1
US Glass, 2002



ClearShield System: Millennium Product Award
Scratchmask System: Millennium Product Award
British Design Council, 2000



ClearShield: Daily Mail Blue Ribbon Award
London Ideal Home Exhibition, 1987



ClearShield: Prince of Wales Award for Innovation
British Engineering Council, 1987



In addition, Ritec have three independent Certifications:

- a) ISO 9001: 2008, the global standard for Quality Management Systems
- b) ISO 14001: 2004, the first global standard for Environmental Management Systems
- c) Accreditation by Safecontractor for commitment to achieving excellence in health and safety.

