glasstec
>UPDATE
INTERNATIONAL CONFERENCE
25 + 26 NOV 2021

Glas – ein Werkstoff mit Zukunft

Martin Stadler
Direktor Marketing & Vertrieb
Saint-Gobain Glass Deutschland GmbH

SAINT-GOBAIN

MAKING THE WORLD A BETTER HOME

One of the top 100 **global innovators** over the last 10 years

Commitment: **carbon neutrality in 2050**

World or European leader in most of our business

Founded more than

350 YEARS AGO

Located in

70 COUNTRIES

Sales in 2020

€38.1BN

Over

167,000
employees representing more than 110 nationalities

Around

800
manufacturing facilities worldwide

More than

3,500
sales outlets

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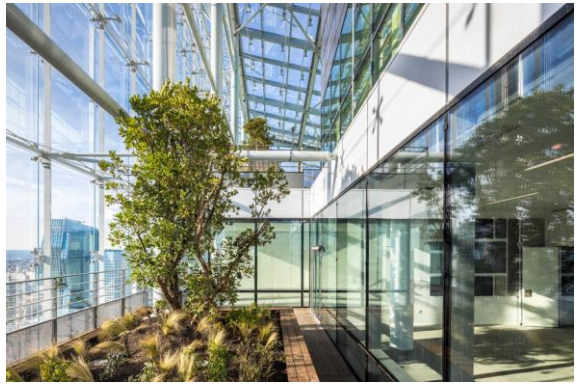
GOVERNANCE AND BUSINESS ETHICS

CLIMATE CHANGE

CIRCULAR ECONOMY

HEALTH AND SAFETY ACROSS THE ENTIRE VALUE CHAIN

EMPLOYEE ENGAGEMENT AND DIVERSITY



INCLUSIVE GROWTH

CSR Indicators

SCIENCE BASED TARGETS

STOXX ESG LEADERS INDICES

top EMPLOYER GLOBAL 2021

FTSE4Good

CDP

A- rating

MSCI ESG Leaders Indexes

SUSTAINABLE DEVELOPMENT GOALS

SASB

Bloomberg Gender-Equality Index 2021

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The future is today…

MEGATRENDS

TRANSFORMATIONS OF THE CONSTRUCTION INDUSTRY

Rising urbanization

Nearly 70% of the world population will live in cities in 2050

Global economic growth

Emergence of the middle classes in developing countries and increasing inequalities

Resource scarcity & recyclability

Raw material demand will increase more than 50% by 2030

New mobilities

Electric and driverless vehicles

Digitalization

Impact on lifestyles, consumer habits, work, communication

Demographic change

World population growth and ageing

Climate change

Buildings represent 40% of global greenhouse gas emission

Infrastructure

Development of solutions for more resilient buildings and cities

Industrial markets

Performance for our manufacturing customers in construction, energy, industrial equipment and domestic appliances

Circular economy

Integration of recycled raw materials into our processes, structuring of end-of-life material recovery channels

Mobility

Comfort (acoustic, aesthetic, thermal), safety and connectivity
to design new uses

Distribution and customer relations

In sales outlets and online, easy access to products and services: omnichannel experience, digital services for installers, click and collect…

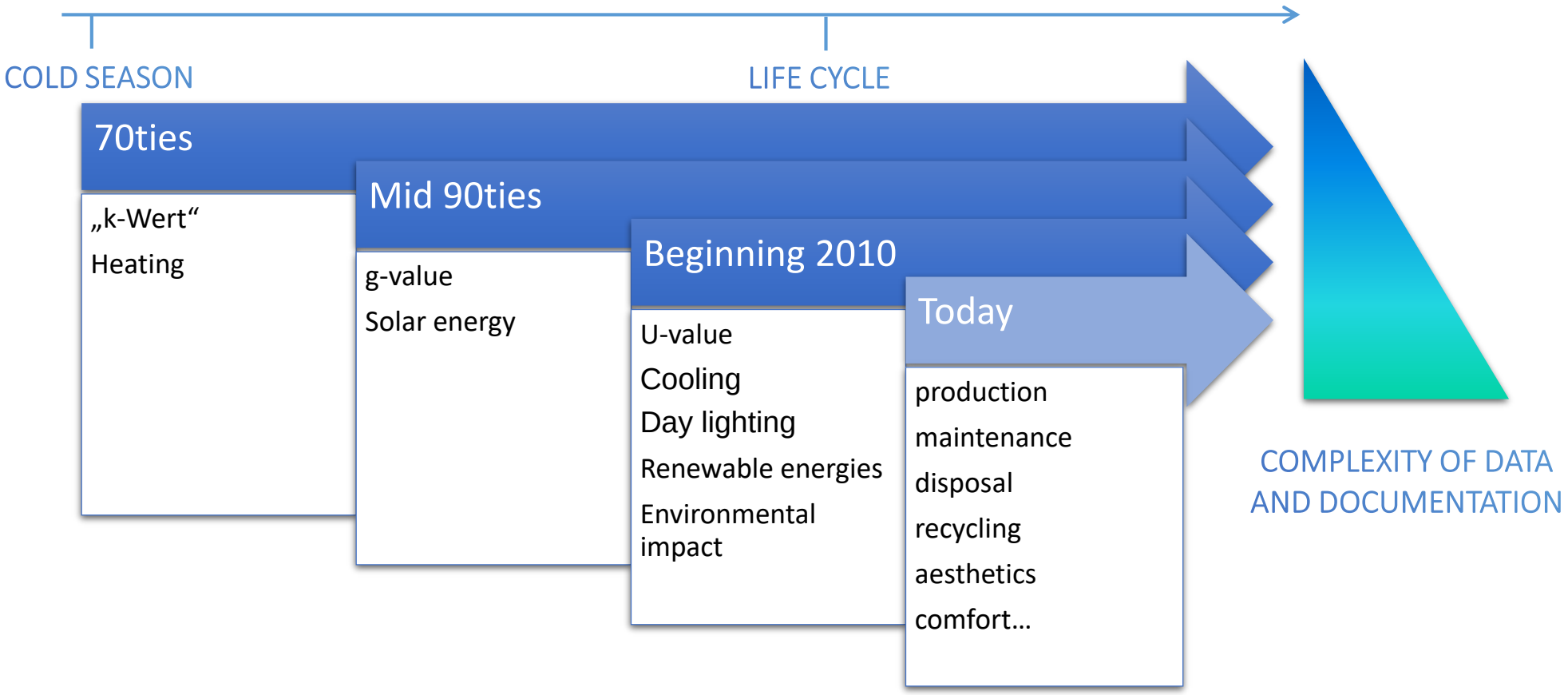
Life Sciences

The pharmaceutical, medical and biotech sectors to respond to the development of personalized medicine and meet new needs for reliability, compliance and diagnostics

Housing

Residential and non-residential **new construction** adapted to local building methods and specific features of each country

Building **renovation** to improve energy efficiency and occupant comfort



=> NEW INFORMATION TECHNOLOGIES WILL BE ESSENTIAL PART OF A PRODUCT E.G. BIM, EFID, DIGITAL DATA PLATFORMS

PRODUKTVERFOLGUNG – DATENNUTZUNG – AUF DER BAUSTELLE

Die IBAN des Materials

RFID Lesegerät

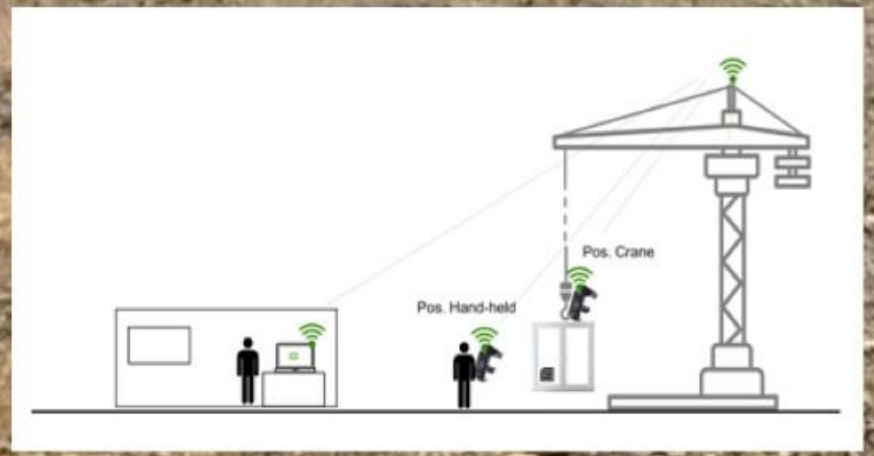
Partner

GLASSOLUTIONS SAINT-GOBAIN

Eckelt Glas

RWTH AACHEN UNIVERSITY

Isolierglas mit Rahmen

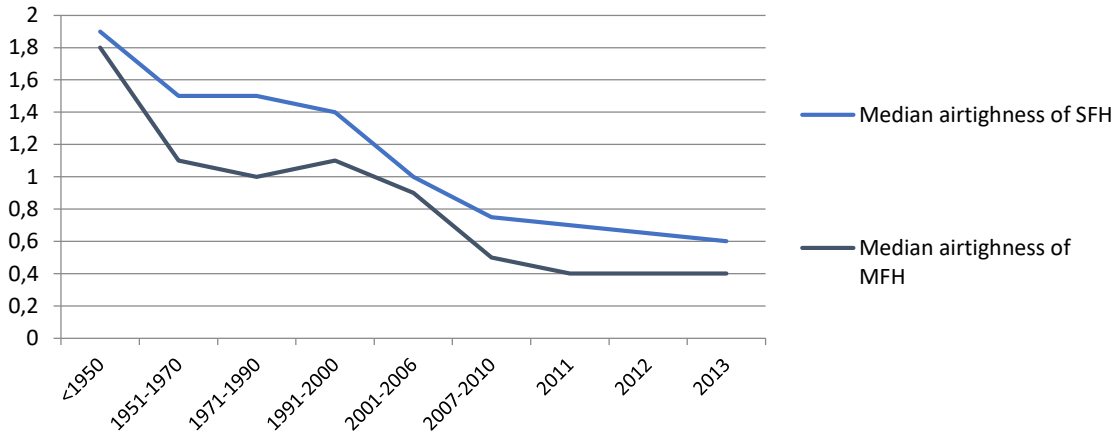


Kranführer überprüft auf seinem Handy das RFID Lesegerät

PC erhält Nachricht, wenn die RFID gescannt wurde.

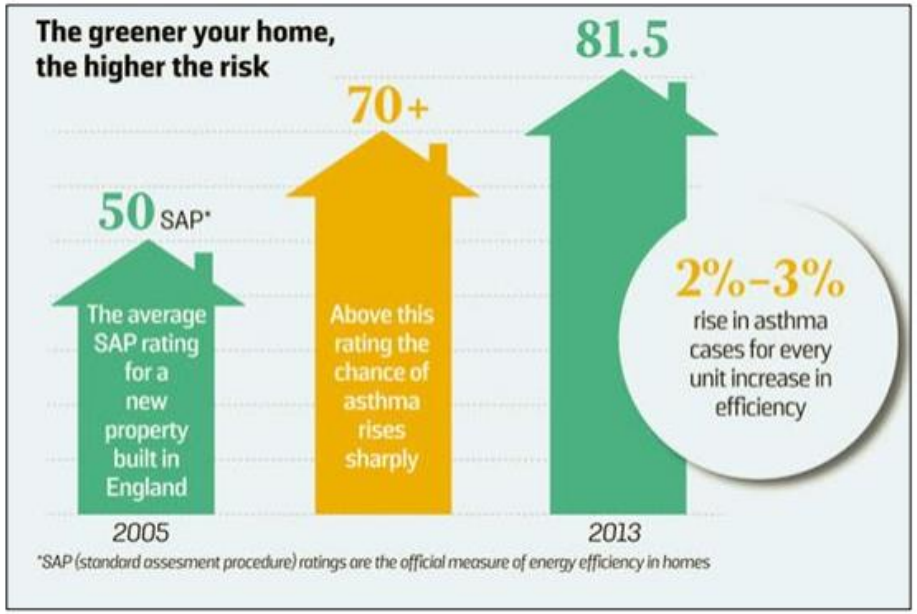
Building airtightness is rising in new and existing buildings

Evolution of the median value of the airtightness in French residential buildings (year of building construction / m3.h-1.m-2)



Airtight and poorly ventilated buildings lead to poor IAQ and respiratory diseases apparition

Impact of UK housing energy efficiency on asthma symptom



- **In 37% of cases, moisture appears** within 10 years after a windows renovation in an old building without installing efficient ventilation system

FOUR FEATURES FOR HEALTHY, GREEN SCHOOLS

WORLD GREEN BUILDING COUNCIL

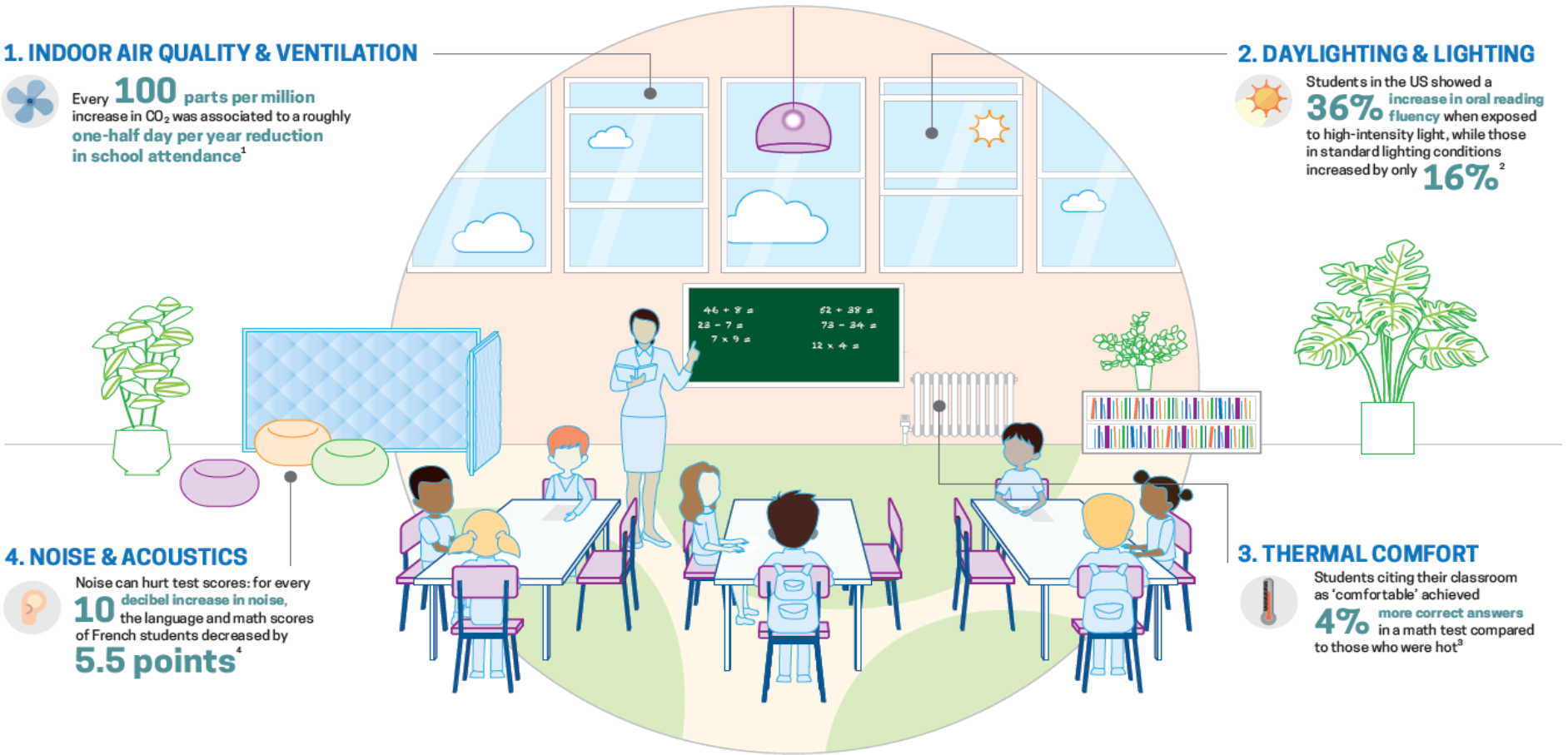
BETTER PLACES FOR PEOPLE
PUT WELLBEING AT THE HEART OF YOUR BUILDING

1. INDOOR AIR QUALITY & VENTILATION

Every **100** **parts per million** increase in CO_2 was associated to a roughly **one-half day per year reduction in school attendance**[1]

2. DAYLIGHTING & LIGHTING

Students in the US showed a **36%** **increase in oral reading fluency** when exposed to high-intensity light, while those in standard lighting conditions increased by only **16%**[2]



4. NOISE & ACOUSTICS

Noise can hurt test scores: for every **10** **decibel increase in noise,** the language and math scores of French students decreased by **5.5 points**[4]

3. THERMAL COMFORT

Students citing their classroom as 'comfortable' achieved **4%** **more correct answers** in a math test compared to those who were hot[3]

1. Gaihre, S., Semple, S., Miller, J., Fielding, S., Turner, S. (2014) Classroom carbon dioxide concentration, school attendance, and educational attainment. J Sch Health. 84(9):569-74.
2. Mott, M. S., Robinson, D. H., Walden, A., Burnette, J., & Rutherford, A. S. (2012). Illuminating the effects of dynamic lighting on student learning. Sage Open, 2158244012445585.
3. Haverinen-Shaughnessy, U., Turunen, M., Metsämuuronen, J., Palonen, J., Putus, T., Kurnitski, J., & Shaughnessy, R. (2012) Sixth grade pupils' health and performance and indoor environmental quality in Finnish school buildings. British Journal of Education Research, 2(1):42-58.
4. Pujol, S., Levain, J. P., Houot, H., Petit, R., Berthillier, M., Defrance, J., & Mauny, F. (2014). Association between ambient noise exposure and school performance of children living in an urban area: a cross-sectional population-based study. Journal of Urban Health, 91(2), 256-271.

Global Project Sponsors:

SKANSKA SAINT-GOBAIN Delos Innovate Well

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OUTSIDE VIEWS

Mental Function & Memory
10-25%
BETTER

Call Processing
6-12%
FASTER

Hospital Stays
8.5%
SHORTER

DAYLIGHT

Students achieve
5-14%
HIGHER TEST SCORES
and learn **20-26%**
FASTER

Workers are **18%**
MORE PRODUCTIVE

15-40%
INCREASE
in Retail Sales

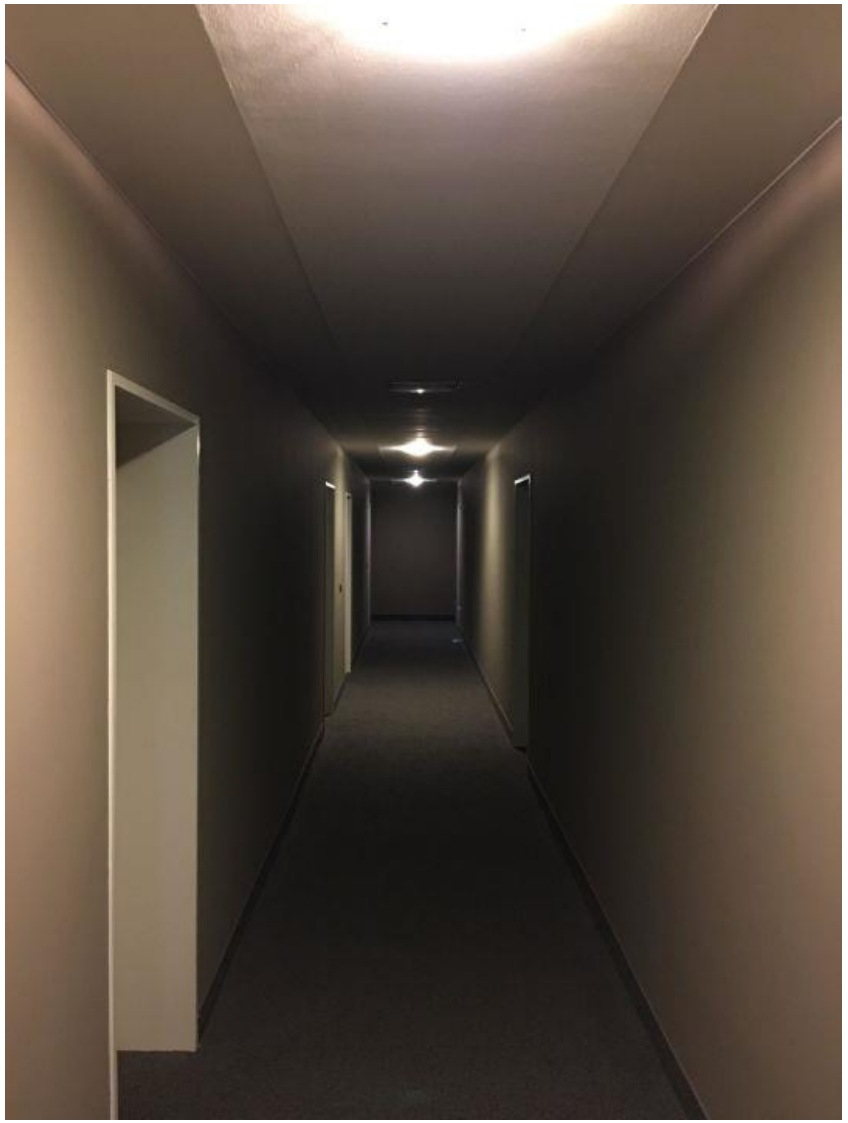
SYSTEMS

Productivity Increases by
23%
from better lighting

11%
from better ventilation

3%
from individual temperature control

based on pilot survey by SGRI




DER TAGESSPIEGEL

POLITIK BERLIN WIRTSCHAFT GESELLSCHAFT KULTUR MEINUNG SPORT WISSEN VERBRAUCHER INTERAKTIV

Archäologie · Gehirn · Geisteswissenschaft · Hochschule · Medizin · Natur · Physik · Weltall · Gesundheit

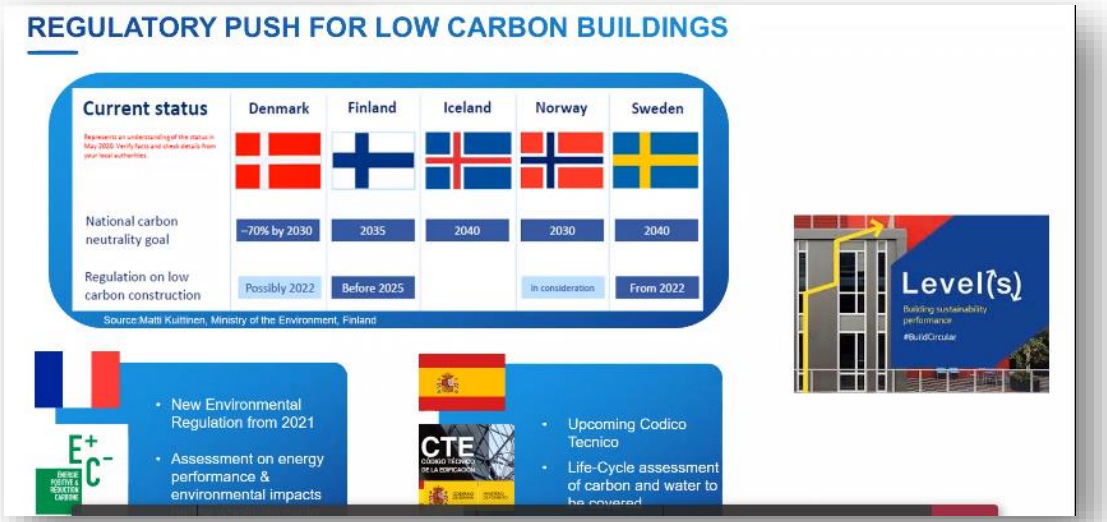
Wissen ▸ Die klimaschädliche Gier nach Zement: Klimakiller Beton

Die klimaschädliche Gier nach Zement

20.09.2019, 12:09 Uhr

Klimakiller Beton

Kaum ein Neubau kommt ohne Beton aus. Doch die Herstellung verursacht jährlich Milliarden Tonnen CO2. Jetzt wird an Alternativen geforscht. VON RALF NESTLER



CLIMA SECURIT®

Die Flachglas-Experten

Introduction of carbon footprint as a technical value similar to light transmission, g-value etc.

Messe Düsseldorf

for our customers
Solutions providing sustainability and performance

Decarbonize the built environment

- Roofing solutions
- Insulation systems
- Lightweight façade solutions
- Flooring solutions

-1,200 Mt of CO_2eq emissions avoided by using our insulation solutions sold in 1 year[1]

Decarbonize industry

- Flat glass solutions
- High temperature refractories
- Technical ceramics
- Components for developing electric mobility

1. Internal methodology developed in partnership with EY Sustainable Performance & Transformation: Avoided emissions calculated as difference between greenhouse gas emissions associated with product Life Cycle Analyses & gain unlocked by the product vs. a reference basic solution multiplied by its lifespan (e.g 30 years for insulation, 50 for glass). Reference solution & scenario defined for each product in portfolio

for our processes
CO_2 commitments towards carbon neutrality

2020

Increased internal carbon prices

- **€50** for investment
- **€150** for R&D

2030 targets SBT-validated

2030

- Scope 1 + 2 **-33%**
- Scope 3 **-16%**

Reduction in absolute emissions vs 2017

SAINT-GOBAIN

2050 NET ZERO CARBON

Standard Zweifach-Isolierglas
4 / 16 / 4

20,0 kg/m²

Standard Dreifach-Isolierglas
4 / 14 / 4 / 14 / 4

30,0 kg/m²

CLIMATOP XN Extra Light
3 / 14 / 2 / 14 / 3

20,0 kg/m²

Gesamtmengen von Fenstern in Deutschland

Fensterbestand in Deutschland		2016 Mio. FE	2020 Mio. FE
Typ 1	Fenster mit Einfachglas	17	11
Typ 2	Verbund- und Kastenfenster	44	39
Typ 3	Fenster mit unbeschichtetem Isolierglas	205	185
Typ 4	Fenster mit Zweischeiben-Wärmedämmglas (Low-E)	289	309
Typ 5	Fenster mit Dreischeiben-Wärmedämmglas (Low-E)	55	90
Gesamt		**610**	**634**

Bestand in Fenstereinheiten (1 FE = 1,3 x 1,3 m = 1,69 m²). Angaben gerundet. Quelle: VFF / BF, Stand 2021

weight

- 33%

54,1 kg CO2 eq./m² 41,9 KG CO2 eq./m²

Carbon footprint

- 22%

ISOLIERGLAS-CENTER
GLASSOLUTIONS
SAINT-GOBAIN

Einfach besser!

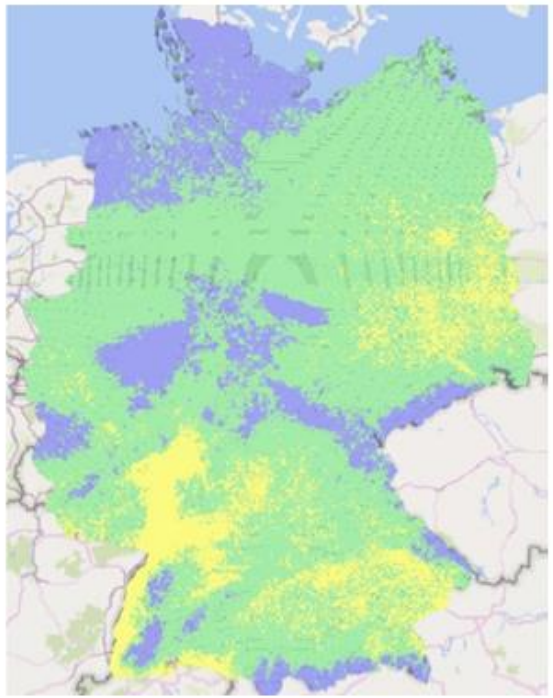
Messe Düsseldorf

DIN 4108-2: Klimadaten Deutscher Wetterdienst 2011

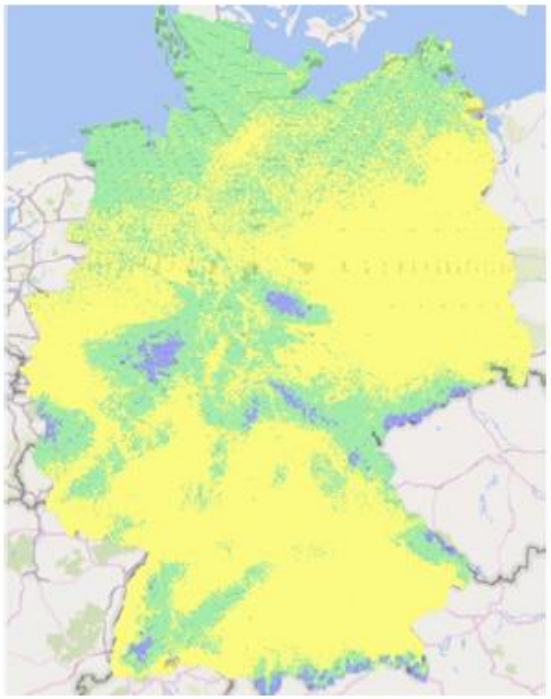
© Universität Kassel, Fachgebiet Bauphysik

Region A Region B Region C Grenzen der Bundesländer

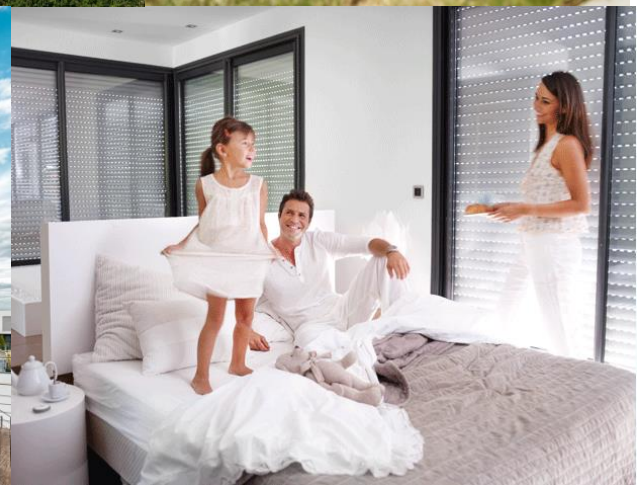
Neue Klimadaten Deutscher Wetterdienst 2015



Neue Klimadaten Deutscher Wetterdienst 2045



© Vukadinovic, M., Kempkes, C. und Maas, A.: Auswirkungen klimatischer Veränderungen auf die Überhitzung von Gebäuden. In: Tagungsband BauSIM 2020 - 8. Deutsch-Österreichische IBPSA-Konferenz, 23.-25. September 2020, Graz, S. 227-232.

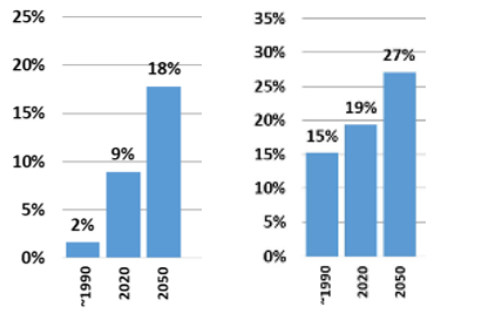


IMPACT OF GLOBAL WARMING IN SUMMER COMFORT

ALSO A STAKES FOR COLD & INTERMEDIATE CLIMATES

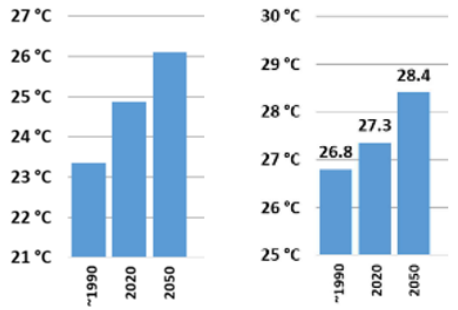
Passive House Institute

Over heating frequency : % of hours where T> 25°C



Postdam (Germany) La Rochelle (France)

Average indoor T°C in Summer



Postdam (Germany) La Rochelle (France)

*Source Passive House report 2021 on Solar Control,

SAINT-GOBAIN

Herzlichen Dank!