

Prof. Ulrich Sieberath

Director of **ift** Rosenheim

Over-regulated or helpful?

How many actions, regulatory instruments and documents are needed for a quality product?

1 Finding a way through the jungle

On virtually a daily basis, engineers are faced with long, confusing invitations to tender, constantly increasing requirements, and new rules, technical terms, and jobs to do. U-values, g-values, light transmittance, the CPR, the Low Voltage Directive, safety in use, accessibility, REACH declarations, carbon footprint, universal design, prEN 14351-1, temperature factors, Ψ -values, the passive house standard, sustainability, environmental product declarations – the list goes on and on. How is anyone realistically meant to meet all these requirements?

2 The “good old days” – and now

After the War, all it took to meet the regulatory and normative requirements for windows was some easy-to-understand design standards, single-pane glass, one-page standards involving stipulations about glazing, just 20 quality assurance criteria, and barcodes for checking product quality and mass production. But the resulting product quality reflected this small number of requirements. Also, things got complicated if the customer wanted something specific. If a product deviated from the normative design requirements, manufacturers found it hard to provide evidence of that product’s compliance.

The energy crisis, the emergence of the Single European Market and, with it, European standards, and the beginnings of globalisation prompted the development of more sophisticated, and a

greater diversity of, window designs. In Europe, this meant everything from outward-opening Scandinavian windows and German double casement windows to sliding folding systems incorporating solar shading devices. Such diverse products can only be assessed if they are first described according to the “performance principle”. Today the emphasis is on offering a wide variety of designs, in order to meet both climatic and structural requirements, and users’ individual needs. This development triggered a veritable explosion of new and additional performance characteristics and functions. However, with higher prices, higher consumer expectations, better consumer protection, higher quality and improved performance comes a need for more complex, and a larger number of, regulatory instruments. Gathering the documentation necessary to sell these products therefore now takes an increasing amount of work. To cope with these changes, companies are having to adapt their ways of working, and the workers affected are having to be trained in new ways. It feels like producing products has become a secondary consideration, while admin, filling in forms and protecting oneself from lawsuits have become ends in themselves.

3 Regulatory instruments: a voice for engineers, and a vital reference work for businesspeople and lawyers

In order to describe a product’s functions and performance characteristics in a consistent way, the same clearly-defined technical terms need to



be used everywhere. A good example are the terms used in relation to protection against burglaries, for example the government-defined goal of “public” or “basic” security, enhanced security, and technical terms relating to burglar resistance and special functions such as attack resistance. This poses the inevitable question of what exactly it is that customers expect, and how products can meet those expectations.

Only if those expectations are defined in a clear, binding, generally-accepted way in standards and regulatory instruments is it possible to avoid conflict and guarantee customer satisfaction. This notion is enshrined in public procurement law in § 7 VOB (German Construction Contract Procedures), Part A, as follows:

“Performance must be described clearly, and sufficiently exhaustively that all applicants understand the description in the same way and are able to calculate their prices reliably without extensive preliminary work.”

This description of performance must be based on clear technical specifications, should include both performance and functional requirements, and should be verifiable on the basis of documentary evidence, descriptions and test reports. Countless examples from expert opinions show that there is often a discrepancy between customer expectations and the products delivered, leading to conflict and delayed payment. This is often because “customer expectations” are incompletely described, rather than being clearly and exhaustively described in standards-compliant specifications.

4 Documentary evidence ensures security

These problems can have particularly unfortunate consequences when it comes to safety requirements. Complete, 100% safety is not achievable. Even if the workmanship is as good as it gets,

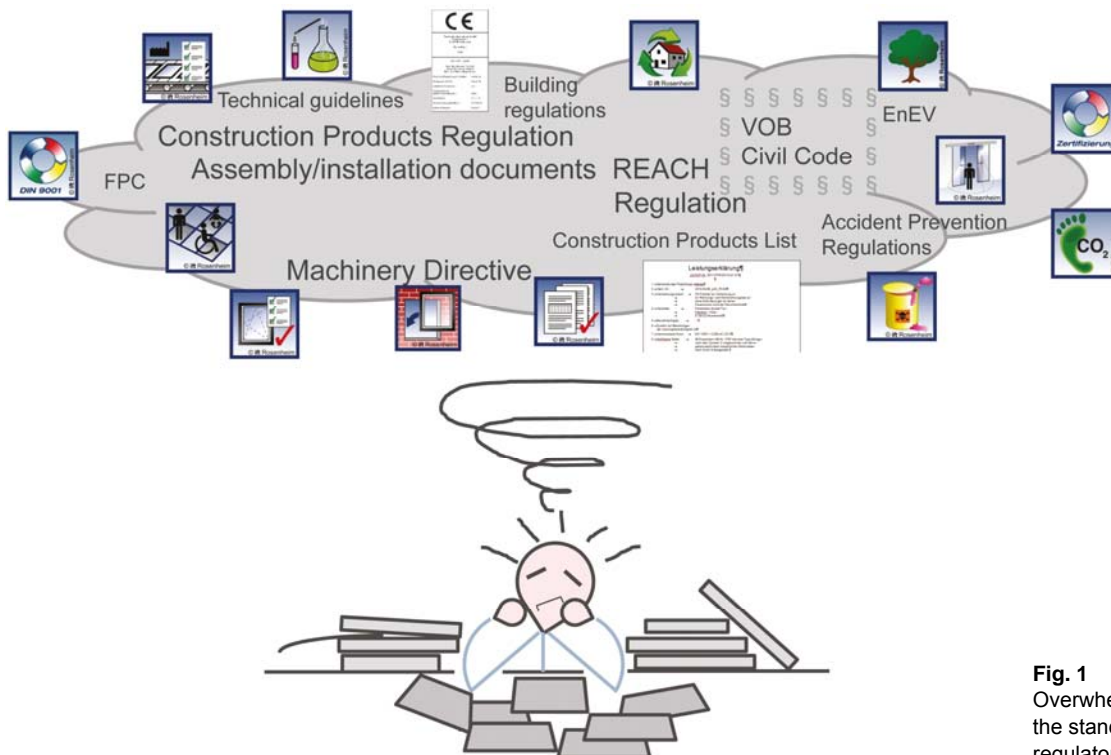


Fig. 1
Overwhelmed by all the standards and regulatory instruments

bricks and roofing tiles can still crack, for example. The same applies to TSG-H: even when the greatest possible care is taken and the verification procedures in the standards are followed, the risk of spontaneous breakage for each 1 m² is around 0.0001%, i.e. there is still a risk. In other words, precisely formulated rules do considerably improve safety and minimise risks, but they do not allow absolute, 100% safety to be achieved.

Watch out for bizarre rules and excessive requirements – for example laws about cable cars in German federal states in which there are no cable cars, requirements governing the workmanship of chains for babies’ dummies, or absurdly precise figures for how much a log of wood can taper.

The more complex the constellation of products becomes, the more difficult it becomes to specify their performance based on simple characteristic values or design features. Examples of this in our industry are the call for PVC profiles to have more

and more cavities, and insulating glass units to have ever more panes – four, or even five – in order to improve their thermal insulation. But even where the values themselves are clearly-defined, it is still possible to drift off course or become over-zealous in ways that make no sense from an environmental or economic point of view – as demonstrated by endless discussions about the U-values and maximum leaktightness of windows.

5 Consumers need guidance and hand-holding

Keeping up with all the regulatory instruments, declarations of performance, standards and rules is not only difficult for engineers – they are bamboozling for users as well. With their limited technical knowledge, they need clear guidance in interpreting all the physical values and performance classes correctly in order to make an informed choice of product.

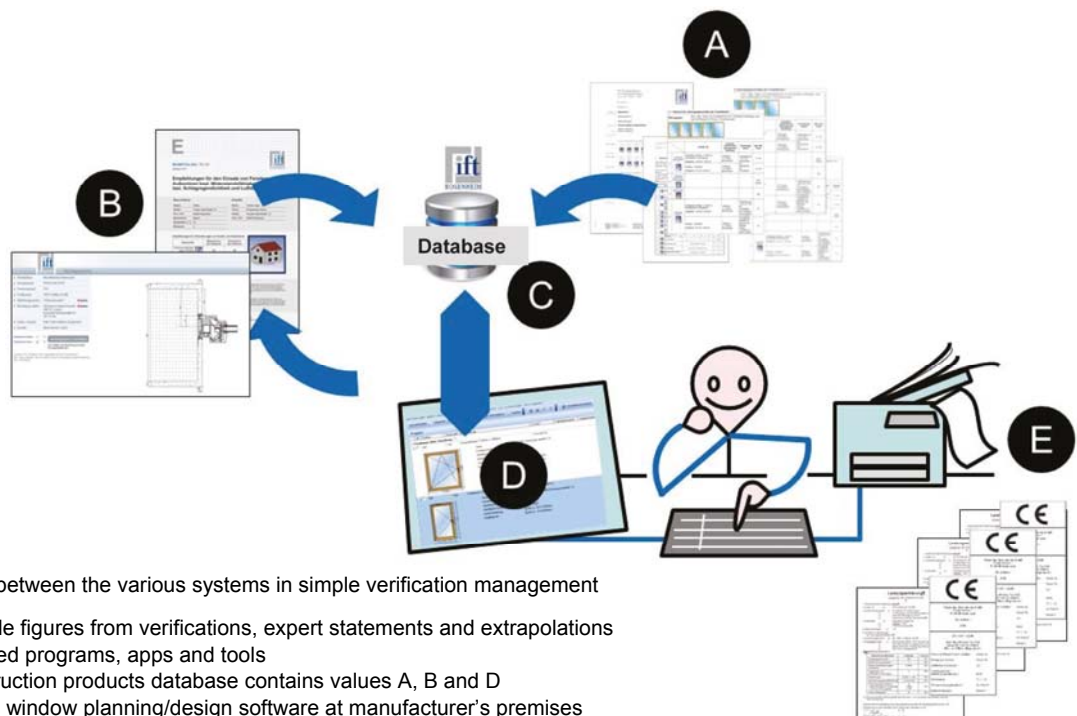


Fig. 2 Interplay between the various systems in simple verification management

- A Reliable figures from verifications, expert statements and extrapolations
- B ift-tested programs, apps and tools
- C Construction products database contains values A, B and D
- D Linked window planning/design software at manufacturer’s premises
- E Order-specific generation of reliable verifications



Fig. 3 A guiding light on stormy seas (© frank peters, fotolia.com)

With meaningful minimum requirements, clear recommendations for use and a simple design, quality marks like the RAL quality mark or “ift-Zert” can provide consumers with useful help in choosing the right product for them. The new multi-level approach for window certification and quality assurance, which was presented at the 2014 VFF annual conference, is a very promising development.

In today’s world, intelligent tools such as electronic planning aids, aids to issuing invitations to tender, and state-of-the-art portal and database systems for document administration and verification, are great ways of gaining an upper hand over the sea of documentation and information. New products like the CE Generator – for automatically generating declarations of performance – and the assembly/installation planner, are indispensable tools for navigating one’s way around the maze of standards, rules and verifications, and so saving time that could be better spent on sales activities, customers, and generally running a business.

6 Don’t lose sight of what is important

Window designs and windows designers, and indeed expert assessors, are subjected to ever greater requirements as the rules and regulations

become more numerous. Often it seems like the real goal is not the product’s actual level of safety and security, or its fitness for use, but the extent to which it complies with the relevant standards.

What is obligatory is not compliance with the standard, but meeting the expectations regarding the fitness for use and safety in use of the product.

For burglar resistance, that means that, from the customer’s viewpoint, what is important is not meeting the requirements of EN 1627 (e.g. RC1), but the question of how the right product can be used to achieve the desired protection objective. The standard provides guidance and assistance in achieving this. It is especially important to develop products in a way that allows assemblers to produce them under the cascaded system (the system commonly used in Germany), to ensure that they reliably adhere to the standard of quality confirmed by the initial type test. Processing guidelines, assembly instructions, specifications regarding factory production control, and suitable technical documentation are therefore necessary and absolutely justified.

7 A diversity of designs is good!

Basing standards and rules and regulations on performance characteristics rather than design requirements was a good move, because it safeguards the international high standing and special position in the market of quality products, by permitting diversity and ensuring that they offer the necessary performance. Of course it is im-



portant to avoid overkill, and some standardisation projects should be reviewed in order to ensure that the right focus is maintained in product development. In view of the fact that the window industry is dominated by small- and medium-sized enterprises, guidance is required to help companies find their way safely home to harbour, as are modern, reliable tools. For this reason the ift Rosenheim has for some time been investing large amounts of time and money in developing a construction products database. On the basis of this database it will be possible to automatically generate declarations of performance using standard planning and design programs. Other new tools include an assembly/installation planner and simplified calculation tools to help manufacturers get verification and document management under control.