

## PRESS RELEASE

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### “Fire Safety Puzzle”

#### The ift-Fire Safety Forum presents practical solutions and live fire tests

The structural fire protection is a central component to protect buildings and human lives against fire and smoke – this becomes apparent once again with the fire in the skyscraper in London. Therefore nearly 300 participants came to the ift-Fire Safety Forum in Rosenheim at 21./22.06.2017, to get a current overview of changed specifications (Prototype Building Regulation, Draft Model Administrative Rules – Technical Building Regulations), standards (EN 16034 including EXAP) as well as the international market development. The detailed insight in the fire protection concept of the Elbphilharmonie showed the importance of planning, verifications as well as testing – in particular in case of special constructions. Therefore, reliable, standard-compliant and reproducible fire tests including meaningful test reports have an important role. The live testing of an Hueck fire protection façade at the large ift-furnace (8 x 5 m) displayed impressively how also special constructions can be tested realistically and reliably.

The Director of Institute Prof. Ulrich Sieberath opened the 11th ift-Fire Safety Forum and reported on the standard “Fire safety“ EN 16034. The first months have already shown that “useful” classifications are only possible with detailed knowledge of the whole set of standards including all EXAP rules, national and international requirements as well as an extensive product knowledge and years of testing experience. Therefore, test rigs are necessary where special constructions and large test specimen can be tested safe, reproducible and standard-compliant. Otherwise, further unplanned tests are necessary or difficulties arise with classification reports and the accreditation by building authorities.



**Fig. 1**  
Live test of an Hueck fire protection façade as special construction with corner cleats at the large furnace (8 x 5 m) at the ift technology center

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Furthermore, Sieberath outlined the expansion of the ift-technology center with a floor and column test rig, a small furnace as well as a SBI test rig. All necessary fire and smoke tests can be executed in Rosenheim in cooperation with UL. Following the principle of “Tested in Europe – Certified for the World”.

The **live fire test** is traditionally one of the highlights of the ift-Fire Safety Forum. This year, an **Hueck fire protection façade** including corner design with various angles was tested. The facade reached in the ift-furnace with 8 m x 5 m securely the classification EI30 and even reached some minutes “overtime”, which is important for the application of various EXAP rules. The furnace made an exemplarily performance regarding the temperature development and distribution as well as the pressure ratios within the furnace - important criteria for the standard-compliant tests and the interpretation of the results. The numerous guests were impressed by the testing possibilities of the technology center. All necessary fire tests can be executed compactly, quickly and reliably in the technology center with the furnace 8 x 5 m, the furnace 5 x 5 m from Nuremberg as well as three further furnaces, which are currently planned, built-up and calibrated by ift-MessTec for our partners UL. Due to the cooperation with UL, the results of the tests are also usable in the USA, Middle East and the important markets in Asia.

Further highlights were of course the specialist lectures of external speakers and ift speakers. **Dr. Gerhard Wackerbauer (ift)** called the intricacies and pitfalls of different fire safety standards as **“Fire Safety Puzzle”**. He informed competently not only about the basic requirements but also about the relevant details of the standards and explained what lies behind the “inconspicuous footnotes”, e.g. the indication of necessary closure by a latch bolt in the versions of the Prototype Building Regulation and/or Regional Building Code. The knowledge of such details is important and should be noted in the classification report, to that there will be no problems in the application and the examination by the building authorities. The manufacturer of fire resistant components assumes full liability for the correctness of values and declarations with his signature in the Declaration of Performance. Therefore, the competence and experience of his testing and certification body is very important.

**Sean DeCrane (UL)** reports as long-time fire fighter about the development tests for the new standard for solid cross-laminated timber, which grows even in the USA in popularity and should be used in skyscrapers. Numerous video recordings of tests show impressively how important the details of fire protection walls are - e.g. joints, connecting devices, windows and other openings. Partly, it was worrying how a fire can spread within 3 minutes from one room to the other and leads to a “fire roller” if the room door is open or if there is no fire resistance. Also the fire loads are becoming larger due to synthetic materials on mineral oil basis and leads much quicker to the dreaded **flashover**.

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**Martin Langen (B+L Marktdaten)** competently showed by means of diagrams and statistics the changes and the risks of different markets for building components with fire and/or smoke control. The focus was the market development of non-residential buildings for industry and public sector as well as skyscraper that constitute the majority of residential buildings in dynamic markets like Asia and Middle-East but also in Eastern Europe. In demanding technical product areas, including fire safety, the brand **“Made in Germany”** has an excellent reputation and provides the manufacturer with good market opportunities. Projects like the airport in Berlin show that fire safety is in many cases the “bottleneck”, which is often caused by a lack of suitable qualified employees. Products that can be installed and mounted easily and uncomplicatedly offer benefits. In addition to the number of building permits and figures like per capita income and GDP growth, the “confidence index” and the number of immigrations are important criteria for the evaluation of the building industry.

**Klaus-Dieter Wathling (senate administration Berlin, supreme construction supervision)** brought light into the jungle of new regulations. He explained extensively and detailed the relevant passages for fire and smoke of the Draft Model Administrative Rules – Technical Building Regulations, the Prototype Building Regulation and various special building regulations.

Then, **Maja Tiemann (DIBt)** presented the **“European Assessment Document” (EAD)** in detail. This method can be used if no harmonized product standard (hEN) is valid or the product cannot be covered totally by an hEN. Even if this way is not easier, it is still faster and is therefore used by manufacturer of internal doors that do not want to wait any longer for EN 14351-2. New EADs take approx. 1 year. Further efforts to accelerate the formal procedures with the commission are initiated. A competent testing body that knows the method and whose tests are unequivocally standard-compliant and reproducible, is very important in the whole process. However, due to the introduction and the CE marking according to EN 16034, the effort for evaluating national applications for approvals decreases, so that considerable capacities will become available at DIBt that can be used for the intensification of the market surveillance.

Ten years of fire prevention planning, the coordination with 300 project and specialist planner, an in-process detailed planning and the construction supervision of the fire protection concept made **Michael Juch (Hahn Consult)** a seasoned connoisseur of the **Elbphilharmonie**. The showcase project is not only architecturally outstanding but also constructive and is therefore an ideal “example” at fire safety for “advanced learner”, where the “devil” is in the details. Many special components have to be developed that were approved by approval of individual cases. Test reports with detailed product and application descriptions were useful for the coordination with the supreme building authority. Furthermore, the close and early coordination of necessary additional tests with the supreme building authority and the fire department allowed approvals within six weeks. A major challenge was the construction supervision as many of the fire protection walls were carried

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out in dry construction, in which the "inner life" determine the fire protection and is then no longer visible after the two-sided panelling. Therefore, the training and sensitization of the construction manager regarding fire safety issues as well as an efficient documentation was important to keep the list of deficiencies under control and maintain an overview.

The **ift-speakers** competently talked the task to present the simple and standard-compliant use of many standards to solve the “Fire Safety Puzzle”. The application possibilities are clearly described by the EXAP rules for whole Europe – this is not available for other characteristics and thus an advantage for manufacturer selling their products EU-wide.

The “smoke expert” **Christine Schmaus** extensively described with examples the finding of the **ideal test specimen** to use all extrapolation rules and with as few tests for smoke, fire and durability as possible.

**Dr. Odette Moarcas** showed in detail how the **reaction to fire** for products and materials is tested, classified and proven depending on the application purpose. Even small details like “dropping behaviour” at the fire test can make the difference between life and death. For example, the dripping of burning parts of a ceiling cladding sped the fire spread in a Russian discotheque and led to the death of many guests. Furthermore, Moarcas reported on a new ift-research project developing appropriate test methods for the reaction to fire of sealing profiles that are used in almost every window, facade and door.

**David Hepp** reported on the initial experience with **EN 16034**, especially the introduction of a **FPC, CE marking** and Declaration of performance. A surveillance of the factory production control (FPC) is mandatory for fire and smoke control elements as basis for the CE marking. In practice, most companies do not have difficulties with the production but with the fire safety puzzle with many documents. Classification and EXAP reports have often 100 pages or more and the use is difficult for the manufacturer. Nonetheless, the comparison between tested and manufactured product as well as the knowledge and application of the application boundaries (dimensions, materials, etc.) is a central requirement of the FPC. Therefore, ift Rosenheim has developed a system preparing the information with the licenser and the manufacturing plant for its production, so that the necessary information and documentation is available for each planning and production step - no more and no less. The surveillance by an ift-auditor is therefore not only paper and document checking, but an active support for improvement of the quality - this gives security for the standard-compliant implementation of the FPC and protects against claims for damages for wrong marking.

With the ift-Event-App, the opinion of the participants could be determined in real time by the ift-speakers. Thus, the various **surveys in the halls** were very interesting. For example, only 33% knew that the Declaration of Performance could be made available only online if it enables a clear allocation to the product and remains only for ten years.

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Further pictures regarding speakers and event impressions can be found on the ift-website in the Picture Library.

**A conference transcript with the presentation slides, abstracts and specialist articles to the presentations is available in the ift-literature shop for EUR 39.00 plus tax (only available in German).**

(11,347 total characters incl. spaces, lead 1,020 characters)

**Key words:** Product standard EN 16034, fire safety, CE marking, fire and smoke control shutters, fire protection façade, fire safety in timber construction, Draft Model Administrative Rules (MVV), EA, HPS and EXAP rules, Elbphilharmonie, fire protective hardware, building material, hold-open systems, automatic drive unit

**About the ift Rosenheim** (for professional magazines, 749 characters)

The ift Rosenheim is a European notified testing, surveillance and certification body that is internationally accredited according to DIN EN ISO/IEC 17025. Its focus is on the practice-oriented, holistic and rapid testing and classification of all characteristics of windows, facades, doors, gates, glass and building materials. It aims to bring about sustained improvements in product quality, design and technology, and in standardisation and research. Certification by the ift Rosenheim ensures acceptance throughout Europe. The ift also sees the dissemination of knowledge as an obligatory part of its work. As an independent institute, the ift enjoys a special status among the media, and its publications document the current state of the art.

**About the ift Rosenheim** (for public media, 581 characters)

Right buildings require profession, technical competence and experience. This is particularly applicable to windows, facades and doors. ift Rosenheim serves since 1966 the branch as an independent scientific institute with all technical services and more than 200 employees. These include tests, research, certification and quality management as well as standardisation, advanced training and publications. In this way, the development of quality products that are suitable for use, environment-friendly and efficient is promoted, in order to improve the living and life of people.

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**Pictures** (available to download from the picture library at [www.ift-rosenheim.de/bildarchiv](http://www.ift-rosenheim.de/bildarchiv))

No.	Image title and file name	Image
1	<p>Live test of an Hueck fire protection façade as special construction with corner cleats at the large furnace (8 x 5 m) at the ift technology center.</p> <p><i>File name:</i> PI170855_Figure_01_Live_Test.jpg</p> <p>Source: ift Rosenheim</p>	
2	<p>The conference transcript contains the presentation slides, abstracts and specialist articles (only available in German). (EUR 39.00 plus VAT, <a href="http://www.ift-rosenheim.de/shop">www.ift-rosenheim.de/shop</a>)</p> <p><i>File name:</i> PI170855_Figure_02_conference_transcript.jpg</p> <p>Source: ift Rosenheim</p>	
3	<p>The complexity of the project can only be guessed by the cross-section of the Elbphilharmonie</p> <p><i>File name:</i> PI170855_Figure_03_Elbphilharmonie.jpg</p> <p>Source: ift Rosenheim</p>	

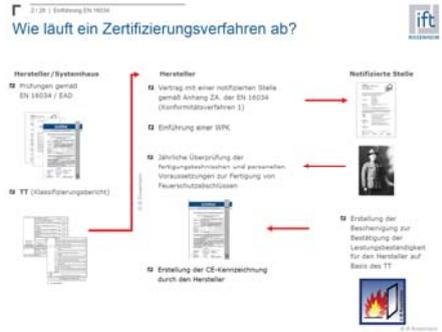
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No.	Image title and file name	Image
4	<p>Director of Institute Prof. Ulrich Sieberath welcomes approx. 300 participants of the 11th ift-Fire Safety Forum</p> <p><i>File name:</i> PI170855_Figure_04_Welcome_Sieberath.jpg</p> <p>Source: ift Rosenheim</p>	
5	<p>In 2017, the ift-Fire Safety Forum got international with the American speaker Sean DeCrane and Dwayne Sloan of the ift-cooperation partner UL</p> <p><i>File name:</i> PI170855_Figure_05_Sloan_UL.jpg</p> <p>Source: ift Rosenheim</p>	
6	<p>The cooperation between ift Rosenheim and UL makes it easier and faster to get evidences and certificates for the EU, USA, Middle East and parts of Asia</p> <p><i>File name:</i> PI170855_Figure_06_ift_UL.jpg</p> <p>Source: ift Rosenheim</p>	
7	<p>At ift-meeting point, ift-experts were available for upcoming questions of the participants</p> <p><i>File name:</i> PI170855_Figure_Meeting_Point.jpg</p> <p>Source: ift Rosenheim</p>	

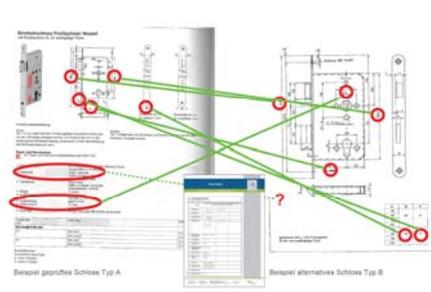
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No.	Image title and file name	Image
8	<p>Project manager fire protection façades Robert Vögele (Hueck GmbH) was pleased with the successful fire test according to EN 1364-3 and thanked the team around head of testing body Anyke Aguirre Cano for the excellent service</p> <p><i>File name:</i> PI170855_Figure_08_Hueck.jpg</p> <p>Source: ift Rosenheim</p>	
9	<p>The various fire safety standards and specifications are like a fire safety puzzle</p> <p><i>File name:</i> PI170855_Figure_09_Puzzle_wag.jpg</p> <p>Source: ift Rosenheim/conference transcript Fire Safety Forum</p>	
10	<p>Process flow for necessary certification by a notified product certification body</p> <p><i>File name:</i> PI170855_Figure_10_Certification.jpg</p> <p>Source: ift Rosenheim/conference transcript Fire Safety Forum</p>	
11	<p>Burnt length as evaluation criterion for the reaction to fire of sealing profiles</p> <p><i>File name:</i> PI170855_Figure_11_Fire_Behaviour_Sealing_Profiles.jpg</p> <p>Source: ift Rosenheim/conference transcript Fire Safety Forum</p>	

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No.	Image title and file name	Image
12	<p>Determination of “correct” test specimen</p> <p><i>File name:</i> PI170855_Figure_12_Determination_Test_Specimen.jpg</p> <p>Source: ift Rosenheim/conference transcript Fire Safety Forum</p>	 <p><b>Wunschliste Hersteller</b> Drehflügeltüre als Feuer- und/oder Rauchschutzabschluss</p> <p><b>Einflügelige Tür</b> 1100 mm x 2100 mm      OTS, ungedämmte Profile, Drücker / Knauf, 1-Fallenschloss, Absenkdichtung, 2x Bänder (geschraubt), Riegel, ESG / VSG</p> <p><b>Zweiflügelige Tür</b> 2400 mm x 2500 mm      ITS, OV, gedämmte Profile, 3x Bänder (geschweißt), BS-Glas, Panikstangen, Mehrpunkt-Verriegelungssystem (Anti-Panik), ohne Bodendichtung</p>
13	<p>HPS sheet as evidence document for the exchange of hardware and locks</p> <p><i>File name:</i> PI170855_Figure_13_HPS_kc.jpg</p> <p>Source: ift Rosenheim</p>	 <p>Beispiel geprüftes Schloß Typ A</p> <p>Beispiel alternatives Schloß Typ B</p>