

# **Finalisation of the European approach to assess the fire performance of facades**

**Information and update on the project  
July 8, 2020**

**Please, turn off your microphone!**

**<https://www.ri.se/en/what-we-do/projects/finalisation-european-approach-assess-fire-performance-facades>**

# Agenda

- Standardization process
- Communication and information
- Time plan and milestones
- Theoretical round robin
- Test program
- Comments and questions
  
- If needed a coffee break will be held

# Comments/questions during the webinar

- Please provide your questions or comments in the chat-function
- We will try to handle them during the webinar, if possible.
- Questions/comments can also be sent to the project team after the webinar
- All questions and comments received, during and after the webinar, will be available in the Comments Handling Document at the project web page.

# Standardization process

- Revision on the CPR is currently in process. This may change the standardization process, and the following is based on the current CPR.
- After finalizing this project EC needs to initiate a standardization request (SR) for a horizontal "facade fire testing" standard, which takes 2-3 years
- When SR is clear and accepted by CEN, the horizontal standard shall be developed (based on the technical development performed in this project). Time estimate is 2-3 years.
- Thereafter the work on product standards can start (so around 2027-2028)
- Potentially speaking on 10-15 years from now.

# Standardization process

- An important area that needs to be addressed is the field of application
- The direct field of application given in the test standard will probably be very limited
- There will most certainly be need for a series of extended field of application standards
- This will be an extensive work, and thus needs to be started as soon as possible.

# Standardization process

- Questions and comments



# Communication and information

- The Advisory Group Fire will get an invitation from EC to a video meeting, preliminary on September 15
- The webpage will be updated continuously - <https://www.ri.se/en/what-we-do/projects/finalisation-european-approach-assess-fire-performance-facades>
- We welcome individual web meetings with stakeholders, please contact us if you want separate meetings
- In order to be successful, we need a good and close cooperation with all of you

# Communication and information

- All results and reports will be published on the web page
- All experimental results will be published as soon as they have been quality controlled (usually published as Excel spreadsheet)
- Raw data may not be publishable on the web due to size, so if you would like to have raw data files, please contact us
- Most reports will first be published as draft reports enabling you to comment before the final version is published



# Communication and information

- All comments/questions received during the project will be made public on the Comments Handling Document (CHD), available on the web page
- CHD will show how the project team handles the comments and answers on questions
- If you have a comment/question that shall be handled confidentially, you must inform us

# Confidentiality

- Generally the project will be public and transparent
- Some information received from stakeholders may include confidential material, which will be kept confidential within the project team
- A Confidentiality Agreement will be signed between the project team and the stakeholder providing confidential information

# Communication and information

- General information on the present project
  - The scope is defined in the Invitation To Tender and the contract between the project team and EC
  - Many details in the assessment method will be set after the complete testing program is finalized and are not yet set, i.e. position and type of measurements and failure criteria
  - The budget limitations does not allow any major changes in the test program, i.e. no additional tests can be performed and the field of application is excluded

# Communication and information

- Questions and comments



# Time plan

- Some delay, mainly due to the Corona pandemic and the close down of laboratories
- The delay mainly affects the initial testing program
- Theoretical and experimental round robins in accordance with the original time schedule

# Time plan – 2020

- Theoretical round robin
  - Report published September, 2020
  - Assessment update September, 2020
- Wood crib tests (Efectis, France)
  - Tests finalized mid September, 2020
  - First set of data published end of September, 2020
- Initial tests – medium heat exposure (BRE, UK)
  - Tests finalized October, 2020
  - First set of data published mid November, 2020
- Initial tests – large heat exposure (RISE, Sweden)
  - Tests finalized November, 2020
  - First set of data published mid December, 2020
- Decisions on test specimens for experimental round robin
  - December, 2020

# Milestones – 2020

- Report on theoretical round robin – September, 2020
- Update of the assessment method based on the theoretical round robin – October 2020
- Progress report 1 – September, 2020
- Report on wood crib tests – October, 2020
- Finalizing initial testing program (Task 2) – December, 2020
- Decision on test specimens for experimental round robin – December, 2020

# Timeplan and milestones

- Questions and comments





# Theoretical round robin

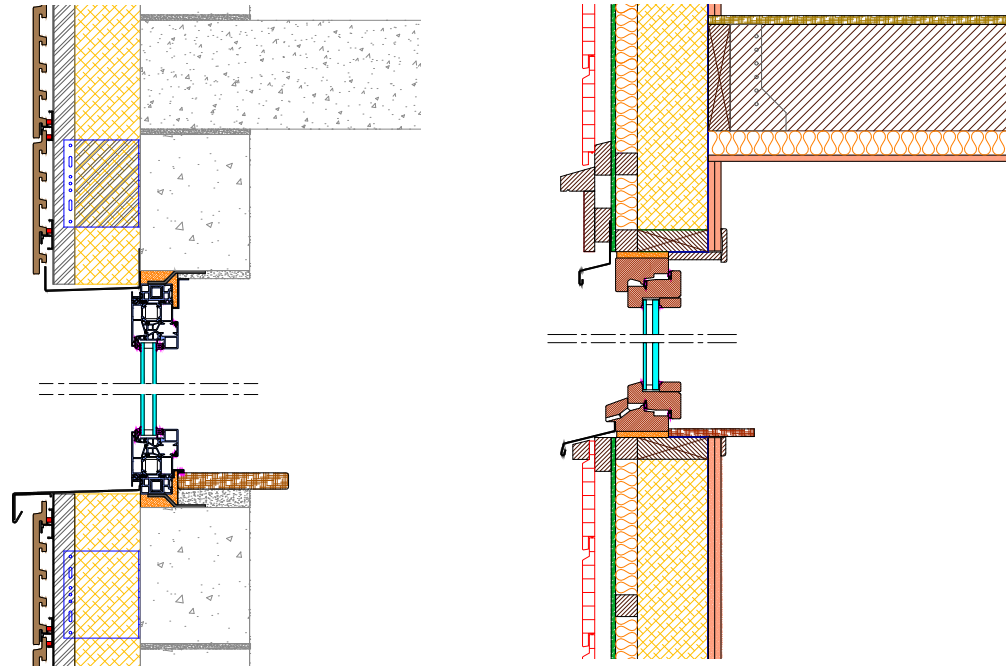
- Purpose: to assess the intelligibility of this new method

*Intelligibility refers to whether the instructions contained in the method are sufficiently adequate, unambiguous and clear*

- 29 participants registered, all are EGOLF lab members
- 52 questions divided into 218 sub-questions
- The participants were given 6 weeks to do the exercises (deadline was June 26)

# Theoretical round robin

- 2 fictitious tests specimen and test data were supplied



# Theoretical round robin

- All the 29 participants submitted their answers in time
- The analyzes are currently being processed
  - What has been done:
    - Answers are compared to consensual agreed values (“correct answers”)
    - Mean score of the global exercise: 73% in intelligibility
    - Scores of individual questions: ranges from 7% to 100%

# Theoretical round robin

- The analyzes are currently being processed (continued...)
  - What will be done
    - Critical items to work on have been identified: the configuration of the test specimen at the edges of the openings (§ 7.3), the assessment of the façade-to-floor junction (§ 7.4), the positioning the thermocouples (§ 9.1) and the DIAP (§ 13)
    - Participants have submitted 12 pages of free comments
    - Rewrite the assessment method

# Theoretical round robin

- Questions and comments



# Test program

- Wood crib tests
- Fire exposure tests – calibration with DIN and BS methods
- Method for determining falling parts and uplift of test rig
- Environmental conditions (wind speed)
- Position of secondary opening
- Experimental round robin

# Test program

- Many parameters to be studied
- The amount of tests are very limited, and therefore cannot everything be examined in depth
- Calibration tests and research studies made with the current national methods would be of great value
- Collaboration with others involved in relevant studies is welcome

# Test program

- Questions and comments



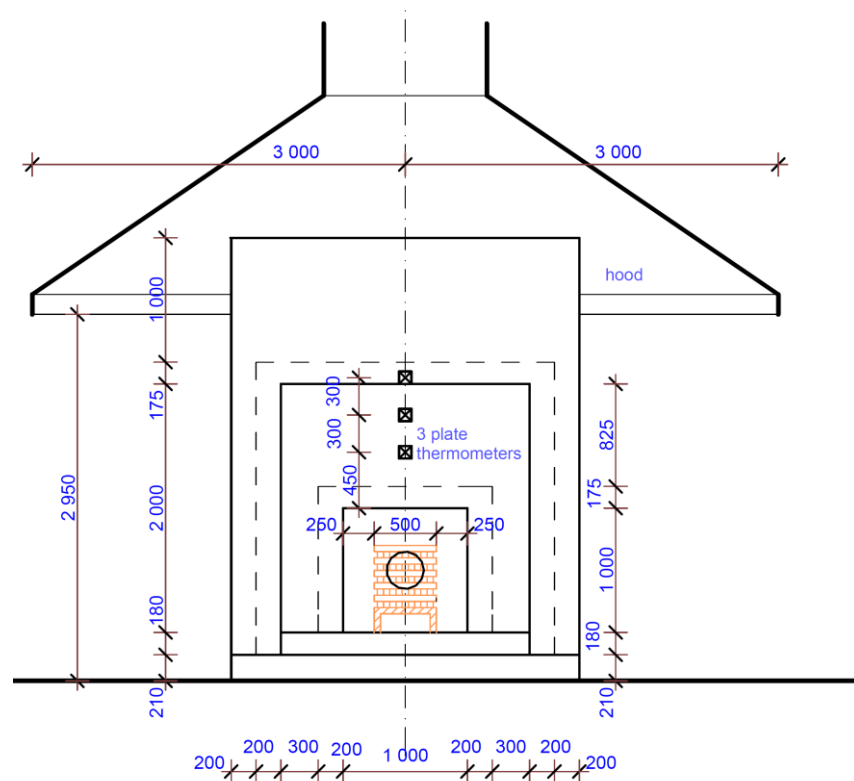
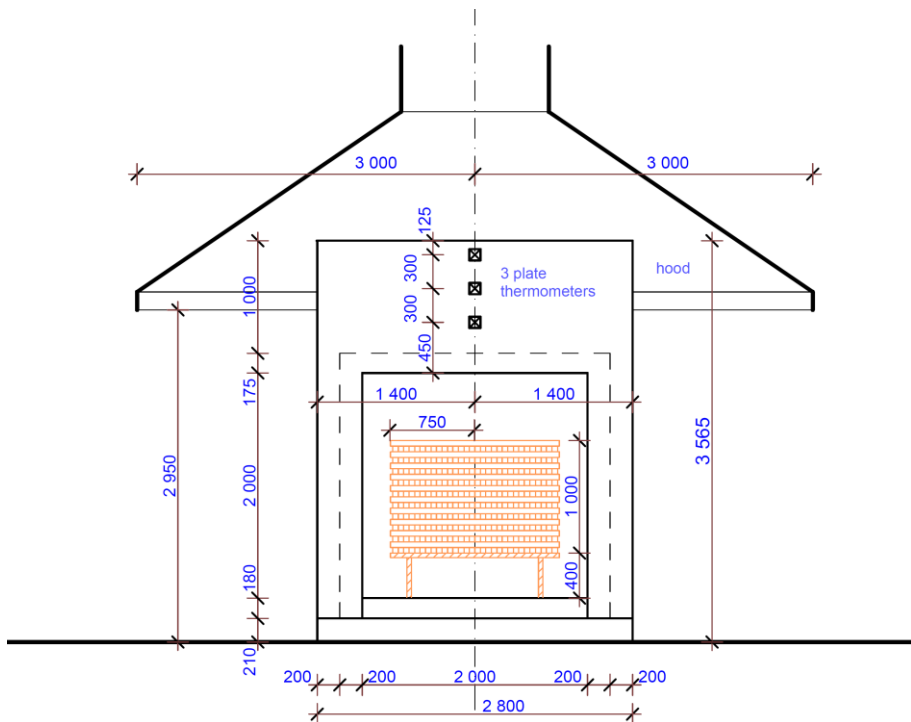


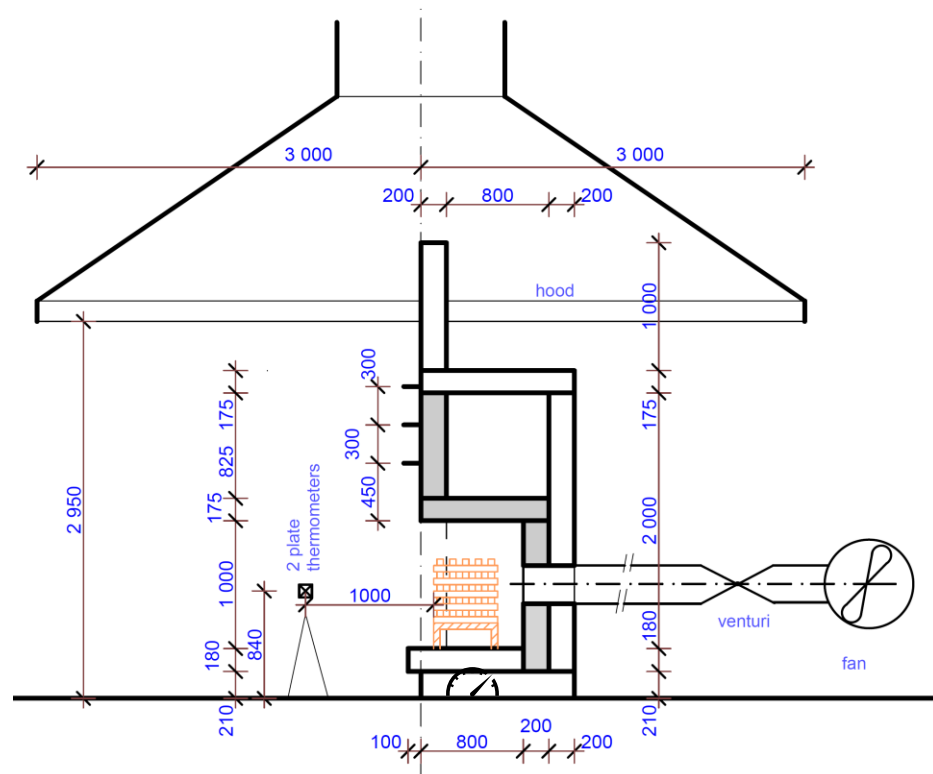
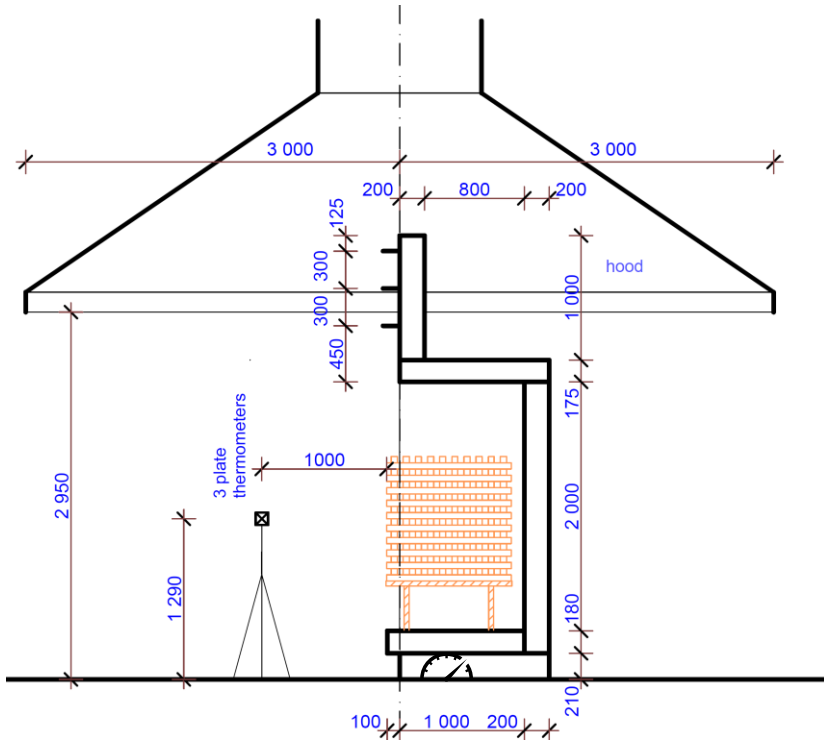
# Test program – wood crib tests

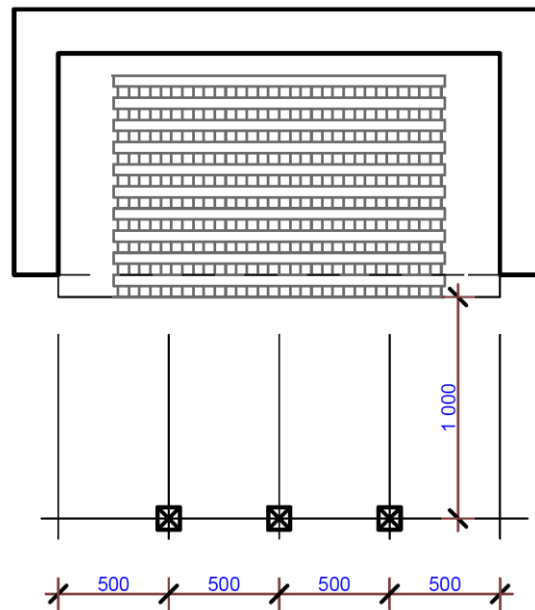
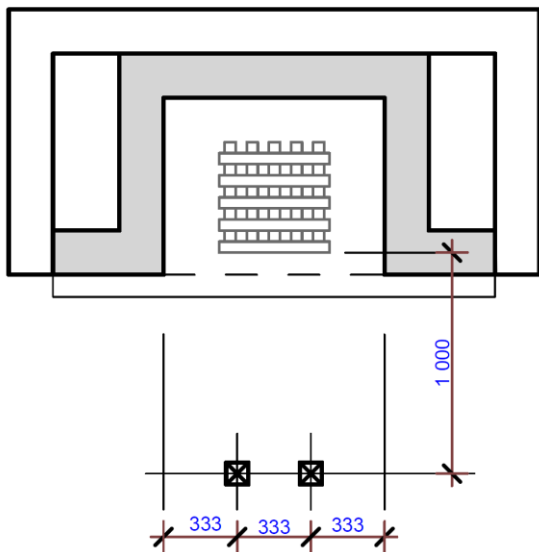
- Aim to define the wood crib characteristics to be used
  - Wood density, species, geometry, specific surface, calorific value, surface treatment (planned/sawn), moisture content
- Measurement of heat exposure
  - Fuel consumption, temperature measurements, heat flux measurements
- The wood to be used shall be easily accessible in most MS

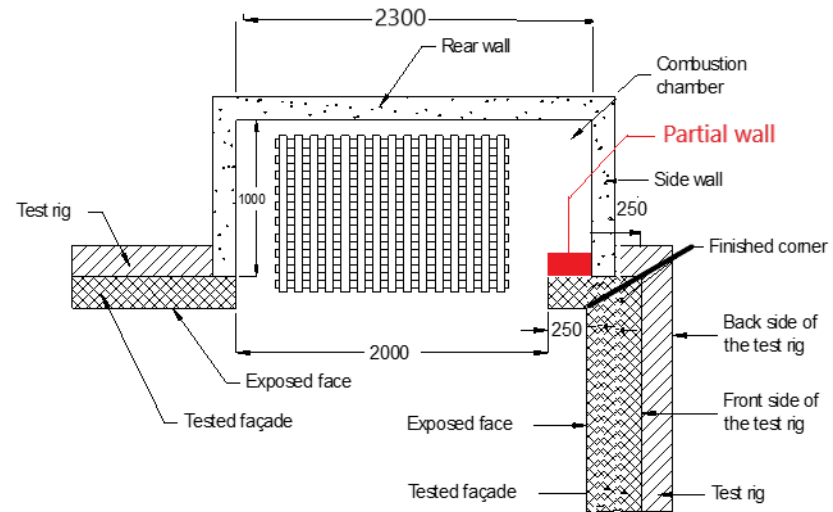
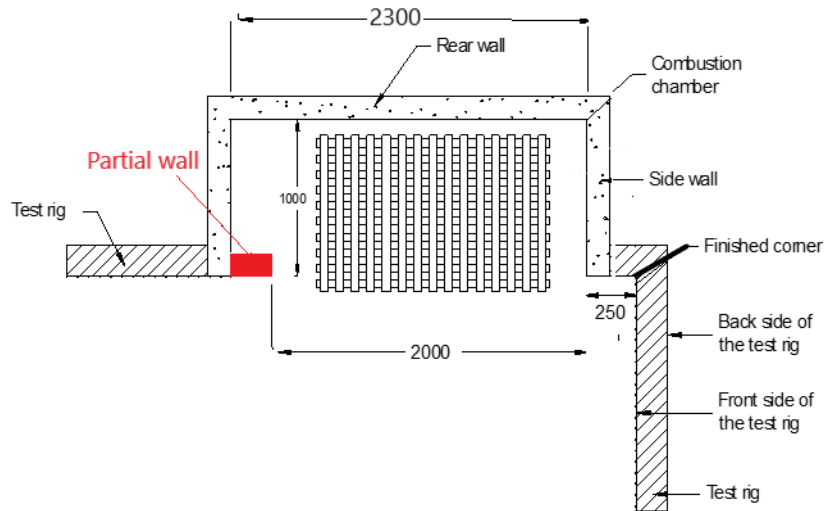
# Test program – wood crib tests

Test reference	Fire exposure	Wood species	Surface finish	Wood density [kg/m <sup>3</sup> ]	Moisture content [%]
L1	Large	Spruce	Planed	Average	12,5
L2	Large	Spruce	Planed	Low	12,5
L3	Large	Spruce	Planed	High	12,5
L4	Large	Pine	Planed	Average	12,5
L5	Large	Spruce	Planed	Average	9.0
L6	Large	Spruce	Planed	Average	15.0
L7	Large	Spruce	Planed	Low	12,5
L8	Large	Spruce	Sawn	Average	12,5
M1	Medium	Spruce	Planed	High	12,5
M2	Medium	Spruce	Planed	Low	12,5
M3	Medium	Spruce	Sawn	Low	12,5









# Wood crib tests

- Wood has been delivered, and supported by Swedish Wood
- For each stick the weight will be measured, and a reasonable amount of samples will be taken to measure geometrical dimensions and moisture content
- Some samples will be used to determine the calorific value
- Conditioning to the target moisture content is in progress, thereafter it will be sealed and sent to France for the fire tests
- The tests will start on August 24 and be made during the following 3 weeks, a preliminary draft of results will be available in mid September as earliest.

# Wood crib tests

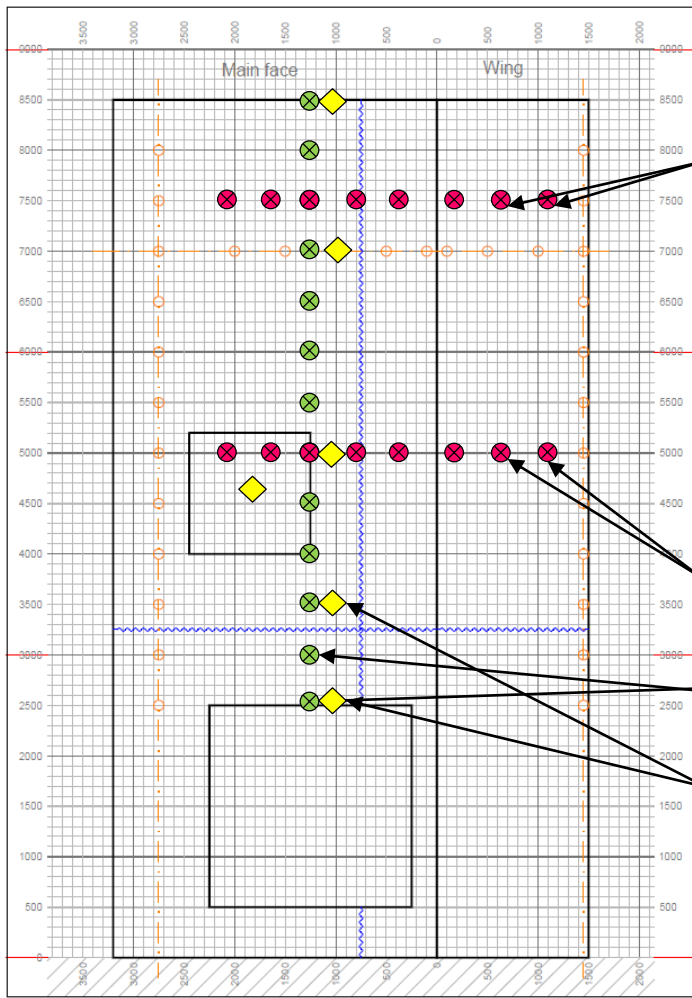
- Questions and comments





# Average tests

- No test specimen, only supporting construction
- Heat exposure comparison with DIN 4102-20 and BS 8414
- Repeatability (3 test with medium and 3 tests with large heat exposure)
- Extensive instrumentation



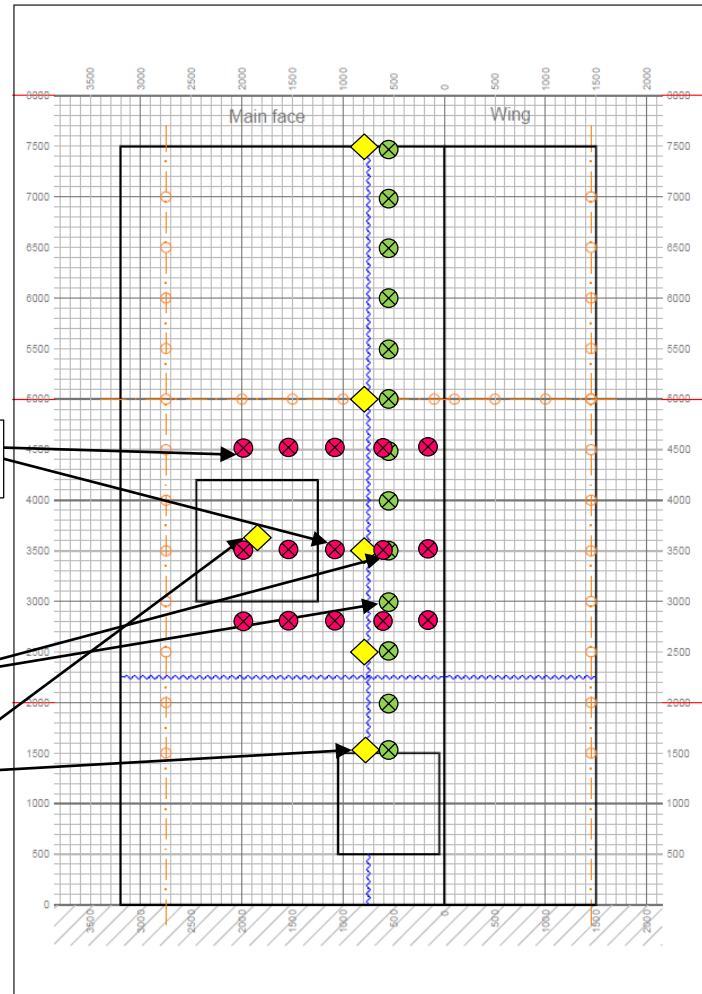
Current measurement positions in BS 8414 LEVEL 2

Current measurement positions in DIN test standard

Current measurement positions in BS 8414 LEVEL 1

Additional proposed TC to measure gas phase temperature on the centreline of the rig

Plate thermocouples positions to measure the incident HF



# Average tests

- Uplift 0.5 m
- Low wind speed (indoor with normal ventilation used for smoke evacuation)

# Other initial tests

Medium heat exposure	Large heat exposure
Varying uplift	Varying uplift
Forced ventilation	Wind speed
Position of secondary opening	Position of secondary opening

- Measurement techniques to determine weight and size of falling parts

# Other initial tests

- Relevant test specimens are needed for examining the secondary opening
- We appreciate suggestions from you, as well as test samples and help with mounting
- Example: ventilated wood façade with ventilation openings at windows

# Other initial tests – time schedule

- Average tests medium heat exposure – mid September, 2020
- Other initial tests medium heat exposure – October, 2020
- Average tests large heat exposure – November, 2020
- Other initial tests large heat exposure – November 2020

# Initial tests

- Questions and comments



# Experimental round robin – aim

- The aim is to validate the test methodology, i.e. to determine the repeatability and reproducibility of the method
- The aim is also to sample relevant data in order to calibrate the method so the failure criteria are similar to the current ones used for DIN 4102-20 and BS 8414 tests



# Experimental round robin

- The test specimens used (except the inert façade) shall be aimed to reach the failure criteria around 20-30 minutes after ignition of the fuel
- The choice of test specimens can thus be based on historical data from tests, preferable made with DIN 4102-20 and BS 8414 tests, where failure occurred around 20-30 minutes after ignition of the fuel

# Experimental round robin

- Many comments on the choice of test specimens
- The test specimens do not need to represent what is used in practice
  - The aim is to examine the test method, not the test specimen
  - The test results shall be of value for the examination of the test method

# Experimental round robin

- Rain screen
  - Fire spread on surface and possibly in cavity
- ETICS
  - Fire spread on surface
- Ventilated wood façade
  - Fire spread on surface and in cavity
  - Effect of secondary opening
- Inert façade
  - Calibration and repeatability/reproducibility of heat exposure

# Experimental round robin

- Questions and comments



# Comments and questions

- Comments Handling Document will be updated regularly
- No information will be sent to stakeholders when updates have been made, so check the web regularly
- All comments and questions will be handled, and as quickly as possible

# Comments and questions

- We have received more than 160 comments/question so far from stakeholders
- We have 12 pages with comments from the participants in the theoretical round robin
- Our response on comments/questions will be find in the CHD as soon as we have decided on how to respond

# Final questions and comments



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