COMMENTS HANDLING DOCUMENT

Stakeholder (please write who you represent):

In the following table you can write your comments or questions. Please send the filled form to johan.anderson@ri.se. An explanation to the columns used are as follows:

Column 1 – Nº: Numbering of comments
Column 2 – Body Reference: The body who have given the comment
Column 3 – Comment on document: A reference to which document the comment belongs
Column 4 – Paragraph/Figure/Table: A reference to which part of the document the comment belongs
Column 5 – Comment: The comment received
Column 6 – Proposed change by the consortium: A short description on how the comment has been handled

Nº	**Body Reference**	**Comment on document**	**Paragraph/ Figure/ Table**	**Comment**	**Proposed change by consortium**	
620	EAE	Draft assessment method v5	Scope	The sentence "The method includes a secondary opening for assessment of detailing of the façade system around openings to simulate the presence of any kind such features at levels above the fire source, but not any window detailing." is not understandable, because it is not clearly stated what is actually to be investigated. What is meant by "a feature" here? All "detailing of the façade system around openings" are examined in both test approaches -	The reason for introducing the secondary opening should be clearly described. Perhaps it would be helpful to include a corresponding definition under point 3 of the draft assessment method.	A certain level of generality is needed since the method needs to be applicable to all systems and thus many solutions could be possible. However, the reason for the opening is that for certain systems a secondary opening may be a weak point of the façade system and thus this must be reflected in the method. It is fundamentally different to the opening around the combustion chamber due to the potential presence of flame spread and potential for the fire to re-enter into the system. With this said, many countries that currently use a secondary opening has developed a Field

				medium and large scale - already around the fire chamber, where the highest fire stress on the facade occurs. The large fire exposure scenario is representative of a fully developed (post flashover) fire in a room, vented through an opening such as a window aperture, that exposes the cladding to the effects of external flames, or from an external fire source.		of Application or Extended Field of Application allowing for testing with standard closing of the system.
621	EAE	Draft assessment method v5	4.2 Figure 1 And reference to draft progress report 2.5.5	"The front side of the test rig shall extend vertically from the base of the test rig to a height of at least 4000 mm in case of medium fire exposure, and 5500 mm in case of large fire exposure, above the top of the combustion chamber opening, as well for the main face as for the wing." In DIN 4102-20 a height of 4.5 m above the combustion chamber opening is indicated (0.5 m higher than in the new draft method). In BS 8414 a min of 6 m above the combustion	Adapt description of height for medium exposure test and make sure that the height above the top of the combustion chamber has a minimum of 4.5 m. Adapt height for large exposure to a minimum of 6 m above the opening. Define clearly what the base of the test rig is and include a clear definition of the uplift and the position of the weighing platform in all parts and figures of the document. A round robin cannot be started without a clear dimensioning of the test rigs, as the necessary information for the system holders (for supply of materials,	There are a number of points that may clear up this misunderstanding, 1) nothing is to be measured below the combustion chamber thus no façade material is needed in this region, 2) it is not the uplift itself that is of interest but rather the distance from the platform for weighing falling parts to the floor of the combustion chamber 3) it is the fire safety level that is of interest not the exact locations and quantity. All these things are explained however only tentative values are given for temperature measurements these are to be decided after the round robin in

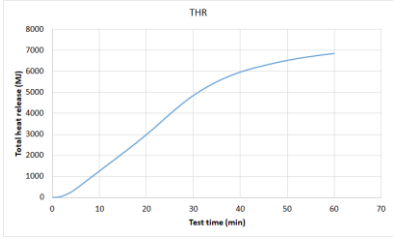
				chamber opening is defined. In the draft assessment method, the base of the test rig is given as basis for the height limitation. However, the base of the test rig has not been defined yet. In figure 1 and other figures in the draft assessment method an uplift of the combustion chamber is indicated. In the draft assessment report it is said, that this is not needed. The added weighing platform is not indicated in some drawings, so the effective distance from the combustion chamber to the area downwards (which is now the weighing platform) is not indicated in figure 1. Taking into account the addition of a secondary opening it is even more important and not acceptable that the heights for monitoring flame spread are reduced compared to existing methods.	details of the construction of the façade system, etc.) is missing.	a calibration process of the method. It should be clear once for all that the assessment method is neither the DIN nor the BS method. Therefore, the assessment method will differ from the DIN and the BS on some points, e.g. the height of the test rig. We are NOT reproducing the BS and the DIN in detail.

622	EAE	Draft assessment method v5	4.3.	The supporting structure representing a wall on which the façade system is mounted, needs to be detailed. It has not been defined what type of wall (supporting construction) needs to be used to construct the test rig (material, thickness, density). Rules for substrates (see for example EN 13238) have not been considered.	If the specimen is mounted on a structural wall, the thickness and density of the wall need to be defined with adequate tolerances before the round robin can be started.	We agree that this is an interesting point however the tolerances mentioned in EN 13238 are of less interest since it is a reaction-fire-standard and it is specified that the backing wall should be built in concrete. During the round robin different rigs will be used but all is constructed in concrete. We will monitor the properties of the rigs. It should be noted that in e.g. BS 8414-1:2017 only material properties of the masonry wall and the combustion chamber is specified, no dimensions. In the current standard we include insulation into the combustion chamber which will significantly reduce any variations introduced by dimensions and material, however we have specified it to be built in concrete.
623	EAE	Draft assessment method v5	4.5	"The combustion chamber walls and roof shall be made of a non-combustible construction. The inner surfaces of the combustion chamber shall be cladded with	To allow for reproducible tests, a detailed description of the combustion chamber is needed, including materials and thicknesses of the chamber wall and the internal cladding.	The dimensions with tolerances are given, and it should include the cladding. See 622.

				insulation (ceramic or equivalent)." There is no definition of thickness and density of the wall of the combustion chamber and especially the inner cladding. In addition, it is not clear, whether the inner size of the combustion chamber is the size with or without the additional internal cladding. It needs to be stated that the combustion chamber represents a simulated window opening. This is necessary, to clarify how the details around the opening connected to the facade have to be constructed (see also DIN 4102-20).	The durability of the cladding needs to be specified.	In the round robin the same cladding will be used may be described in more detail in the coming reports.
624	EAE	Draft assessment method v5	4.6.3 Fuel source And 10.1.1	Comment 484: „In the latest version of the Assessment method dated May 2022, the height of the crib is specified as 110 +/- 2.5 cm instead of just weight ". According to the response to the	The mass of the wood crib for the large-scale test must be limited appropriately either by setting limits for the tolerance of the wood density as for the medium test, or by setting a strict limit for the total weight of the wood crib. The fire load has to be designed in a way that repeatable	There are several things to comment here, first mean weight is still valid, second it seems the variation is overestimated. The volume estimated in the calculation is 0.72 – 0.82 m3. There is from this a difference in 0.1 m3, assuming a density of 500 kg/m3 then gives a variation of roughly 50 kg, not

		CHD 01.07.2022	Comment 484	commentary from the webinar regarding "Crib height", it must be assumed that the previously defined mass is no longer prescribed and therefore only results from the product of volume and density. Considering the tolerances of the cross section and the length of the bars and the specified stacking height, an estimate results in a possible wood volume of approx. 0.72 - 0.82 m³ (according to BS 8414 it is 0.69 - 0.81 m³). The permissible mass spectrum results in about 275 - 485 kg, i.e. 380 ± 105 kg. The deviation between the minimum and maximum possible mass is proportional; the same applies to the possible total energy output THR. For these masses (minus 10% water content of the wood) multiplied by a corresponding calorific value of 17.5 MJ/kg, the possible resulting total energy of the fire source is 4221 MJ to 7638 MJ (BS 8414; 4347 MJ to	exposure of the specimen for the large-scale test is granted. The data presented in the draft progress report have to be corrected and need to be more transparent (include data for temperatures measured at 4.5 m height above combustion chamber opening, which is the level proposed for measuring pass/fail). Proper repeatability and reproducibility tests on inert walls are needed before the RR with real samples can be started. The definition of the specified fire source for the large-scale test does not meet the necessary requirements regarding thermal impact for performing the round robin tests on real test specimens as ETICS, ventilated claddings, wooden facades etc. as: the defined parameters allow a bandwidth of the thermal impact, which is too large; the test fire has not been sufficiently experimentally proven (only one single test that roughly fits, but no clarification of the possible tolerance range); no repeatability tests exist;	105kg? This is almost the same criteria as we have with aiming at 350 +/- 20 kg total weight of the crib. Also, our tests suggest that larger and more dense sticks have a limited effect on the impact to the facade, the most significant effect is to prolong the fire before collapse. However, the most important thing to remember is good enough repeatability of the crib. We may prescribe very narrow tolerances however the effort and cost for the test would increase significantly thus the judgement so far has been to allow for some sticks to be of lower or higher density with some rather generous limits as long as the mean properties are fulfilled. Note that it is the severity of the fire source in combination with the assessment criteria that determines the safety level, these are only tentative at the moment and will be set during calibration of the method. With this said we are aware that it seems that the BS 8414 method is indeed more severe than what is given in the standard however we have

				8300 MJ). In other words, the increase from the lowest to the maximum possible total energy is approx. 75%, which means there can coincidentally be difference between two tests of nearly twice the total energy impacting a test specimen in a test. The wood crib according to Annex A of BS 8414 was considered as the reference fire for the large exposure. This heat source releases according to the standard a nominal total heat output of 4,500 MJ over 30 min at a peak rate of (3 ±0.5) MW. This assumed energy could only be achieved, if the wood density for the crib is about 410 kg/m³, i.e. if the density is close to the lower limit. All other possible variants would lead to a much higher total heat output. It is technically absolutely incomprehensible and not justifiable why the definition of the mass according to progress report 2 of 350 ± 20 kg was deleted and now due to the definition of height	tests with the proposed total energy impact result in a non-tolerable fire spread for the proposed assessment level and criteria (500 K at a height of 4.5 m) - already for an inert, flat and non-combustible façade. The following work items are required to solve the "fuel source" problem for the large exposure method: Significant limitation of the range of variance by re-introduction of the mass of the wood crib with closer tolerances, and a more precise specification of the density range. Checking the fire exposure of the inert, even and non-combustible facade with 3 wood cribs (low, middle, high mass according to the defined tolerances) without changing any additional parameters. For this at least 3 calibration tests need to be done	made one additional alteration namely changed the species from pine to spruce this lowered the peak HRR slightly but was within the 3 + 0.5 MW, as prescribed. The difference between the published and raw data is due to that some info was omitted in Table 3. The maximum temperature values was derived from 30 seconds averages from the data. As the public data has a 4 second interval the average is taken using a 32 s average during the steady burning period. Then you reach the numbers that are published in Table 3. We thank you for noting this and have corrected the report with better description to the table. The actual assessment criteria for the temperatures are not set yet and will be so only after the round robin exercise. Regarding the total heat release in test 1, here is the integrated HRR of time:

				and density results in 380 ± 105 kg. A re-examination of the data available so far, which was initially based on the Draft Progress report point 3.3.1.1. Table 1 shows: A crib height of 110 cm was only reported for tests 1 and 4. However, test 4 is not comparable to test 1 because it was carried out with a combustion chamber that was only 1 m deep. In test 1, the cross-section of the sticks for the crib was very precisely reported being between 47.6 ± 0.5 mm, i.e. between 47.1 and 48.1 mm. Whether the surface of the wooden slates was rough-sawn or planed is not published (this accuracy might not be possible to grant when the wood is rough-sawn). The wood crib in test 1 had a mass of 355 kg, the density of the wood was reported as 454 kg/m³. Therefore, the permissible volume was 0.78 m³. After	with extended measurement technology (measurements at height levels 4.5 m, 5 m, 5.5 m and 6 m above the fire chamber lintel with at least 5 TCs each). Repeating one test with the average fire exposure. Checking of the correspondence of the test results using more reliable raw data for the temperatures at a "design limit". Definition of the design limit so that non-combustible building materials are not excluded from passing the test. Note: See EAE presentation, remarks and comments as of June 1st, 2020 Annex A EAE comments on the draft progress report 3 as of June 2022 The following steps are needed after that: Presentation, discussion and confirmation of the results in the Steering Group as agreed in Steering Group April 2021 and not yet done. If necessary, re-adjustment of the thermal exposure by	 The BS 8414-2:2020 states in A.2.4 that a nominal total heat output of 4500 MJ should be released over 30 minutes, not once all the timber has burned. We have 4854 MJ at 30 minutes.

				subtracting the wood moisture content of 13.84 % (permissible 11 ± 2%, very wet), the THR results in a value of 5970 MJ, which is in the middle of the possible range of 4221 MJ to 7638 MJ (based on the current definition of the crib). This is still significantly higher than the value of 4500 MJ as defined in BS 8414. The data presented in Table 3 of the draft progress report and in the large-scale test report were compared to the raw data. The published data and the raw data were not in accordance. This is irritating and makes an assessment of these really important results questionable. Clarification is urgently needed. The maximum temperatures "Max TC at 5 m above opening (°C)" are shown in Table 4 and compared to the raw data as follows:	reducing the fire load or increasing the test rig. Development of a detailed specification for calibration Development of an implementation guideline for general conditions in round robin experiments. Start of round robin trials	

				<table><tr><th></th><th>Test 1</th></tr><tr><td>Draft progress report 3</td><td>479 ° C</td></tr><tr><td>Raw data for large scale test</td><td>500°C 480 K</td></tr><tr><td>Addition: raw Data 4.5 m above opening, TC v 4500 (1 point)</td><td>598 °C 578 K</td></tr></table> For test 1 for example the maximum temperature (Max at the TC 5 m above the opening in °C) of 479 °C shown in Table 3 does not correspond to that of the raw data, which is 500 °C (480 K). At 4.5 m above the lintel of the fire chamber only one temperature is measured, but this important value (relevant for the proposed limit values) is not included in the table presented in the draft assessment report. In point 10.1.1. it reads "The failure of vertical		

				fire spread criterion occurs when any external or internal thermocouple positioned on level 1 exceeds a temperature rise - above its initial temperature - of 500 K continuously over a period of 30 seconds during the 60 minutes test period after the start of the test." The tested non-combustible, "inert" reinforced concrete wall would not have passed the proposed criterion for flame spread in this test, and neither would the initial test in any of the other test series (0 – 6). Summary: In the draft progress report maximum temperatures are only noted for a height of 5 m while for the classification limit a height of 4.5 m has been proposed. If the temperatures at 4.5 meters would have been reported, it would have become obvious that even for an inert concrete wall the temperature limit of 500°C would have been exceeded considerably.		

				For example, in test 1, temperatures were recorded in the horizontal line at a height of 5 m at 5 measuring points, at a height of 4.5 m only at a single measuring point in the central axis. Only the maximum temperature at a height of 5 m was reported, however with a different value than in the raw data, 479 °C in Table 4 of the draft progress report, 500 °C in the raw data. However, the temperature level in Figure 12 shows a distance of 4.5 m, i.e. 0.5 m lower, there was only one measuring point which, according to raw data, achieved a maximum temperature of 578 K. Point 10.1.1. states: "The failure of vertical fire spread criterion occurs when any external or internal thermocouple positioned on level 1 exceeds a temperature rise - above its initial temperature - of 500 K continuously over a period of 30 seconds during the 60 minutes test period after the start of the test." The tested		

				non-combustible, inert reinforced concrete wall would not have met the criteria for flame spread as proposed in the draft assessment method. The same applies also the other tests except test 5. Further Conclusions: The omission of the specification of the mass of the wood crib leads to a significant range of the total energy released during a test period of 60 minutes between 4221 MJ and 7638 MJ due to possible density deviations between 400 and 600 kg/m³ and a volume range of 0.72 - 0.82 m³. All of the shortcomings in the technical implementation of BS 8414 are fully exploited without, however, achieving the underlying expected total energy released by the fire source. The experimental basis for the definition of the fuel source in the draft assessment method is limited to a single test (V 1) because the parameters (especially height, moisture, nailing)		

				were different compared to all other tests used as comparability and repeatability tests. Neither the repeatability of this one result was proven in a test institute nor the reproducibility of the results in other test institutes. The comparability of the different tests is limited. Repeatability and reproducibility cannot be assessed as so many parameters were changed between the different tests. Note: The determination of repeatability and reproducibility of a test fire is only possible in calibration tests on inert and plane facades, as additional parameters (insulation, surface quality, combustible building materials, etc.) are influencing in the comparability when "real" test specimens are used. As the temperatures measured for inert facades already exceed		

				the limit criteria for flame spread significantly and at a height of 5 m temperatures are also around this limit value (slightly below or above) further information and refinement is needed before a RR test can be started. For the abovementioned reasons, the technical basis for a round robin with real test specimens is not provided based on the test fire for the large exposure as proposed in draft assessment report v5. First there is a need to improve the approach and perform a complete calibration. The updating of the assessment method cannot be regarded as progress, but as a step backwards.		
625	EAE	Draft assessment method v5	4.6.3 Fuel source Figure 6 and	"The top side of the platform should be covered by a solid plate." The size and the material of the platform are not specified. In the reported reference tests for the large scale test the solid platform has exactly the	Detail exactly, the size, thickness and density of the platform. Provide at least 3 additional calibration tests with a full-size inert plane wall, if the size of the platform is not identical compared to the configuration	The important features of the platform are given, i.e. the sizes and that it is to be built in steel. There is however a change in the size due to several factors this is what is used in the BS method which yield better repeatability but also it gives

				size of the crib and of the steel construction below. In the outdoor test it was designed totally different. And in the draft assessment method, Figure 6, it seems to have the size of the complete floor of the combustion chamber.	reported in RISE Report 2021:85 for the large-scale exposure.	less debris below, we are still within the given limit for the BS method on the fuel source 3 +/- 0.5 MW at the peak. The important thing to remember here is that the safety level is set by mainly two factors the severity of the fuel source in combination with the criteria.
626	EAE	Draft assessment method v5	4.7.2	Plate thermometers	Delete – not used in the test method or detail where they shall be used	Will most probably be deleted after the round robin, it may be used for calibration later.
627	EAE	Draft assessment method v5	4.7.3	The interval for data acquisition has been set to a minimum of 10s. The limit time for assessing the transgression of the limit temperatures for flame spread has been set to 30 s. It might be useful to increase the number of available data-points.	Reconsider provisions for data acquisition.	Here it is important to remember that criteria are not set. In the round robin data will be collected in high resolution which will be used to determine the criteria.
628	EAE	Draft assessment method v5	4.7.4	The draft assessment method does not detail the positions of the video cameras in relation to the test specimen.	Add details for the video cameras, for example: At least two cameras have to be used positioned parallel to the long wing and parallel to the short wing – both covering the full height of the test specimen.	This will be discussed by the consortium.

629	EAE	Draft assessment method v5	4.7.5 Mass measurement falling parts And 9.5 And 13.1.3 and 13.1.4	The accuracy of weighing platform has been set to ±50 g. Software for continuous measurement is mentioned but no time intervals are defined. Weights of single falling parts have to be documented: it has not been clarified what shall be done, if a number of parts are falling at the same time or in a very short time period. In Chapter 13 classification of falling parts is based on occurrence within 60 minutes, while in Chapter 9.5 it is stated: The weight has to be recorded continuously during the first 30 min of the test. If a part bounces down from a higher part of the façade there will be a short time measurement induced by the kinetic energy (impact force) of the falling part, which is dependent from the speed with which it bounces onto the balance	Set the accuracy for the weighing platform to a realistic value (for example 1% of the minimum limit value). Specify intervals for data points for the measurement. Define procedures for assessment if many parts fall at the same time; parts bounce of the platform. Provide a better description of the load cell platform construction and specify the distance between the final surface and the floor of the combustion chamber. Define classification and reporting times without contradictions (reporting times have to be as long as needed for classification). Define interpretation of the readings of the balance. Find a method/criteria to exclude the short time impact of the kinetic energy.	It is good to bring this to our attention, the consortium have performed tests with dropping inert falling parts (metal balls) from different heights on a platform and investigated the readings. Also with several parts falling at the same time. This in combination with measurements performed in the round robin will be used to propose a methodology how to measure falling parts.

				(which is dependent on the height from where it is falling down). There will be a peak in the balance reading which is not representing the weight of the part. It is not described how to evaluate the continuous readings in order to deal with this effect.		
630	EAE	Draft assessment method v5	5. Enviromental conditions, ventilation	The effects of the ventilation conditions around the combustion source must be identified before the test. The oxygen supply for the fire source and the exhaust volume/speed of the hot gases are important. Changes of the ventilation during the test will be an important parameter for the flame spread. In the previous approach, a general distinction was only made between outdoor tests (Case A) and indoor tests (Case B). This consideration does not reflect the actual situation in European testing laboratories. For indoor tests in a test hall, a	For outdoor tests clear limits are needed regarding horizontal and vertical wind speed. This needs to be considered for the criteria for invalidation of a test and needs to be part of the report. For indoor testing detailed information is needed in the method and in the measured data about: Horizontal wind speed And the following, which are not yet included: Vertical wind speed ventilation conditions and changes of exhaust volume/ventilation during the test or opening of additional air inlets during the test There is a need for introduction of a chapter regarding ventilation	We are aware that possible differences in the laboratory ventilation may change the fire spread. The conditions in the test hall shall be reported including temperature, RH etc we may extend this to also give more detailed information on ventilation. However, it is unlikely that there will be several classes/classifications depending on ventilation condition indoors. The feasibility of outdoor testing will be investigated in the round robin, also appropriate limits of wind speed will be given. The current limit is for outdoor testing given for BS 8414. We are also open to have different speed limits for large and medium scale.

				distinction must be made between Case B1 (fire tests in a room with opening-controlled, natural ventilation), and Case B2 (fresh air supply through an opening in the floor area and an exhaust air opening in the ceiling/roof and controlled mechanical extraction via a hood and a fresh air inlet mechanically or through an opening). Each of these ventilation situations has its own special characteristics; none can be directly compared to another. Basically, an outdoor test corresponds to the actual flow situation at a facade on an outer wall with an infinite supply of fresh air flowing in from all directions in front of the wall and exhaust gases (flames and smoke) freely flowing upwards. In principle, this approach should not be lost as fires on external walls do not take place in halls. However, outdoor tests are by nature more affected by wind than indoor tests. In some test institutes, real-scale fire	conditions, which clearly describes the above-mentioned effects, or states that the influence of the ventilation on the test has not yet been sufficiently investigated. The measurements of the environmental conditions described until now in Chapter 5 of the draft assessment report otherwise suggest an independence of the combustion of the fire source from the ventilation conditions, which is neither correct nor proven.	The outdoor test performed in France is included in the Progress Report 3.

				tests are also carried out in halls that have sufficient ventilation and exhaust air openings, the dimensions and size of which are to be designed based on the energy release of the respective fire load plus the additional contribution of combustible components of a test specimen. In case of machine-controlled extraction, there is a risk of accelerated combustion due to the flames rising (isothermally) upwards or the test fire being cooled by fresh air that is too cold. The effects described have been proven experimentally. Deviations in combustion of up to 20% can be assumed. The tests performed until now (one outdoor test and one test with cross wind in a hall) are not sufficient and suitable. The proposed measurements of wind velocity before the test, with a limitation of wind speed to less than 2 m/s, offers no guarantee that the flow is influenced (neither for an outdoor		

				test nor for an indoor test with mechanical exhaust system). Neither a report nor measurement data have been published for the single outdoor test that was carried out. However, some pictures were shown in the presentation to the Steering Group on January 28, 2022 (slides 9 to 25). The photos on page 10 show information from the environment and the data logger. According to this, the wind speed was 2 - 6 km/h, which means it was below the permissible 7.2 km/h or 2.2 m/s, meaning in the acceptable range for testing. Unfortunately, the video for the test was not available. In real outdoor tests, with the same test fire source, spread is usually a bit lower than in a hall – the damp facade is not a sufficient reason for this.		
631	EAE	Draft assessment method v5	4.7.6 And 5.1	4.7.6 reads: Ambient condition monitoring equipment shall include: a bidirectional anemometer measuring	Include measurement and documentation of wind direction in the draft assessment method. Make sure that for indoor tests exhaust volume and fresh air	In the round robin the speed and direction will be measured and evaluated.

			And 9.1	the horizontal wind and its direction with an accuracy of ±0.1 m/s and ±5° for measuring the ambient air velocity and direction Here it is said that the wind direction is also measured. According to 5.1 direction is not measured (referenced also in 11 – Test report). According to 9.1 only wind speed is mentioned. The horizontal wind direction is important for the shape of the flame coming out of the combustion chamber and especially for outdoor tests this parameter will be different for each test. In addition, it is only mentioned that wind speed has to be measured before starting the tests. For indoor tests it might be possible that the ventilation or the openings allow for variable fresh air supply into the test hall.	supply may not be changed; in case changes are needed these have to be documented in the test report. Especially for outdoor tests wind direction needs to be monitored and included in the report. See also comment 11.	Limits of wind speed will be assessed after the round robin and added to the method.

				This needs to be limited in the test procedure and changes of ventilation during the test need to be documented and reported.		
632	EAE	Draft assessment method v5	5.	The specimen temperature and humidity are not defined. If, for example, it has been cold and rainy or foggy the days and nights before the test, it needs to be verified that not only the actual ambient conditions but also the state of the façade (temperature and humidity) are within acceptable limits. The text says: See 10.8 for more rules. This chapter does not exist. Instead, 9.8 includes criteria for invalidation: Wind speed and direction are not measured during the test. Changes of wind are not included in the invalidation criteria.	Add measurement and limitation for wind speed during the test (see comment 10). Control temperature and humidity of the specimen and report climate conditions in the days/nights before the test. Revise Chapters and references in the draft assessment method.	The intention was to measure the humidity before test however it seems to be a good suggestion to also monitor this in previous days.

633	EAE	Draft assessment method v5	6.1 Presentation for SG meeting slide 47 And scope of draft assessment method v5	The vertical extension of the specimen below the combustion chamber is not specified. In some of the initial tests there was just an opening below the combustion chamber, in others it was fully closed. In Figure 9 the wall below the combustion chamber is shown without specimen. In slide 70 of the SG meeting, it can be assumed that the façade is also mounted below the combustion chamber. See also comment no. 3 Altogether for this part mounting needs to be clarified. Presentation for SG meeting: Height of test rig for medium test: 5100 mm (related to weighing platform) 6500 mm (related to weighing platform) Scope of the draft assessment method: the combustion chamber is kept at the base of the test rig	Define exactly where the lower end of the specimen is and how it has to be mounted. Define what is the base of the test rig. Remove contradictions regarding the different parts of this document and draft progress report regarding uplift of the combustion chamber.	As it is now it is optional to install the façade below the combustion chamber. Nothing will be measured or assessed below the combustion chamber anyway. Anyway, this variation is acceptable.

634	EAE	Draft assessment method v5	6.3 Design	"All details shall be installed as in practice…. / (TCs perforating the façade would not represent the practical application) "If in practice *horizontal* joints are incorporated into the outer layer of the façade system (i.e. the first layer on the side of the exposed face), the test specimen shall incorporate such horizontal joints at intervals specified by the manufacturer, with at least one joint placed **750 ± 100 mm above the top of the combustion chamber opening.** If there is no joint in the outer layer, then the outermost layer of the façade system incorporating a joint shall be considered. The horizontal joints shall extend on the full width of the main face and the wing." In BS 8414 the first horizontal joint is placed **2400 ± 100 mm above the top of the combustion chamber opening.** For joints in inner layers, as for example for insulation boards the requirements are not adequate, because these are often mounted with offset joints and not with joints extending to the full width or height of the specimen.	Go back to BS 8414 requirements in order to allow for comparability of test results. Revise Chapter on joints.	We have revised this to include one joint in the outer layer somewhere above the combustion chamber. This is intended for outer layer only where e.g. panels are used.

635	EAE	Draft assessment method v5	6.7 Secondary opening	Few EU member states, e. g. France, Sweden and Hungary, include a secondary opening above the combustion chamber in their national assessment methods and regulations. In the majority of European countries, including the countries using the two reference standards BS 8414 and DIN 4102-20, tests have been carried out for decades without a secondary opening (an opening is optionally possible). Against the background of the many years of testing experience in these countries, including the application in building laws based on this, the continuation of the test without a 2nd opening appears to be given; of course, a test with a 2nd opening could be introduced in the test method, which could be considered equivalent. The objective of the secondary opening is to simulate the presence of any kind of feature - such as windows - at levels above the fire source opening. However, for a test with a second opening that is equivalent to the previous test approach, a technically comprehensible test approach and proof of the	The obligation to carry out tests of a façade system always with a secondary opening has not been proven. It should be discussed whether there could be two parallel approaches (optional secondary opening), especially when considering the huge stock of test reports of tests without secondary opening. This questions the future possibility to use historical data and the link to current national building codes. The technical implementation described so far in the draft assessment method is not sufficient for performing round robin test series.	This is indeed very important however it is indicated by the secondary opening tests that this is indeed a worst-case scenario and covers the "no opening" scenario. On the other hand, the intention is not to alter or move the fire safety level. See also 620.

				possible extrapolation of the selected design to other opening shapes and opening sizes are required. The development of details such as built-in windows is a permanent issue. EAE experts regularly discuss this in relation to the DIN 4102-20 standard, which also requires connection details that are customary on the market in and around the combustion chamber. However, this is nowhere described, and every change is a change in the experimental setup with unknown and unpredictable influence. It was also said that there are many possibilities to form such details. To maintain the proportionality of effort and test costs to the gain of knowledge, it is therefore more important that the test setup is universally valid and designed in a uniform manner. In EAE's opinion, one must clearly distinguish what is intended to be tested. We understood that it was intended to assess the spread and transmission of flames on the facade. None of the common large-scale fire tests is a test of specific connection details or built-in		

				and attachments, but standard test setups (e. g. reference window in Lepir II). In order not to get in the direction of detailed testing of specific design details of windows (with test results being only valid for a specific combination of products/components), our suggestion is: if a window opening is required, then in a neutral form: simulation of the non-combustible windowpane using a non-combustible CaSi board with a defined design and design of the window reveals. For the evaluation and assessment, a compact measuring technology with thermal sensors can be installed in and around the window niche. The secondary openings have been designed to have in both test methods - medium-scale und large-scale - a size of 1200 x 1200 mm. In the large exposure method, the opening is placed 1500 mm above the lintel of the combustion chamber and for the medium exposure test 1000 mm above. The distance to the inner corner is for the large exposure test 1250 mm and		

				for the medium test 500 mm. Tolerances have not been defined. Is there a technical-scientific justification for the specifically selected position and size of the secondary opening? The sizes of the two openings do not differ in both approaches, although the medium scale is actually scaled. Is that known? „At the end of the second phase three tests in medium and three tests in large scale were done to investigate the effect of a secondary opening and it was indicated that an asymmetrically placed opening would be the most appropriate placement. “ The results of the tests were presented in a separate test report and a supplementary report. Videos and raw data have not been published yet, so it was not possible to rectify any transmission errors. The parallelism of the approaches without an opening and with a secondary opening should be discussed again.		
636	EAE		8.1	In the principal drawing (Figure 11) external TCs are	Define exactly how to fix the TCs.	It is allowed to mount TCs on the front without drilling,

				drilled through the specimen from the back. In the text this is mentioned but also alternative mounting from the front side is allowed. For the holes drilled through the specimen sealing of the holes around the TCs is proposed but no instructions are given how to do that and how to make sure that this sealing is not destroyed during the test. It is therefore not excluded, that by drilling the holes from the backside the façade system (especially relevant for ETICS) is damaged and even if the sealing of these openings may not resist fire exposure. Therefore, the flame spread may be influenced in a way which is not representative for the real façade in practice.	For ventilated facades under certain conditions drilling from the backside may be acceptable but needs to be defined in detail. For ETICS mounting of the external TCs from the outside is needed to keep the integrity of the specimen and avoid a wrong assessment. If this cannot be excluded, the outer TCs must be installed non-destructively from the outside.	regarding drilling and fixing/sealing around TCs it is difficult to give general recommendations since this may be specific to the façade system. It is however done regularly in BS tests as well as in other methods as well.
637	EAE		8.1 Figure 13	The definition of this horizontal temperature level L1 at a height of 4.5 m as the only temperature level clearly indicates that the temperatures measured there are intended to be used to define the spread of the fire. According to the raw data transmitted, this temperature	Development of a fuel source which is adequate to meet the requirements. See comment 5.	The temperature criteria are not set. The safety level is in simplified terms a combination of the fire source and the assessment criteria.

				level is too close to the top of the combustion chamber. The criteria in point 10.1.1. established are already exceeded for a non-combustible wall.		
638	EAE	Draft assessment method v5	9.2 Test time	The test and time period for the assessment has been extended compared to the existing methods BS 8414 and DIN 4102-20 to 60 minutes. During this time, the wood crib is completely burned and has fully released its energy. These times have been defined in the past based on the time until fire brigades can be in place to evacuate people and extinguish the fire. If the test results and classifications shall be compared to existing data, this needs to be adapted. See also comments regarding proposed classification. In addition, in Table in 9.2 the time for assessment of smouldering combustion has not been considered.	The test times need to be adapted to grant comparability of test results and classification. The exposure time needs to be limited to 30 minutes for the large exposure test and 20 minutes for the medium exposure test. The test time needs to be re-defined - allowing for assessment of smouldering combustion. Limit assessment of other parameters to a time according to the current methods (DIN and BS).	Test time and time for assessment is two different things. The criteria and how to use them is not set. It is favourable for the laboratories to not have to extinguish the crib. Smouldering combustion will be considered and evaluated in the RR.

639	EAE	Draft assessment method v5	9.3 Ignition of the fire source	The proposed soaked fibreboards lead to variations for the time to ignition of the complete strips. Using pans with combustible liquid leads to better repeatability of the ignition process.	Propose liquid source as used for example in DIN 4102-20: metal pans with Isopropanol	It seems to be of very small importance for the large scale fire source.
640	EAE	Draft assessment method v5	9.4 and 10.4 smouldering	The assessment of smouldering has been introduced only as an optional procedure and only for the medium-scale test. As for example in Germany the assessment of smouldering is mandatory, test data without checking of this parameter cannot be accepted for regulatory purposes. As the medium-scale test is intended to replace the DIN 4102-20 test and as it has been proposed to replace the “Sockelbrandversuch” by the large exposure test, Germany will only accept the future European test and classification method when it covers smouldering for both exposure levels.	Assessment of smouldering has to be included as mandatory for both exposure levels.	Smouldering will be considered in the RR.
641	EAE	Draft assessment method v5	9.5	End of fire source: It is said that the fire source can be extinguished after 60 minutes. Only after these 60 minutes, the fire on the test specimen can be extinguished, except when	Change definition for “end of fire source”	After 60 mins not much is left of the fire source in both medium and large scale. Smouldering will be considered in the RR.

				smouldering shall be assessed. In such case the specimen shall be kept under observation until all thermocouples show a temperature lower than 50°C with a maximum duration of 15 hours after ignition.		
642	EAE	Draft assessment method v5	Invalidation of the test (9.8 or should it be 10.8?)	See comment no. 13 and For outdoor tests, rain and snow only are considered; strong wind is not considered. Indoor: if due to extreme smoke development exhaust speed and volume is changed compared to the initial conditions beyond the given limits, this also leads to invalidation.	Strong wind needs to be included as a criterion for invalidation. Significant changes of exhaust speed and volume during the test time for indoor tests also need to be considered.	Ground wind speed above 2m/s is not allowed and would invalidate the test.
643	EAE		9.6. Post test inspection	According to DIN 4102-20, three parameters are required to assess the vertical and horizontal spread of fire in relation to limiting lines: Exceeding a certain temperature (usually 500 °C or 600 °C or 500 K or 600 K or any other definition) Exceeding these limit lines (levels) by visible flames over a certain period of time -	Include detailed description.	It is favourable to rely on measured quantities as much as possible. Post-test examinations will be done in the RR, however we think it would be a step backwards to rely too much on visual inspections.

				Exceeding these limits based on burnt areas The temperature criterion alone is not sufficient for this assessment. The general description of the posttest examination is necessary for a later evaluation and classification and must therefore be described in detail.		
644	EAE	Draft assessment method v5	10 Perfor-mance criteria	Compared to BS 8414 the criteria have been changed substantially (though even the last revision in UK did not result in such changes). The test data presented show that even for an inert façade these values are exceeded for a height of 4.5 m and critical for a height of 5 m. There is no evidence what the additional impact of the secondary opening of a real façade and the latest change of the platform for the wood crib will be. In addition, it is not adequate to increase the time until certain criteria apply from 15 to 60 min, as the requirements based on responding time of fire brigades are much lower in most countries and the	**Delete performance criteria from current assessment method – this cannot be decided before RR results are available** Add TCs in all layers of the specimen on the current position of 5 m above the combustion chamber, in order to allow for later comparison with existing safety requirements. Adapt mounting conditions, for example for joints, to existing specifications to ensure comparability as a basis for the classification. Separate description of test report and classification report	These were example criteria and will be determined in the RR.

				decision is subject to national regulators. In general, the classification cannot be proposed until full results of the RR tests are available and compared with existing test results and classification for the tested products. The current draft assessment method should not include the classification proposal – but it would be important to extend the Chapters on documentation and reporting (see previous comments). The large-scale test program has shown that with the currently defined wood cribs even at the lower density limit in 4.5 m height above the combustion chamber the limit temperature relevant for the assessment of flame spread is significantly exceeded.		
645	EAE	Draft assessment method v5	10.2 10.1.3.	EAE basic position BR 135 reads: “No failure criteria have been set for mechanical performance. However, details of any system collapse, spalling, report. The nature of the mechanical failure should be considered as part of the overall risk assessment, when specifying the system.”	Apparently, experimental investigations were carried out as part of the project, which were presented in some slides. The results of these extensive investigations need to be summarized and published in a report as soon as possible. Perhaps this could become the scientific background for the mass criteria of level 1, 1 kg and level 2, 5	The level 1 and 2 criteria stems from current available regulations. In order for those MS that employ these it is essential for acceptance that this is included both in the method and classification. There are tests performed, only investigating measurements of falling parts where non-combustible objects were

				There is no quantification described, only visual assessment is intended. This principle as introduced in the UK has been adopted by the majority of European countries: Germany, Poland, Switzerland, Hungary, Slovakia, France, Czech Republic, Sweden (see Table 5 of "Development of a European approach to assess the fire performance of facades", final report June 2018). There is only one exception in Austria: they allow for falling parts not more than a maximum of 0,4 m² and 5 kg and do not allow falling burning parts. This means that they do not allow large falling parts and burning parts. Again, no method has been introduced for quantitative measurements. Therefore, no scientific background and practical experience is available, which would allow for the introduction of quantitative pass-fail-criteria as proposed in the questionnaire. There are no quantifiable measurements available and therefore pass-fail-criteria cannot be defined on the basis of existing research,	kg or for burning parts 30 seconds after hitting the floor. Currently, these numbers are just based on an arbitrary decision of the consortium without a comprehensible practical background. **Provide detailed information about** **the equipment and the methods for assessing falling parts and** **the scientific background.**	dropped on scales in order to evaluate how to assess it. The consortium have asked MS, stakeholders etc to provide scientific studies on falling debris however nothing have been found. One of the aims with the RR is to provide methodology how to measure and how to assess.

				experience or building regulations. Testing laboratories have many years of practical experience regarding the observation and assessment of these phenomena via visual observation; regulators in European countries have been able to decide on the basis of these results. As the need seems to exist to register the mass of falling parts, further clarification is needed how to achieve the technical implementation. However, we understand that mass measurements of falling parts is intended to be included allowing for an implementation of a unique classification in the future. EAE members appreciate this approach in principle to achieve harmonisation. However, there is further clarification needed regarding the technical feasibility of assessing the mass of falling parts. Clause 2.5.4 describes for the first time a weighing platform with a minimum length of 3200 mm and a minimum width of 1500 mm with a measurement accuracy ± 50 g. A software shall be used which allows		

				the automatic and continuous measurements and recording of the weight. The weight over time shall be documented.		
646	EAE	Draft assessment method v5	11 test report	The test report should be separated from the classification report. Detailed information is needed – see proposal for change.	Separate test and calibration report The test reports need to contain more details as following: d) Detailed data describing the wood crib (reference to the assessment method is not sufficient) h) Environmental conditions (see Chapter 5) For indoor tests: include changes of ventilation and incoming air during the test For outdoor tests: changes of wind speed and direction during the test occurrence time, dimensions and amount of falling parts k) Graphs of temperatures versus time measured by all individual thermocouples Add detailed information about weight and times of falling parts Further: Add information about temperatures after end of test time, until all thermocouples are below 50°C.	Naturally these should be in the test report as well.

					Add relevant results of calibration test for test rig as Annex. Add a photo documentation. Add complete documentation including raw data, videos etc. to be delivered to the sponsor. etc.	
647	EAE	Draft assessment method v5	12 Direct field of application	This paragraph is totally unclear and erroneous. “b) increase of the number of horizontal joints, of the type tested, when tested with joints; c) increase in the number of vertical joints, of the type tested, when tested with joints” **Increase of joints may not have a positive effect – it is listed as a change which is acceptable** “g) an insulation of Euroclass E can be replaced with an insulation of Euroclass B, C or D if the thickness and density is the same“ **This general change to a differently classified insulation may not be correct, if for example a thermoset class E insulation is replaced by a thermoplastic class C**	Remove this paragraph or rewrite it.	The direct field of application is not included in the project and must be developed separately however this is an example.

				insulation. Also smouldering behavior may be independent of the classification. This paragraph could only be applied for the same type of insulation i) the width of the construction may be decreased j) the height of the construction may be decreased **The increase of width and height is not relevant – the test is a scaled test and regulators have to decide, for which dimensions of a building results are valid**		
648	EAE	Draft assessment method v5	Annex A	Annex A is not included	Complete contents or delete Annex A	Noted, thank you.
649	EAE	Draft assessment method v5	Annex B CALIBRATION OF THE HEAT EXPOSURE (INFORMATIVE)	Calibration of the test bench (including the test environment) is essential and cannot be informative. Before it makes sense to perform the final tests a detailed calibration method, including the limit values and tolerances is needed. Measurements in the vertical line above the combustion chamber are not sufficient as the special surroundings and ventilation conditions of the	Develop and publish a detailed calibration procedure, including TC measurements as done in the real tests and limit values and tolerances to pass the calibration test. Publish results of calibration tests for all laboratories participating in the final round robin test program before the test program is started.	The assessment criteria in the method are tentative at the moment. The purpose of the RR is to determine the assessment criteria in a calibration procedure of the method. Furthermore, a calibration scheme of the test set-up will be provided after the testing.

				test lab may well cause more or less the flame to tilt to the corner or away from it.		All equipment will naturally be calibrated according to best practice.
650	EAE	Draft assessment method v5	Annex C	In Figure 10a of the draft assessment method for specimen mounted on a structural frame the depth of the opening is identical to the thickness of the façade system. The detailing and depth of the secondary opening need to be described in more detail. The statement “as in practice” is not allowing a decision as there are for one façade system often various possibilities to mount a window frame, and additional details like shutters may be added later. The draft method includes steel or aluminum as default, which may behave quite differently. Annex C is an extensive collection of opening designs, unfortunately so detailed and varied that it would be helpful to provide the practical connection for the round robin.	The depth of the secondary opening should be clearly defined and a maximum value needs to be given. Cutting the back wall (as suggested for example C1 in the Draft assessment method v5) would be difficult to do in the tests and should be reconsidered. The planning and technical execution of a secondary opening for the round robin is not possible on this basis.	For the RR simplified solutions will be used that is decided between experts and the consortium. The intention is no to test window frames but rather the closure of the façade system around the opening. The solution should reflect as in practice though. See also 620. This borders on the field of application since many countries develop general solutions with worst case scenarios.
651	EAE	Comment handling document	General	EAE did not yes receive answers to several questions of comments raised during	Add already received comments to comment handling document and answer comments in due time as	All recorded comments in the meetings have been answered it may be that there are some

		"A Comment Handling Document has been made, and so far, almost 500 comments have been received. These comments are handled continuously and communicated on the above-mentioned web page."		and after Steering Group meetings.	announced in recent steering group meeting. EAE agrees to publish: the presentation of EAE remarks and comments as of June 1st 2020 the EAE presentation on wood crib tests in the SG meeting April 2021 the EAE presentation in the SG meeting June 2022	non-written questions that are not answered. There are however quite many comments so it is difficult to know exactly which.
652	EAE	Draft progress report	General	Not all test results and data cited in this report have been made available, for example: Test report for gas burner tests Test report about experiments for falling parts Approach and results of modelling to evaluate the impact of the combustion chamber geometry Videos from calibration tests (for example video from outdoor test and tests with secondary opening, medium scale tests, falling parts assessment etc. are not	Publish videos from all relevant tests Publish all not yet published test reports including used techniques, measurements and raw data Publish all missing documents, reports and videos	We will continue with publishing material on the web however some of these are not that easy due large sizes.

				available on the RISE YouTube channel). Not all raw data are available: for secondary opening tests (large and medium exposure) for medium exposure tests – F1, F2, K1, K2, K3 raw data from outdoor test (s) large exposure test no. 0 raw data on ventilation conditions including wind direction for all initial large-scale tests and medium scale tests		
653	EAE	Draft progress report	General And 3.3.1.4.	It is reported that additional tests have been done to compare wood crib tests with a gas burner. The full report and the data from these tests have not been published yet. Alternative fuel sources like gas burners instead of wood cribs might be interesting and helpful for the future. This has not been included in the project and the SG never agreed to spend money on these tests	However, this should be separated from the current project to limit the complexity and to allocate budget and efforts on those items agreed in the contract	The draft Progress report was published online before the SG meeting in Section 3.3.1.4 Alternative fuel source results from these tests were published. This section will be expanded and included in the final report. The tests were an add-on to the project and not included as such in the budget.

654	EAE	Draft progress report and Draft assessment method v5	table 2 4.6.3 last paragraph	For the solid platform below the wood crib comparisons (L1 and L7) were made in the initial tests with the grated platform. These tests showed clearly an impact of this platform on the THR (30 min). For the following tests (repeatability tests) with a complete test rig were done with a platform which only covered the grated platform below. For the outdoor and for the "secondary opening" tests the geometry of the platform was enlarged, to the walls of the combustion chamber. This results in a different ventilation situation, which is not comparable.	The influence of this platform needs to be discussed and a final definition of the size and the material of the platform has to be made.	We agree that there are some differences however the fuel source is severe enough to accommodate for a reasonable impact on the façade as was discussed in Progress report 2. It is decided to use the platform that extends to the walls of the combustion chamber, due to e.g. stability of the crib and less debris impacting the measurement of the falling parts from the façade.
655	EAE	Draft progress report and Draft assessment method v5	2.5.1 4.5	It is said that the combustion chamber walls and roof shall be made of a non-combustible construction. The inner surfaces of the combustion chamber shall be cladded with insulation (ceramic or equivalent).	The material type thickness and density need to be specified for the walls of the combustion chamber and especially for the internal lining. In addition, it has to be specified, how often this internal lining has to be renewed.	It may be a good point to give some general guidance on how often the lining should be replaced however it seems that no significant change occurred during the 6 tests performed at RISE 2021. Thus it is now difficult so give indications. The combustion chamber and the supporting wall should be constructed in concrete however no thicknesses are

						given this is similar to BS 8414-1:2017.
656	EAE	Draft progress report.	Summary Chapter 2.5 An update of the assessment method was made ….. These changes such as the placement of the wood crib and the secondary opening will be evaluated in the coming experimental round robin	A number of issues need to be solved in the Draft assessment method v5 before it makes sense to start a round robin and before delivering and mounting of the specimen can be prepared and started. The sponsors of kits for the RR tests need unique documents and descriptions of the test rig including drawings with measurements, list of supplies, table of possible schedule. The statement that changes such as the placement of the wood crib and the secondary opening will be evaluated in the coming experimental round robin is not appropriate.	The assessment method needs to be revised before the final test program can be started. Test rig, instrumentation, fire source and construction of the sample need to be defined in a way that all data for the future classification system are available. Details are referenced later in this document.	No changes of the placement or the wood crib will be done in the RR, it is described where and how this should be constructed. We have communicated possible times for tests from the laboratories point of view. Start of September 2022. There are drawings available, information has circulated to the representatives.
657	EAE	Draft progress report 3. And revised Draft assessment method v5	General	The test labs require a detailed description of the test rigs to be used in the RR tests. Currently the description is not complete and precise enough to make sure that all labs use the same test rig and to grant similar testing conditions.	Amend the following details as explained in further comments, for example detailing around and below combustion chamber detailing around secondary opening	The detailing around the combustion chamber is to be determine by the façade sponsor in discussion with the consortium.

658	EAE	Draft progress report 3. And revised Draft assessment method v5	2.5 4 and 4.4	The supporting structure representing a wall on which the façade system is mounted, needs to be detailed. It has not been defined what type of wall (supporting construction) needs to be used to construct the test rig (material, thickness, density). Rules for substrates (see for example EN 13238) have not been considered.	If the specimen is mounted on a structural wall, the thickness and density of the wall needs to be defined with adequate tolerances, before the round robin can be started.	See 655.
659	EAE	Draft progress report 3. And revised Draft assessment method v5	General	A number of details are missing, which are needed to allow comparable tests.	The description of the test rig needs to include a description of the mounting of test specimen (kits) to make sure tests are performed in the same way in different labs (deviations deriving from different installation and detailing need to be eliminated).	Naturally all of the same type of specimen should be mounted in the same way. This has to be decided by the sponsor to determine the appropriate way.
660	EAE	Draft progress report 3. And revised Draft assessment method v5	2.5.3. Annex C	In figure 10a of the draft assessment method for specimen mounted on a structural frame the depth of the opening is identical to the thickness of the façade system. The detailing and depth of the secondary opening need to be described in more detail. The statement “as in practice” is not allowing a decision as there are for one façade system often various possibilities to mount a	The depth of the secondary opening should be clearly defined and a maximum value needs to be given. Cutting the back wall (as suggested for example C1 in the Draft assessment method v5) would be difficult to do in the tests and should be reconsidered.	The detailing around the combustion chamber is to be determine by the façade sponsor in discussion with the consortium.

				window frame, and additional details like shutters may be added later. The draft method includes steel or aluminum as default, which may behave quite differently.		
661	EAE	Draft progress report 3 And revised Draft assessment method v5	2.5.4 Falling parts and 2.5.5 uplift 9.5, 10.1 and 10.2	EAE Basic Position BR 135 reads: “No failure criteria have been set for mechanical performance. However, details of any system collapse, spalling, delamination or flaming debris should be included in the test report. The nature of the mechanical failure should be considered as part of the overall risk assessment, when specifying the system.” There is no quantification described, only visual assessment is intended. This principle as introduced in the UK has been adopted by the majority of European countries: Germany, Poland, Switzerland, Hungary, Slovakia, France, Czech Republic, Sweden (see Table 5 of “Development of a European approach to assess the fire performance of facades”, final report June 2018). There is only one exception in Austria: they allow for falling parts not more than a maximum of 0,4 m² and 5 kg and do not allow falling	Provide detailed information about the equipment and the methods for assessing falling parts.	See 26. Note specifically that there are two accepted performance levels one for Austria and Hungary and one for Sweden. One of the objectives with the platform for the wood crib is to reduce the debris falling down on the weighing platform for falling parts. See also 625 and 629.

				burning parts. This means that they do not allow large falling parts and burning parts. Again, no method is introduced for quantitative measurements. Therefore, no scientific background and practical experience is available, which would allow for the introduction of quantitative pass-fail-criteria as proposed in the questionnaire. There are no quantifiable measurements available and therefore pass-fail-criteria cannot be defined on the basis of existing research, experience or building regulation. Testing laboratories have many years of practical experience regarding the observation and assessment of these phenomena via visual observation; regulators in European countries have been able to decide on the basis of these result. If the need seems to exist, to register the mass of falling parts, further clarification is needed how to achieve the technical implementation. However, we understand that mass measurements of falling parts is intended to be		

				included allowing for an implementation of a unique classification in the future. EAE members appreciate this approach in principle to achieve harmonisation. However, there is further clarification needed regarding the technical feasibility of assessing the mass of falling parts. Clause 2.5.4 describes for the first time a weighing platform with a minimum length of 3200 mm and a minimum width of 1500 mm with a measurement accuracy ± 50 g. A software shall be used which allows the automatic and continuous measurements and recording of the weight. The weight over time shall be documented. In none of the documents published until now information is given regarding the construction of the weighing platform and the software to be applied. The placement and area of the platform have been defined, but not the height. There is no provision how falling parts from the wood crib and falling parts from the wood crib can be distinguished from falling parts from the facades (both		

				might impact the measured weight). How will it be possible to differentiate between falling parts from the wood crib and those of the façade and to assess the weight of parts, and how can the weights be determined if a lot of smaller and bigger parts start falling at the same time? Limits are given, but the techniques are not detailed. This information needs to be provided to the test labs before the RR can be started. If this is not done, comparability of the test results cannot be expected. **Note:** EAE is convinced as stated before that it is necessary to report falling parts qualitatively. For a quantification the necessary scientific background is currently not available.		
662	EAE	Draft progress report 3	**2.5.5 Uplift**	In clause 2.5.5 of the draft progress report 3 is stated, that no uplift will be used.	Clear information on the geometry of the test rig including the uplift and the position of the weighing platform is needed.	The geometry of the test rig is given including placement of the platforms.

		Large scale test report	2.5.4 Figure 7 Figure 4	In the drawings an uplift is shown and a distance of 100 mm from the bottom of the combustion chamber to the weighing platform is given. In the presented reports on medium exposure tests no weighing platform can be observed. For the large-scale tests (repeatability tests) a drawing shows an uplift of 500 mm, but no weighing platform. Are there experimental results available for the use of this weighing platform?	Background information on the use of the weighing platform and experimental experience need to published and before the RR tests can be performed. Information on the construction of the weighing platform is needed.	There are no data yet from real testing since no real facades have been tested with the new method. The methodology have been tested using non-combustible falling parts only, since no real tests where falling parts are present have been performed yet.
663	EAE	Draft progress report 3	**2.5.5**	In the draft progress report 3, it is stated that tests were done, regarding the ignition of several types of materials caused by the wood crib. These data have not been published.	Publish data on ignition tests.	They are mentioned in the Large scale test report from 2021.
664	EAE	Draft progress report 3	**3.2.** **General 1**	This point deals with the fire tests carried out so far for the test fire, i.e. the wood cribs based on BS 8414 and DIN 4102-20 as a reference fire. The definition of the wood cribs according to DIN 4102-20 is sufficiently precise. The additional tests which were also carried out ultimately resulted in a complete adoption of the essential	Definition of wood crib for medium exposure is sufficient. Also, the harmonization to use spruce in both methods can be accepted.	See comment 624.

				parameters as used in DIN 4102-20. The wood crib according to Annex A of BS 8414 was considered as the reference fire for the large exposure. This heat source releases according to the standard a nominal total heat output of 4,500 MJ over 30 min at a peak rate of (3 ±0.5) MW. With this sentence the main energetic framework parameters of the test fire were laid down, i.e. the potentially available total energy THR as a time-independent product of mass and calorific value and the maximum possible peak of the time-related energy release HRR within a test period of 30 minutes. One way of recording the HRR is to measure the time-dependent, parameter-controlled mass loss, which then is multiplied by the calorific value. The time-dependent release of the total energy produced by combustion depends on many factors, including the physical form of the fuel**,** the nature and size of its surface, the density, the oxygen supply for the combustion, the installation situation, etc. and results in one function	Harmonization of the density range for both wood cribs t0 475 ± 25 kg/m³ Definition of mass to be reached for both methods	

				with many parameters that all are influencing each other. For this reason, it is generally recommended to keep the variance of these parameters of the test fire (here wood crib) low. Unfortunately, that was already not the case for the specified reference test BS 8414. The volume of the fuel was determined relatively precisely to 0.75 ± 0.6 m^3 (maximum deviation 16%) by specifying the number and dimensions of the sticks, but not the permissible mass of the wood. On the contrary, a very large tolerance range was allowed for the density of the wood, 400 - 650 kg/m^3 (deviation from the mean value 525 kg ± 24%, while it is for DIN 4102-20 only ± 5%). Apparently, it was not considered that both the volume and the density are determining the mass. This means that starting masses of approx. 276 - 527 kg are possible for the wood cribs for the standard test. For these masses (minus 10% water content of the wood) multiplied by a corresponding calorific value of 17.5 MJ/kg, the possible resulting total energy of a test fire source is 4347 MJ to 8300 MJ. In other words, the increase from the		

				lowest to the maximum possible total energy is approx. 90%, which means it can coincidentally be twice the total energy impacting a test specimen in a test. It is of interest that a test compliant to the standard BS 8414 is only possible if the test time (flame impingement time) is limited to 30 minutes and pine wood is used with a density of approx. 400 kg/m³ (hardly available on the pine market). As far as known, test reports for BS 8414 never specified the mass, density and water content of the wood crib used. A secured comparability of the results of tests relevant regarding building regulations is therefore not possible. In practical application in existing tests, the wood has been limited to a density of only approx. 400 kg. If this had not been done, it would have to be expected that both the repeatability and the reproducibility of tests between individual laboratories can hardly be guaranteed, so that such an approach for a harmonized European test method is not suitable**.**		

				This fact has been pointed out by EAE in the remarks and comments of June 1st 2020 (again added as Annex A to this document). For this reason, the comments recommended limiting the density of the wood for the cribs to 475 ± 25 kg/m³ for both the medium exposure and the large exposure and also specifying a mass for the large exposure method to avoid abovementioned problems. There was no publication, no commentary by the consortium, nor were the recommendations made in the remarks and comments followed up.		
665	EAE		3.2. General 2	After completing the first series of wood crib tests, the results were presented in Draft progress report 2 from March 2021. The definition of the mass of the wood crib of 350 ± 20 kg (deviation from the mean value 350 kg ± 6%, comparable with DIN 4102-20 ± 5%) and the harmonization of the wood species to spruce marked steps into the right direction. The total energy THR is in	Perform complementary additional tests Or Define a harmonized density range of 475 ±25 kg/m³ instead of 500 ± 100 kg/m³ for the large exposure,	See 624. We have added tolerance in height 110 +/- 2.5 cm, note that we also only consider full layers.

				the range of 5198 - 5828 MJ, i. e. the huge spread of the BS 8414 is clearly minimized. However, all values are above the range of 4.5 MJ specified in BS 8414. However, maintaining a spread of the nominal density for the wood used for the crib of 500 ± 100 kg/m³ (400 – 600 kg/m³) continues to lead to problems which were even increased by the reduction in tolerable wood cross-sections of 50 x 50 ± 2 mm (BS 8414) to 47 x 47 ± 3 mm. These problems cannot be compensated, especially as the stick section tolerance has been increased to ± 3 mm. The mass adjustment should be made via the number of layers of wood or the volume. The top layer should always be complete. If wood cribs are constructed, which are possible for this constellation for the greatest possible mass (370 kg) with the lowest wood density (400 kg/m³), the smallest possible stick cross-section (44 x 44 mm) and the smallest permissible stick length result in the permissible volume to be filled with wood sticks, 35 layers (height of the crib 1.54 m), using the largest cross-	Introduce a harmonized tolerance for the cross section from ± 3 mm to ± 1 mm as for the medium exposure In addition, define mass to be applied: 350 ± 20 kg	

				section of the stick (50 x 50 mm) 24 layers with a crib height of 1.20 m. Considering the other extreme, a crib made of wood of the highest density (600 kg/m³) and the smallest mass (330 kg), the smallest possible cross-section (44 x 44 mm) and the smallest permissible stick length result in 19 layers (Height of the crib 0.84 m), when using the largest stick cross-section (50 x 50 mm) results in 15 layers with a crib height of 0.75 m. Basically, it would be possible according to the specifications of the proposal according to Draft report 2 to use cribs with a minimum height of 0.75 m (15 layers) up to 1.54 m (34 layers). A deviation of the volume of up to 100% would be at least theoretically possible. In the presentation given (and sent as comment) by EAE for the SG meeting in April 2021 (again added as Annex B to this document) it was explained that due to the permanent change of different parameters in parallel it was difficult to achieve a general interpretation of the test results.		

				In most of the tests with spruce, the initial mass was largely within the stated limits (350 ± 20 kg), with the exception of L2 and L3. The cross-section of the sticks was 47 x 47 mm and the number of layers was 20 for all tests. There were certain deviations in the number (increase by one stick per layer) and length of the sticks (by 4 mm or 34 mm) in one layer. According to the Efectis test report point 4, this applied to all tests except L0 and L8. The resulting volume was thus fixed at 0.72 m³. The density of the wood cribs was recalculated from the initial mass and the volume. However, the specified volume only covers the possible medium volume range and not the theoretically possible volume at least according to the self-imposed specification. The EAE again recommended that the mean wood densities of the cribs should be based on the market availability of spruce and should be chosen in analogy to the medium exposure (475 ± 25 kg/m³). In an intermediate step, additional tests to record the final installation conditions according to Draft report 2,		

				including the possible system limits, were recommended. Unfortunately, the presentation that was handed over by EAE was neither distributed nor included in the comments. Supplementary tests were not carried out.		
666	EAE	Draft progress report 3 Draft assessment method v5	2.5. Table 2 4.6.3.	In Clause 2.5.2. of the draft progress report 3, it is stated: “The fuel source consists of a wood crib detailed in Table 2 below and located in the combustion chamber defined as in section 4.5 of the assessment method. The fuel source is similar to the cribs presented in Progress Report 2 where the medium crib is as specified in the DIN 4102-20, regarding the large crib we have, however, also imposed a height restriction to the large crib as 110±2.5 cm to reduce the variation in fire load in the method”. The information in Table 2 of the draft progress report 3 from June 2022 corresponds to the information in Table 1 point 3.2.1 with regard to the large exposure of the progress report 2 from July 2021, except for the sentence "the number of layers is adjusted to keep the crib within 110 ± 2.5 cm", i. e.	Clarify whether the statement in Table 2 of the draft progress report 3 has to be applied with clear mass limitations or the procedure in the draft assessment method 5 without mass limitations for the wood crib has to be used. Change of the density specifications for the wood cribs from 500 ± 100 kg/m³ to the actually possible density of 458 ± 58 kg/m³. Note: The density of the wood for the wood crib, is the average wood density of the individual sticks. Individual wood sticks can certainly have smaller or larger densities.	In the test it seen that the height of the crib is most influential on the HRR thus a restriction in height is introduced. See also 624.

				the height of the wood crib must be 110 ± 2.5 cm. In the Draft assessment method v5, point 4.6.3. no information is given regarding the mass of the wood crib. In both cases, there are fundamentally different approaches regarding the details about the combustion source, even if they seem to differ only slightly: Approach A: Wood crib according to draft assessment report This would be a fallback to the accuracy level of the normative approach of BS 8414 with the resulting huge range of variance in the test results; no comment is made because this approach contradicts the requirements for a test fire for a harmonized European standard in terms of traceability of the test (transparency), repeatability and reproducibility. If		

				necessary and if this approach were actually pursued, the EAE would comment again. Approach B: Wood crib according to Draft progress report 3 Continuation of the approach according to progress report 2 with an attempt to improve the volume variances. Approach B has already been discussed and commented on in commentary 3.2. General 2 on the draft progress report 3 2 March 2021. The additional introduction of a fixed height range of 110 ± 2.5 cm (107.5 - 112.5 cm) (e. g. the wood crib must not be lower but also not higher than the given limits) ultimately limits the volume to 0.72 - 0.82 m³, taking into account the cross-section and length tolerances of the sticks. With a fixed mass of the wood crib, the possible density of the wood		

				crib is, of course, also limited by the limitation of the volume. Roughly calculated, wood densities for the wood crib should then only be approx. 400 - 516 kg/m³ (458 ± 58 kg/m³, equals ± 12% deviation from the mean value) and no more 400 - 600 kg/m³. Considering the desired harmonized approach and a simplification of procurement, it would make sense to use for the medium and the large exposure the same approach of 475 ± 25 kg/m³ (450 - 500 kg/m³), equals approx. 6% deviation from the mean value). **Note**: The statements made do not yet include an acceptance of the then possible adapted wood crib as a test fire for the large exposure, since the overall temporal effect of the test fire on the facade still has to be verified against the background of design limits.		
667	EAE		3.3.1.1.	According to Table 3, the 7 fire tests (0 to 6) carried out on inert facades for the large fire exposure essentially	Tests with wood cribs with extreme parameters as allowed by the given limit values.	See 624 and 666.

				corresponded to the specifications in Table 2 for the parameters of the wood crib. The height of the wood cribs was only in the specified target range in test 1; for the other tests it was higher (up to 119 cm). There is no information on the volume, but it should have been in the range of 0.78 - 0.85 m^3. With the exception of test 1, the masses were in the specified weight range (343 - 358 kg). However, all masses were more in the middle permissible range of 350 ± 7 / 8 kg and not ± 20 kg as would be possible. Likewise, the specified crib densities of 421 - 469 kg/m^3 are more in the lower range of the lower densities (possible according to Table 2, 400 - 516 kg/m^3). A complete depiction of the bandwidth of the test fires is therefore not available. Three of the tests were performed as repeatability tests (V1, V2 and V3), and special attention should be paid on these. The height of the wood crib was 110 cm in the first test, 119 cm in the second test and 114 cm in the third test. Considering the mass, the recalculated wood volume is	Reduction of variability of the wood cribs by harmonizing the wood densities for the cribs to 475 ± 25 kg/m^3	Note that the large scale tests performed in 2021 only had the results from the wood crib tests as background. During the large scale test series it became obvious that it was indeed the height of the crib which had significant effect on the HRR. Also note that no assessment criteria are set at this time, this is the objective of the round robin.

			Description of raw data from RISE report 2021:85	V1 0.78 m³, V2 0.85 m³ and V3 0.81 m³. The test results (Table 3) undoubtedly provide a clear indication of the influence of different volumes on the combustion behavior (increasing with lower density and thus larger volume), but not of the influence of moisture and mass. For the latter it would be necessary for analysis to keep the other parameters stable. For the repeatability tests, the maximum temperatures 5 meters above the lintel of the fire chamber were given in Table 4, among others, also in line 7, referred to as "Max TC at 5 m above opening (°C). According to the "Description of raw data from RISE report 2021:85", which was published together with the raw data, there were 5 measuring points at height 2**:** TC v 5000, TC H2 250, TC H2 750, TC H2 1750 and TC H2 2250. In addition, in all cases the maximum temperature was determined at the measuring point TC v 5000.	Explain (and if necessary correct) the different values stated in table 4 of the draft progress report 3 and the published raw data	

				The maximum temperatures "Max TC at 5 m above opening (°C)" are shown in Table 4 as follows: Test 1 …….Test 2 T 3 Draft progress report 3 3 **479 °C 509 °C 503 °C** According to raw data 500 °C 552 °C 550 °C 480 K 529 K 530 K Addition: raw Data 4,5 m above opening and TC v 4500 (1 point) 598 °C 640 °C 629 °C 578 K 617 K 609 K The temperatures given in Table 4 of the draft progress report 3 do not match with those of the underlying raw data, even after deducting the room temperature. A logical explanation for this fact could not be derived.		

			Draft assessment method 5 10.1.1.	The fact that there is a data discrepancy in such an important Table is unfortunate as this temperature level reflects the 'design limit' according to BS 8414 (not exceeding a temperature of 600°C up to the 15th test minute at level 2, 5 above the opening). At this level, the specifications of BS 8414 were not exceeded in these 3 tests. The current draft assessment method 5 states that "The failure of vertical fire spread criterion occurs when any external or internal thermocouple positioned on level 1 exceeds a temperature rise - above its initial temperature - of 500 K continuously over a period of 30 seconds during the 60 minutes test period after the start of the test. The time of failure shall be reported as the time at the end of this 30 seconds period; i.e. when the observation is finally made." Level 1 was given as 4.5 m. The failure criterion has been tightened twice compared to BS 8414. Level 1 is 0.5 m lower than the BS 8414 "Reference Level" and the critical temperature has been lowered depending on the ambient temperature (at 20 °C by 80 °C). Based on the draft assessment report, after	Carry out calibration tests for the "finally" defined wooden cribs, taking into account the tolerance ranges, before the start of the round robin tests in a testing house (identical conditions). Then determine the test fire to be selected and repeat with this definition at least one test. After that a calibration test with this test fire in each participating testing institute needs to be performed to find a point of comparison. Then carry out the round robin tests.	

				in-depth data analysis (see Annex C, presentation by EAE in the SG meeting in June 2022) this results in the following situation: Draft assessment method 5: level 1 at 4.5 m, 500 K, 30 sec failure of a light weight concrete facade (EN 13501-1, A) test 1: T > 500 K over a period of 30 seconds, one time; test 2 and 3: two times level 1 at 5 m, 500 K, 30 sec test 1: no exceeding test 2 and 3: not exceeding 30 seconds several times for a short time**.** The tests indicate that the level of 4.5 m is probably too critical. Shifting the level to 5.0 m is apparently also not sufficient, since the critical temperatures were reached several times, at least in certain areas. The tests considered for the wood cribs were performed in the lower range of the possible		

				densities and in the middle range of the masses; the marginal values were not examined. Furthermore, the strong "noise" of the curves possibly indicates a fire in a hall with opening-controlled burning and not under a hood with mechanical extraction. In the case of mechanical extraction, there is a proven upward shift in the isotherms. However, detailed statements are not possible, since no information is available on smoke extraction in these fire tests. **Conclusions:** When designing the wood cribs for the large exposure tests according to Table 2 of the draft progress report 3 with mass information and height limits, the variance of the possible designs has been significantly reduced, but there is still room for improvement (e. g. harmonization of the density ranges and the tolerances of the sticks). However, the overall effect of the test fire on the façade contradicts the		

				defined limits for assessing the spread of fire. Based on the status of the test fire presented, a round robin with the wood cribs according to Table 2 of the draft progress report 3 cannot be carried out. Before starting with RR tests, it must be ensured and proven experimentally doubtlessly that the possible wood crib at all parameter limits (depiction of the different mass, volume and density ranges, the different possible ventilation conditions, etc.) does not already in the calibration test on a non-combustible wall exceed the permissible fire spread. To achieve the promised transparency and to achieve broad acceptance of project results for future standardisation efforts, the publication of raw data is essential to understand the conclusions and proposals.		
668	EAE	Draft progress report 3	3.3.1.2	The draft progress report 3 mentions an Efectis report with all details of the outdoor test. This report has not been published yet. No comparison test between indoor and outdoor testing has been presented with identical test parameters. For example, the type of platform below the wood crib and the	Publish video and Efectis report 2022 plus respective raw data. Perform additional indoor test, which allow for assessing the impact of the changed platform on the exposure of the test rig as well as the comparison to the outdoor test.	The outdoor test is presented in Draft Progress report 3. The data is under preparation and will be published. The main difference was a slight change in combustion chamber geometry where plate that supports the crib now was a full solid floor. Thus, the 40

				combustion chamber geometry were different.		cm void under the plate was absent in the outdoor test. The test showed significantly reduced temperatures along the horizontal line above the combustion chamber. The difference is around 150 - 200 °C for the TCs and 100 – 200 °C for PTs. The differences cannot be entirely attributed to the wind condition. The façade surface had been acclimatized to the outdoor conditions and was therefore quite moist, close to the surface (something that had shown little effect from test 0 to test 1 in the indoor test). On the other hand, the mass loss rate of the crib was only 5 % lower than during the three repeatability indoor tests.
669	EAE	Draft progress report 3 Draft assessment method v5	3.3 and 3.3.1.2 5.1 and 5.3	The effects of the ventilation conditions around the combustion source have to be identified before the test. The oxygen supply for the fire source and the exhaust volume/speed of the hot gases are important. Changes of the ventilation during the test will be an important parameter for the flame spread. In the previous approach, a general distinction was only made between outdoor tests	For outdoor tests clear limits are needed regarding horizontal and vertical wind speed. This needs to be considered for the criteria for invalidation of a test and needs to be part of the report. For indoor testing detailed information is needed in the method and in the measured data about: Horizontal wind speed And the following, which are not yet included:	See 630. In the current method it is the absolute speed that is determining, which is of course a simplification.

				(Case A) and indoor tests (Case B). This consideration does not reflect the actual situation in European testing laboratories. For indoor tests in a test hall, a distinction must be made between Case B1 (fire tests in a room with opening-controlled, natural ventilation), and Case B2 (fresh air supply through an opening in the floor area and an exhaust air opening in the ceiling/roof and controlled mechanical extraction via a hood and a fresh air inlet mechanically or through an opening). Each of these ventilation situations has its own special characteristics, none can be directly compared to another. Basically, an outdoor test corresponds to the actual flow situation at a facade on an outer wall with an infinite supply of fresh air flowing in from all directions in front of the wall and exhaust gases (flames and smoke) freely flowing upwards. In principle, this approach should not be lost as fires on external walls do not take place in halls. However, outdoor tests are by nature more affected by wind than indoor tests. In some test institutes, real-scale fire tests are also carried out in halls that have sufficient ventilation and	Vertical wind speed ventilation conditions and changes of exhaust volume/ventilation during the test or opening of additional air inlets during the test There is a need for introduction of a chapter regarding ventilation conditions, which clearly describes the above-mentioned effects, or states that the influence of the ventilation on the test has not yet been sufficiently investigated. The measurements of the environmental conditions described until now in Chapter 5 of the draft assessment report otherwise suggest an independence of the combustion of the fire source from the ventilation conditions, which is neither correct nor proven.	

				exhaust air openings, the dimensions and size of which are to be designed based on the energy release of the respective fire load plus the additional contribution of combustible components of a test specimen. In case of machine-controlled extraction, there is a risk of accelerated combustion due to the flames rising (isothermally) upwards or the test fire being cooled by fresh air that is too cold. The effects described have been proven experimentally. Deviations in combustion of up to 20% can be assumed. The tests performed until now (one outdoor-test and one test with cross wind in a hall) are not sufficient and suitable. The proposed measurements of wind velocity before the test, with a limitation of wind speed to less than 2 m/s, offers no guarantee that the flow is influenced (neither for an outdoor test nor for an indoor test with mechanical exhaust system).		

				Neither a report nor measurement data have been published for the single outdoor test that was carried out. However, some pictures were shown in the presentation to the Steering Group on January 28, 2022 (slides 9 to 25). The photos on page 10 show information from the environment and the data logger. According to this, the wind speed was 2 - 6 km/h, which means it was below the permissible 7.2 km/h or 2.2 m/s, meaning in the acceptable range for testing. Unfortunately, the video for the test was not available. In real outdoor tests, with the same test fire source, spread is usually a bit lower than in a hall - the damp facade is not a sufficient reason for this.		
670	EAE	Draft progress report 3	3.3.1.3 Secondary opening	Few EU member states, e. g. France, Sweden and Hungary, include a secondary opening above the combustion chamber in their national assessment methods and regulations. In the majority of European countries, including the countries using the two reference standards BS 8414 and DIN 4102-20, tests have been carried out for decades without a secondary opening	The obligation to carry out tests of a façade system always with a secondary opening has not been proven. It should be discussed whether there could be two parallel approaches (optional secondary opening), especially when considering the huge stock of test reports of tests without secondary opening. This questions the future possibility to use historical data and the link to current national building codes.	The secondary opening will be tested in the RR, and the results will be evaluated. The performed test indicated that it was a worst-case scenario to test with a secondary opening thus if this results holds it means that if secondary opening is not used

				(an opening is optionally possible). Against the background of the many years of testing experience in these countries, including the application in building laws based on this, the continuation of the test without a 2nd opening appears to be given; of course, a test with a 2nd opening could be introduced in the test method, which could be considered equivalent. The objective of the secondary opening is to simulate the presence of any kind of feature - such as windows - at levels above the fire source opening. However, for a test with a second opening that is equivalent to the previous test approach, a technically comprehensible test approach and proof of the possible extrapolation of the selected design to other opening shapes and opening sizes are required. The development of details such as built-in windows is a	The technical implementation described so far in the draft assessment method is by no means sufficient for performing round robin test series.	it will not cover the case with in a classification. The classification scheme is not finalized at this point but may be subject to changes after the RR. One important, issue that will be updated are the assessment criteria which are only tentative at the moment.

				permanent issue. EAE experts regularly discuss this in relation to the DIN 4102-20 standard, which also requires connection details that are customary on the market in and around the combustion chamber. However, this is nowhere described, and every change is a change in the experimental setup with unknown and unpredictable influence. It was also said that there are many possibilities to form such details. To maintain the proportionality of effort and test costs to the gain of knowledge, it is therefore more important that the test setup is universally valid and designed in a uniform manner. In EAE's opinion, one must clearly distinguish what is intended to be tested. We understood that it was intended to assess the spread and transmission of flames on the facade. None of the common large-scale fire tests is a test of specific connection details and built-in and attachments, but		

				standard test setups (e. g. reference window in Lepir 2). In order not to get in the direction of detailed testing of specific design details of windows (with test results being only valid for a specific combination of products/components), our suggestion is: if a window opening is required, then in a neutral form: simulation of the non-combustible windowpane using a non-combustible CaSi board with a defined design and design of the window reveals. For the evaluation and assessment, a compact measuring technology with thermal sensors can be installed in and around the window niche. The secondary openings have been designed to have in both test methods - medium scale und large scale – a size of 1200 x 1200 mm. In the large exposure method the opening is placed 1500 mm above the lintel of the combustion chamber and for the medium exposure test		

				1000 mm above. The distance to the inner corner is for the large exposure test 1250 mm and for the medium test 500 mm. Tolerances have not been defined. Is there a technical-scientific justification for the specifically selected position and size of the secondary opening? The size of the two openings does not differ in both approaches, although the medium scale is actually scaled. Is that known? „At the end of the second phase three tests in medium and three tests in large scale were done to investigate the effect of a secondary opening and it was indicated that an asymmetrically placed opening would be the most appropriate placement. “ The results of the tests were presented in a separate test report and a supplementary report. Videos and raw data have not been published yet, so it was not possible to		

				rectify any transmission errors. The parallelism of the approaches without an opening and with a secondary opening should be discussed again.		
671	EAE	Draft progress report 3	4.1 Selection of the specimen	The additional measuring points for the large exposure tests which are identical to BS 8414 are limited to surface only TCs. Therefore, no comparison is possible to existing data.	For a valid comparison with existing data for the large exposure tests a complete set of TCs (all layers of the specimen and all horizontal positions) needs to be installed in a height of 5.0 m above the combustion chamber the RR tests.	We are considering this point at the moment.
672	EUMEPS	Draft Progress report 3	General	EUMEPS thinks that a careful analysis of the systems to be tested is very important and appreciates that time was taken in the steering committee to reflect on this. We note however that the discussion should remain focused on technical characteristics of the systems involved and abstain from mentioning company and brand specifics. Industry association involvement in upcoming stage is of crucial importance to avoid an		Agreed, no specific brand names should be included.

				unnecessary source of uncertainty: the materials used in the specified test specimens should be from a single batch/production location and are to be installed by experienced people.		
673	EUMEPS	Draft Progress report 3	General	In the tests to be performed as part of the Round Robin additional actions must be undertaken in addition to the requirements according to the most recent version of the draft test method. We need at least: More detailed, very precise description of the build up of the rig More detailed, very precise description of the calibration shared well in advance to all participants (and stakeholders) Specify the need for additional measurements (and other registrations, eg more than one video camera to have different perspectives) during the		Drawings has been provided to system providers. Calibration of instruments will be done according to best practice etc however a calibration of the test method is one of the aims of the RR with the aim of determining an assessment method. Also drawings included extra measurements have been supplied previously.

				test on wind speed and wind direction, temperatures, ventilator speed, and maybe other characteristics Specify the exact type and amount of thermocouples (as specified in the draft method and additional ones for the Round Robin) and way of fixing them (either fixing from front or back need. At this stage of the project it is insufficient just to state ”heavily instrumented”.		
674	EUMEPS	Draft Progress report 3	General	The Round Robin aims to calibrate the new test set up (incl a second opening) to the currently regulated levels; As in the terms of reference: “Starting from the basis of the BS 8414 test as the foundation of the large scale method; and the DIN 4102-20 test as the foundation of the medium scale test method this results in two exposure classes: a large heat exposure (LS1 and LS2) and a medium heat exposure (LS3 and LS4). “		What is meant with a calibration procedure, is to determine assessment criteria. It is pertinent to remember that it is a new method that we develop which have the BS and DIN methods as a starting point, it is not the intention of this project to replicate the methods. Although, we agree that few tests are to be done this is what is allowed due to budgetary constraints. The aim is to provide with appropriate assessment criteria based on these tests together with

				This implies that we should stay as close as possible to the specifications of those two tests. Deviating from the thermocouple height and temperature criteria and deviating from the time criteria (start, extinguishing and end time of the test), observation/ measurement method for lateral flame spread, as a starting point for the Round Robin is not justified and must be avoided. Furthermore there is the need to clarify transparently in advance how test results of the four borderline series (four different test specimens: inert, rain screen, ETICS and wood façade) will be translated into a single set of classification criteria applicable for all façade types.		possible calibration of the test itself.
675	EUMEPS	Draft Progress report 3	General	Smouldering behaviour must also assessed in the large-scale test for the following reasons:		We aim to assess smouldering where appropriately at least in some of the tests where this may be expected.

				If is no smouldering behaviour is tested in the large-scale test, no pass of the in the intermediate test can be assumed. It is more likely that Germany will accept the test as replacement of the current "Sockelbrandversuch"		
676	EUMEPS	Draft Progress report 3	General	The justification for the 1 kg criterium for falling parts is failing and seems disproportionate in relation to test costs and the actual risk (no incident statistics were shared at all that would justify such strong and costly additional requirement).		The 1 kg and 5 kg are the criteria are the two levels available in the MS, thus this document is based on these levels otherwise countries using these will not be able to accept the new method.
677	EUMEPS	Draft Progress report 3	General	The curing time and installation conditions, certainly for ETICS specimens, are to be specified and defined in close dialogue with the industry partners and must be identical (and verified eg remaining moisture content in the ETICS system) for all participating laboratories.		Agreed, this is done together with the sponsor as it is now.

678	EUMEPS	Draft Progress report 3	Par 3.3.1.4. Alternative fuel source	It is somewhat surprising that in a project where there were regular discussion about budgetary constraints, money was found to perform tests using a gas burner, where those tests were not part of the contract. Note that the listed advantages seem to suggest that calibration of those tests towards the BS 8414 and the DIN 4102-20 would be easy. The advantages and disadvantages of both methods are not new and well described in literature. However calibration of a test using a gas burner would require a much more elaborated and costly program than the single test performed now. Instead of finalizing and concluding on the details for the wood crib these tests only further complicate the discussion. The recommendation would be to focus on finalizing the details of the description of the wood crib aiming for		In the RR wood cribs will be used, a discussion on using alternative sources will be included in the final report. The test were sponsored with money from additional sources.

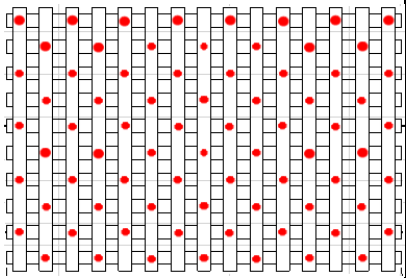
				minimization of the tolerances for the BS 8414 in a similar way as applied for the DIN 4102-20.		
679	EUMEPS	Draft Progress report 3	General	EUMEPS thinks that a careful analysis of the systems to be tested is very important and appreciates that time was taken in the steering committee to reflect on this. We note however that the discussion should remain focused on technical characteristics of the systems involved and abstain from mentioning company and brand specifics. Industry association involvement in upcoming stage is of crucial importance to avoid an unnecessary source of uncertainty: the materials used in the specified test specimens should be from a single batch/production location and are to be installed by experienced people.		Agreed, the aim is to have material from the same batches as far as possible.

680	DIBt (Germany)	Draft progress report 3	General	Not all test results, raw data of tests, videos and data cited in the document have been published on the project's website or have been made available to the Steering Group members (for examples, please see EAE comments).		See comment 652
681	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	General	The current document still contains statements and provisions for an assessment of the façade-to-floor-junction. But according to the results of the questionnaire from October 2020 this assessment should be removed from the method and no further work were foreseen for that.		This is kept as an option like the smouldering assessment due to requirements in national regulations.
682	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	1 Scope last sentence before Note1	"… The fire resistance charactersitics of curtain walling systems are adressed through EN 1364-3 and -4, will however be included the method.	What shall be said with this statement, in particular with the last part? The coming fire testing methods for facades may also serve as assessment method for curtain walling, but it doesn't cover fire resistance characteristics which are addressed in EN 1364-3 and -4. On the other side, the mentioned fire resistance test standards do not cover the assessment of the fire spread characteristics which	The sentence includes a mistake and will be corrected as following: *The fire resistance characteristics of curtain walling systems are addressed through the European Standards EN 1364-3 and 4, will however be included the method* And be replaced by

					are now addressed in the coming fire test method for facades.	*Curtain walling, whose the fire resistance characteristics are addressed through the European Standards EN 1364-3 and 4, are included in the scope of the method.*
683	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	1 Scope, last para on page 5	The medium fire exposure scenario is also based on a flash-over scenario, but the method has been down-scaled. …	The statement is not correct. Only the primary fire source has been down-scaled, but the test rig itself simulates an assembly with a little bit more than one story above the opening where flames vent out from the room-fire. The medium fire exposure scenario is also based on a flash-over scenario, but the used fire source has been down-scaled. It is comparable to that fire expo-sure in real impacting a façade one and a half storey above the fire room. The project report BI5-8001- 96-18 (Kotthoff, 2000) states …	The sentence includes a mistake and will be corrected as following: The medium fire exposure scenario is also based on a flash-over scenario, but the method fire source has been down-scaled.
684	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	4.4	Support construction	The supporting construction simulating the wall on which an external wall cladding (façade) is fixed, needs to be defined clearly regarding type of material, thickness, density etc. as standard solution usable for testing and assessment of a lot of external wall cladding. The use of different materials for the supporting construction with different characteristics (e. g. type, density, thermal	See 658

					conductivity) may influence the tests and the results significantly. Please specify clearly the material type, thickness and density (including adequate tolerances) used for the wall of the supporting construction on which the external wall cladding (façade) is fixed. This has absolutely to be done before the Round Robin can start.	
685	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	4.5	Combustion chamber	The material used for construction the combustion chamber as well as for the insulation for the inner surface cladding need also to be defined clearly to ensure comparable conditions at all test labs. Please specify clearly the material type, thickness and density (including adequate tolerances) used for walls, ceiling and insulation cladding of the combustion chamber. This has absolutely to be done before the Round Robin can start.	See 658

686	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	4.6.2	Conditioning of the wood of the cribs (both, MEC as well as LEC)	The provision "… stored indoor within a heated building …" are inadequate. Clear specification of temperature and relative humidity are needed for the conditioning process of the wood of the cribs. Please change as follow: … The wood shall be stored in a climate chamber with a temperature of 23° C and a relative humidity of 50% until the weight is constant. … ((acceptable tolerances may be as given in EN 13238))	The method specifies the acceptable moisture tolerances on the basis of the results of test performed with different moisture levels
687	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	4.6.2	Steel platform for the medium wood crib	The construction elements (sections) of the steel platform should be defined clearly. Since the medium wood crib is largely the same than in DIN 4102-20, the steel platform should also be the same as de-fined there. Thus, please take over the provisions of DIN 4102-20 regarding the steel platform of the medium wood crib.	Descriptions are very similar. However, this will be considered.

688	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	4.6.2	Steel platform and solid plate for the large wood crib	The construction of the steel platform as well as the solid plate used as top covering of the platform need to be described clearly. Please define the construction of the steel platform (e. g. as used in the previous wood crib tests) as well as the material (type, thickness, density – e. g. a 20 mm thick calcium-silicate board of class A1) of the solid board.	For large exposure test the design of the steel support has less influence since there is a solid board on it. A detailed description is not needed, and is not specified in BS anyway For the solid board the key parameters are the dimensions
689	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	4.6.2	Nailing of the layers of the cribs	It's not sufficient to say that only sticks of two layers need to be nailed to each other and then to built-up the crib by stacking these elements. It is needed to define the exact nailing points for ensuring a good repeatability and reproducibility of the tests in different labs. Please specify the nailing points of two adjacent layers exactly – e. g. nailing of each crossing point or at least every second one.	This is the intended nailing. 
690	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	4.6.3	Density aand dimensions of the sticks for the large-exposure crib	It is not understandable why another nominal density and tolerance range is used for the large crib comparing to the medium crib, despite the used wood type "Spruce" is the same	See comment 624

					for both cribs. This wide tolerance range of the density leads - in combination with the possible tolerances of the dimensions of the sticks - to very different total weights of the large cribs and as consequence to different total heat releases. This wide possible range is not acceptable with regard to the target reproducibility and repeatability of the test method. Reduce the density range and the dimension tolerances for the sticks of the large crib to the same values than for the medium crib: - Density: 475 kg/m³ ± 25 kg/m³ - Dimensions: • Long length: 1500 ± 1 mm • Short length: 1000 ± 1 mm • Cross section: 47 ± 1 mm x 47 ± 1 mm	
691	DIBt (Germany)	Draft Assessment Method v5,	4.7.4	Visual equipment – cameras	Position and angle of the camera view are unclear.	See comment 628

		dated May 2022			Please define exactly the position of the cameras (distance from main and wide wing of the rig as well as height above floor) as well as the angle (in relation to the floor) used for observation of the test rig.	
692	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	4.7.5	Measurment of falling parts – weighing load cell platform	It is considered as not sufficient to describe the weighing load cell platform with its accuracy only. Furthermore, figure 7 seems to be incorrect regarding the position of the load cell platform. Since the test specimen is normally mounted on the test rig laterally and below the combustion chamber too, the prescribed distance of 50 mm of the platform from the naked test rig cannot be met. Please specify the weighing load cell platform more detailed based on the investigations by BAM and the equip-ment used for that. Please revise figure 7 accordingly to the comment left. Distance of about 50 mm should be between load cell platform and the surface of that part of the test spec-imen being below the combustion cham-ber.	See 629

693	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	5.1	Maximum acceptable air speed	The given value of about 2 m/s for the allowed maximum air speed in front of the test rig is too high. Furthermore, it has to distinguish between average air speed and single values. Please change the maximum horizontal air speed to less than 0.5 m/s for the average value and 1.0 m/s as maximum for single measured values.	See 630
694	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	5.1	Conditions for exhaust systems	Specific provisions regarding the exhaust systems used in the tests are missing. This is, in particular, relevant for indoor tests. Distinction has to be made between tests with opening-controlled, natural ventilation of the exhaust gases and tests with mechanical extraction of the exhaust gases via an exhaust hood. Please add clear provisions for conditions to be met when performing indoor tests with natural ventilation of the smoke gases and when performing indoor tests with mechanical extraction of the smoke gases.	See 630
695	DIBt (Germany)	Draft Assessment Method v5,	5.2	Measuring point of the ambient temperature	The variations of the possible positions for measuring the	5.2 will be corrected as following:

		dated May 2022			ambient temperature are too high. Please define one measuring point ex-actly to ensure that all labs measure the ambient temperature at the same place in front of the test rig.	The ambient temperature prior to testing shall be between +5 °C and +35 °C. This shall be demonstrated by a measurement from the ambient thermometer located at a distance between 1.8 m and 2.2 m horizontally away from the exposed faces (main face as well as return wing), and between 1.8 m and 2.2 m above the ground. This measurement shall be performed not more than 5 min before the commencement of the test. In case of direct sunshine in the thermometer area, the ambient thermometer shall be shadowed from the sun by a suitable screen.
696	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	5.4	Dimensions of the test room	It is not sufficient to state, that the test hall shall be large enough to limit impact of back radiation to a negligible level. Which distances are needed to from the front sides of main and wide wing of the test rig to the walls of the test hall? Please define these distances exactly to ensure that all labs are acting under the same or similar conditions.	This is a very important question however since the method is largely untested so far it is difficult to give precise tolerances. During the RR we will monitor the conditions in the test halls and compare the results. This will include descriptions of placement and distances to walls. It is also proposed to use plate thermometers to monitor radiation from the walls.

697	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	6.3, 4th para	Design of the lateral outer boundaries of the test specimen	It depends on the type of cladding to be tested, whether sealed edges of the test assembly are needed or not. The current provision is too unspecific. For example, an ETICS should be rendered at the top and lateral edges, but a ventilated rain screen cladding need open edges at all sides to ensure ventilation and to have the option for visual observations of internal flame spread from the lateral sides. Please revise the 4th para in such way that design of the edges of a test assembly depends on the type of cladding foreseen for testing.	It will be corrected as follows: At the boundaries of the tested façade (ground and top, and both left and right vertical extremities), the edges shall be sealed to prevent any ventilation at these edges. Edge detailing and terminations shall be as intended for the end use design and shall be recorded. As written in BS standard.
698	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	6.7	Secondary opening in the medium exposure test	As said in the last SG meeting hold on 17th of June 2022, only three countries (Hungary, Sweden and France) request the need for consideration of a secondary opening in the test assembly. But – as I am informed – these countries tend / prefer to use the large-exposure test set-up for coming tests and assessments. Thus, the consideration of the secondary opening in the medium exposure test keeps very questionable. There is no need for that in those	Even for countries using historically large exposure crib, the introduction of an intermediate exposure size can be helpful to allow a graduation in the safety level requirement, depending on building family and associated risk assessment. We have proposed to make a survey within EU which method(s) that most likely will be used.

					countries preferring the medium exposure test. Please check again and delete – if possible – the secondary opening in the medium exposure test set-up.	
699			6.8, figure 10b	Execution of the secondary opening and position of the backing board	Execution of the secondary opening and position of the backing board seem far away from "as in practice". External wall cladding mounted on a bearing wall (supporting construction in the test) normally also cover the lintel and the lateral edges of the opening beyond the window frame or, alternaively, the window frame is positioned in line with the outer surface of the wall. Thus, the backing board should not be placed on the backside of the supporting construction but in front of the test wall (or at least in line with the front surface of the wall, e. g. by using a frame inside the opening for fixing the backing board). Please revise the left drawing of figure 10b accordingly to the comment left.	See 650 and 660

700	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	6.9	1st sentence	The statement "openings on all sides of the secondary openings …" is unclear. What is meant	It will be modified as follows: The ~~openings on all sides~~ perimeter of the secondary opening and ~~the left, right and top edge~~ of the combustion chamber should be closed as similar to end-use as possible. In case end-use conditions are not known, a general closing may be used such as thin aluminium or steel plate, that would allow for different details to be fitted at the edge.
701	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	8.1.1	Installation of thermocouples in front of the exposed surface of the assembly to be tested	Installation of the thermocouples in front of the tested assembly via drilling holes from the rearside of the test rig is very questionable and leads to a damage of the surface which may influence the test results very significantly. Even in case of tighting the holes by cementious or other packing material, it is considered to affect the test and the flame spread on the surface of the test specimen. Furthermore, what is an sufficient minimzed damage or displacment of material when drilling the holes for the TE installation?	See comment 636

					Based on the long-term German test experiences it is strongly recommended to revise the installation provisions in such way, that all thermocouples in front of the surface of the tested assembly shall be installed using a grid / mesh of steel wires hanging from the top of the test hall in front of the test rig in order to avoid damage of the surface layer of the cladding system foreseen for the tests.	
702	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	8.1 / 8.4 (wrong numbering 9.4 in the doc.)	Thermocouples / measurement of continuouzs smouldering	As said in the last SG meeting, assessment of continuous smouldering is mandatory in Germany with reagrt to safety requirements of the regulations. Therfore, the installation of thermocouples should be as in DIN 4102-20 for the Round Robin tests with the medium exposure test. This serves as basis for the comarison of the test results with those from previous test acc. to DIN 4102-20. Moreover, if the large exposure test is foreseen to cover the medium exxposure level, it is necessary to assess smouldering in the large exposure test too for the use of test results in Germany! Number and position of thermocouples for the assessment of continuous	See 640 A suggestion on how to perform smouldering is prepared.

					smouldering should be defined exactly in this document for both medium and large exposure test. This should be done before continuing with the preparation of the round robin tests to ensure uniform handling by all involved test labs.	
703	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	8.5 (wrong numbering 9.5 in the doc.)	Duration of measurement of the weight of falling parts	The mesurement of the weight of falling parts should not finish with the end of the exposure time but should be continued until any combustion processes at the test rig are extuingished.	To be discussed after the RR phases.
704	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	9.2.1	Test duration	A test duration of 60 minutes is not enough, if continuous smouldering shall be assessed or any other hidden combustion processes. Test duration should be as minimum 60 minutes or until that time when all thermocouples show temperatures below 50° Celsius (what ever is the longer period), but 15 hours as maximum. Please revise the table accordingly (not hidden in clause 9.5)	See §9.5 of assessment method
705			9.3	Soaked fibre board strips	Why do you not use pans filled with isopropanol at least for the medium exposure tests - as described in DIN 4102-20?	The idea was to harmonize the practice and material for both exposures This method was used and showed quick ignition of the

					Please check the option to prescribe the use of pans filled with the ignition source to ensure a faster and more even igni-tion of the woo cribs	medium cribs during the wood crib tests
706	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	9.6 (wrong numbering 10.6 in the doc.)		Please use the term "shall" instead "should" for any tasks of the post-test inspection. Please revise the wording of the clause accordingly to the comment left.	Agreed, to be corrected.
707	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	10.1	Assessment of fire spread	Temperature cannot be the sole criterium for the assessment of the vertical and horizontal fire spread and it is not sufficient to assess only the performance of the first 60 test minutes. According to the safety requirements of the German regulations it is needed to assess fire spread until all combustions processes are extuingished and the assessment has to include evaluation of the visible flame heights and the size / extension of the burnt area after termination of the test. Due to the safety requirements of the German building regulations it is strongly	See §9.5 of assessment method

					requested to stand the assessment of the fire spread on a wider basis and a longer assessment time. Please revise clauses 10.11 and 10.1.2 accordingly.	
708	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	10.4	Assessment of continuous smouldering	The damge of the test assembly by smouldering must not reach the level 1 as well as the measuring columns on main and wide wing above and laterally to the combustion chamber where the thermocouples are positioned. Please revise clause 10.4.1 accordingly.	10.4 will be amended to delete "(optional for the medium scale)"
709	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	12, sub-point "g)"	Direct field of application	An class E insulation material cannot be replaced by any other type of class E insulation material. Type and the burning behavior (e. g. melting or charring) are also relevant. Replace the current rule at "g)" by "an insulation of class E can be replaced by an insulation of the same type with the same or better reaction to fire class, if thickness and density are the same."	See comment 647

710	DIBt (Germany)	Draft Assessment Method v5, dated May 2022	13	Classification	This chapter and its content should be rediscussed after the round robin. As several times expressed in resent SG meetings and in comments to documents of the current project, it seems to be a better way to create a matrix of several parameters which have to be recorded during and after the tests and have to be stated in the test reports. Based on the information / data values given in this parameter matrix, decisions can be made by manufacturers, planers and executers whether a foreseen façade system fulfill Member State regulatory requirements and is applicable or not. Such a matrix system would provide for more flexibilty for all involved parties and allow Member States to lay down different safety requirments individually. Please take this chapter out of the document for the moment. Rediscuss this part at Steering Group level after presentation of the results of the round robin at the end of the project.	Classification system was part of the contract and is used in many countries for fire products. The way consisting in describing only a test and let regulatory institutes decide on each test what could be accepted is not applicable in each country. The idea is to deliver a complete package test report + classification report (either in one document or in separate documents) as it is done in fire reaction and fire resistance for many products. It is up to each MS to decide whether the classification report is not used and whether another/complementary national assessment is needed.
711	CPE				Test systems -We appreciated the more detailed discussion on the proposed systems for the experimental Round Robin in the Steering Group meeting as there	Appreciated.

					have been limited time previously.	
712	CPE				Calibration – common method before RR Before the Round Robin starts, to assure that the laboratories start from a common baseline, CPE suggested in the Steering group meeting that a calibration protocol is prepared, published on the website and provided to the participating laboratories.	See comment 673.
713	CPE	Draft Assessment method			Further clarification on the construction of the rig – properties of the materials used in the construction is needed (e.g., BS8414 describes how to build the structure materials) on which the façade is installed)	See comment 622
714	CPE	Draft Assessment method			The proposal for fixing of the thermocouples either fixing from front or back need to be confirmed, otherwise there will be inconsistency across the labs and also potential impact on the performance and results.	See comment 636
715	CPE	Draft Assessment method			Further information on the mounting of additional windows into the test rig would be important to assure consistency of testing with the additional windows across the test laboratories for the round robin and in the future.	See 650 and 660

716	CPE	Draft Assessment method			We understand that in the latest test methods some of the thermocouple measurement positions have changed (5 m to 4.5m) and temperature limits (600 deg C to 500 deg C) have therefore also altered. We propose that the original positions (as specified in the original methods) should also be retained so that the maximum of information can be taken from the round robin tests. It is important to be able to relate the data to earlier studies for a proper comparison. This enables a bettering understanding of the impact of the new test method on performance and provides industry and regulators more insight into the new method.	Both lines will be instrumented for the RR.
717	CPE	General			Falling debris – additional questions/comments? Even with the questionnaires on the falling debris etc. CPE is still seeking to get more information on the historical philosophy on this characteristic. We asked this question during the steering group meeting. We mentioned that the 1 kg criterium seems disproportionate in relation to test costs and the actual risk to any person in vicinity and "fall-shadow".	See 676
718	CPE	General			Tests inside/outside. We know that currently external testing is	See 630

					the only way possible in some countries. However, data from the project and elsewhere indicates that wind influences the performance. This impacts potential repeatability/reproducibility and can be a costly exercise for industry. Industry's experience is that indoor testing is preferred, and we suggest that further exploration/development of external testing should be discontinued.	
719	CPE	General			Round robin test programme – selection of products and their performance. Construction Products Europe considers that there should be a single point of contact for the coordination of the Round Robin in the case of any questions coming up on system selection and where Industry has input to provide. The goal of assessing borderline products to define the boundary conditions and hence the acceptability of the new amalgamated test method and similarity to the current safety levels across Europe remains paramount. This should be borne in mind when considering the fact of implementation and	Noted

					ultimate wider acceptance of the test and classification system.	
720	CPE	General			Implementation in MSs – relation to current performance. With the extension of the duration of the test to 60 min, crib ignition source not being extinguished, and the temperature limits being changed - how does this revised method compare to currently accepted performance? This needs to be assessed.	Result of RR test should be helpful
721	CPE	General			Field of application. This topic needs to be mentioned again and discussed as to how this can be dealt with to enable confidence in a robust test and classification system with associated costs.	See comment 647

