

COMMENTS HANDLING DOCUMENT TEMPLATE – TO BE FILLED OUT BY STAKEHOLDERS

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Column 1 – N°: 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 and 7 – Proposed change by the consortium and answer by the consortium: A short description on how the comment has been handled

N°	Body Reference	Comment on document	Paragraph/ Figure/ Table	Comment	Proposed change	Answer by consortium
409	EURIMA	Test Report Large Wood Crib Test	General Chapter 9 Chapter 10	<p>The data from the wood crib test indicate that for the large wood crib the efficiency of combustion ($\chi = \frac{\Delta H_{eff}}{\Delta H_c}$) is close to 1.0 and at some points as high as 1.09. The efficiency of combustion can be calculated as:</p> $\chi = \frac{HRR}{\dot{m} * \Delta H_c}$ <ul style="list-style-type: none"> • HRR – Heat release rate (calculated based on oxygen consumption) • \dot{m} – Mass loss rate of the fuel (measured with the load cell) • ΔH_c – Complete heat of combustion of the wood (determined in the bomb calorimeter). The complete heat of combustion of wood species has very little variability and is known from literature from multiple measurements (ca. 17.9 kJ/g for pine wood and slightly lower ca. 16.4 kJ/g for spruce/fir) 	A section 3.2.3.2 called "HRR and MLR: comparison and accuracy" in the Progress report is added.	<p>It is pertinent to remember that considering the different accuracy of each measurement (MLR and oxygen depletion) involved in their calculation, is about 10 % for each. In particular, it is difficult to differentiate data which exhibit lots of fluctuations even if the data is averaged and a smoothing is performed.</p> <p>Additionally, we do believe that the HRR measurements from tests like these suffer from yet another source of error. It has been indicated in many labs that exhaust hoods separated from the fire by 7-8 meters as in this case often has problems to collect the gases from strong convective plumes like this one and that another source of error enters there.</p> <p>But there is no target HRR to reach in the BS8414 method. The only specified details are the crib and (if another source is used and only in an outdated</p>

			<p>The test data indicate the following efficiency of combustion achieved during the peak phase of the fire with the large heat exposure: 0.9-1.0 (Test L0), 0.88-1.09 (Test L1), 0.89-1.09 (Test L2), 0.86-0.96 (Test L3), 0.87-1.02 (Test L4), 0.94-1.05 (Test L5), 0.75-0.91 (Test L6), No data provided (Test L7).</p> <p>Efficiency of combustion higher than 1.0 are not possible. In the same time it is not characteristic for solid fuels like wood to achieve efficacy of combustion of 0.9- 1.0. Efficiency of 0.9 -1.0 is typically only achieved by liquid fuels like methanol, ethanol, heptane, etc.</p> <p>The efficiency of combustion for wood in well ventilated conditions was investigated in the past based on multiple measurements and is typically around 0.65-0.7.</p> <p>As reference, the efficiency of combustion for the same species (spruce) used for the medium heat exposure with well-ventilated conditions (supplemented ventilation in the chamber) is evaluate to be 0.65-0.75 which is consistent with literature data. It is counterintuitive, that a larger wood crib burning without supplementary oxygen in the combustion chamber (under ventilated conditions) can achieve a better efficiency of combustion and very close to complete combustion.</p> <p>This analysis indicates that the HRR calculated based on the oxygen depletion measured in the hood is overestimating the HRR of the large wood crib with approximately 25-30%.</p>		<p>version of the standard) a recording from water cooled heat flux gauges on the façade. From our tests we surely measure values in the upper range (or higher) of the specifications from the fluxes specified by the BS standard.</p> <p>However, the aim of the project is not to keep the original BS and DIN methods, but to develop a new test method, which is based on the BS and DIN methods. Thus, changes will be made in order to harmonize these two methods into one. Since there are some differences between BS and Din with respect to several features, such as cross-sectional size of sticks for the wood cribs, ignition procedure, start time of the test, measurement positions and failure criteria, as far as possible these will be harmonized to one common way to perform tests.</p>
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				<p>Reevaluate the HRR measurement/calculation based on oxygen depletion.</p> <p>Calibrate the HRR measurement/calculation using different fuel sources with known HRR. Such fuel source can be liquid pool fires where HRR is determined by the liquid fuel and diameter of the pool fire. Such calibration shall be conducted with the hood exhaust rate used during the wood crib tests (ca. 27 m³/s).</p> <p>Without good correlation between the HRR calculation based on oxygen depletion and the real HRR of the wood crib, we recommend not to change the wood species from pine to spruce. Such change could result in reduction of the heat exposure from the fuel source below what is currently used in BS 8414, which we understand is not the intention/objective of the project.</p>	
410	EURIMA	Draft Progress report 2 - Assessment method for facades	Chapter 3.2 Appendix C	<p>As per the previous comment, it is necessary to reevaluate the HRR measurement/calculation based on oxygen depletion before defining the species of the wood for the large heat exposure crib. We evaluate that the current calculated HRR based on oxygen depletion overestimate the HRR of the wood crib with approximately 25-30%. This proposal will not achieve the desired heat exposure comparable with the heat exposure in BS 8414.</p> <p>Wood species for the large heat exposure shall be pine to achieve a heat exposure comparable to BS 8414.</p>	<p>See, 409.</p> <p>The absolute level of HRR, as long as it is severe enough, is of less interest in comparison to the repeatability of the method. The aim is to have approximately the same acceptance level as the ones used with the BS and DIN methods, and in order to achieve this we strongly rely on representatives from the Member States and stakeholders to provide with the data needed in order to calibrate the new method towards the BS and DIN methods. A comparison between HRR from room fire tests performed recently and the HRR found here as well as those</p>

						expected from BS tests were comparable HRRs are found. This indicates that the test method represents a severe fire.
411	Fire Safe Europe	Test Report Large Wood Crib Test	General	<p>The HRR and mass loss data provided in the report (Appendix 5) indicate that the effective heat of combustion of the wood crib, ΔH_{eff}, during the peak phase of the fire (under ventilated conditions) is ca. 17.0 kJ/g for the pine tests and ca. 16.0 kJ/g for the spruce tests.</p> <p>These values are approximately 90-95% of the complete heat of combustion of the wood, ΔH_c, determined in the bomb calorimeter. The complete heat of combustion of wood has been measured in many studies and is given in literature (e.g 17.9 kJ/g for pine wood and slightly lower ca. 16.4 kJ/g for spruce/fir).</p> <p>Effective heat of combustion (ΔH_{eff}) of 90-95% of the complete heat of combustion indicate an extremely effective combustion process that is not characteristic for solid fuels. Such efficiency can be achieved only by certain liquid fuels with very clean and effective combustion. The combustion efficiency for wood species in well ventilated conditions is indicated in the literature to be ca. 65-70% of the complete heat of combustion giving an effective heat of combustion of ca. 12.4 kJ/g for pine wood. In under ventilated conditions, as the one inside the combustion chamber during the peak of the fire, it can be expected that the effective heat of combustion will not exceed the values of the well-ventilated conditions.</p> <p>The test data suggest that the HRR calculated based on the oxygen</p>		See 409 and 410.

				<p>depletion measured in the hood is overestimating the HRR of the wood crib with approximately 25-30%.</p> <p>Re-evaluate the HRR measurement/calculation based on oxygen depletion. We evaluate that a conclusion on the HRR of the cribs cannot be concluded/reported without further calibrations of the HRR calculation methodology. Without solid data to establish a good correlation between the real HRR of the fire and the calculated HRR (based on oxygen depletion), we recommend not to change the wood species from pine to spruce. Such change could result in reduction of the heat exposure below what is currently established by the BS 8414 test.</p>		
412	Fire Safe Europe	Draft Progress report 2 - Assessment method for facades		<p>In relation to the technical comment described above, it is necessary to re-evaluate the HRR calculation based on oxygen depletion before defining the species of the wood for the large heat exposure crib. Current data indicate that the calculated HRR based on oxygen depletion (given in the report) may be overestimated with approximately 25-30% for the large heat exposure tests (both pine and spruce tests). This proposal to modify the wood species will not achieve the desired heat exposure comparable with the heat exposure in BS 8414.</p> <p>We recommend continue the project using the pine wood (Pinus Sylvestris) for the construction of the large heat exposure crib to</p>		See 409 and 410.

				maintain a comparable heat exposure as in BS 8414.		
413	Fire Safe Europe	Draft Progress report 2 - Assessment method for facades		<p>The test data does not offer information about the influence of changing the surface exposure of the crib by allowing the numbers of stick layers to be changed. It is unknown what will be the HRR for a wood crib with 16/17/18 layers of a wood crib with 22/23/24 layers. The proposal introduces a level of uncertainty that is difficult to evaluate and in practice wood cribs with different number of layers will be used which could affect repeatability and reproducibility of the test. It can be seen from the test that the density and weight of the wood crib does not have a significant influence on the peak HRR of the fire. Indeed, various densities and weight will extend the duration of the fire which is not critical since the test proposes to extinguish the fire at 30 min. We evaluate that if is more adequate to limit the uncertainty introduced by allowing the numbers of stick layers to be changed. This will be beneficial for the repeatability of the test method and will not influent the peak HRR of the fire.</p> <p>We recommend to define that the wood crib for the large heat exposure should have 20 layers</p>	Updated test program to accommodate for investigations of repeatability issues.	<p>See 409.</p> <p>We agree that the test data indicate that crib height seems to be the most important variable for the exposure. Thus, we are working to see if we can limit the crib height flexibility at the expense of total mass tolerance.</p>
414	Finland	Draft Progress report 2 - Assessment method for facades		<p>Wood crib tests:</p> <ul style="list-style-type: none"> - Pine and spruce densities are only given as high, low and average; not in values. - In the proposed summary table density and tolerances of proposed spruce at defined moisture content should be defined, not only crib density. - Heat fluxes on different points of the facade surface would be more important 	We have updated the progress report	We have updated the tables to include densities and heat flux.

				than just temperature and heat release curves to make final conclusions. This is to see the real fire exposure differences between the different parameter changes.		
415	European Aluminium	Steering group 2021-04-20	EAE/R. Paske r's presentation	European Aluminium members share similar experiences regarding the variance of BS 8414 tests, dozens of which have been performed around the world under various conditions. The variance of the large-scale test conditions is hardly acceptable.		The project has a large focus on repeatability therefore in the testing programme several repeated tests will be performed in the initial testing activities however also in the round robin phase of the project.
416	European Aluminium	Draft Progress report 2 - Assessment method for facades	3.3. Falling parts	<p>The size and mass of the objects to be thrown should be chosen in a range much wider than the proposed mass of 1.0 kg or an area of 0.1 m². The assessment method is only in a draft stage and needs to consider the results of experimental tests which should not be limited to pre-determined parameters. Anyway, the proposed mass of 1.0 kg or an area of 0.1 m² can be also tested to assess the sensitivity of test equipment.</p> <p>Choose objects of size up to 5 kg (there are Member States having higher limits than those proposed in the assessment method) and larger area (textile fabrics, or other larger items could also fall).</p>		A questionnaire has been sent out and is now analysed to investigate falling debris. The precise failure criteria are not set and will be set at a later stage when more data is available e.g. after the round robin stage of the project.
417	European Aluminium	Draft Progress report 2 - Assessment method for facades	3.3. Uplift of the test rig	<p>According to the testing experience of our member companies, an uplift of 2000mm is necessary to avoid self-ignition of particles on the ground.</p> <p>Consider the uplift of test rig directly at 2000mm</p>		Introducing an uplift of 2000 mm will prohibit indoor testing in most facilities and make the test procedure much more expensive. Although, the falling parts issue is not settled the work has started to investigate the use of a scale in front of the façade that can measure falling debris continuously.
418	DIBt (Germany)	Test report EFR-20-002989	Ge / Te	The following points are identified where clarification is needed:		

		(result of medium exposure crib tests)		<p>1.) The wood sticks were delivered with a moisture content of about 12 % and stored until testing. But for the time testing a moisture content of about 10 % is reported. It is unclear, whether these values are average values and how (number of measurements) and where (place of measurements) the moisture was measured and calculated.</p> <p>2.) The description of the nailing of the cribs in clause 5.1.1 is not clear. Did you only nail always two neighboring layers to each other and then the several bi-layered elements were stacked without further nailing to form the crib?</p> <p>3.) It seems that the heat-flux diagramme for test M0 is missing on page 30 and the Plate thermocouple curves in front of the chamber are presented twice (page 31).</p> <p>4.) In some diagrammes the time scale doesn't correspond to the time dates as provided in the table of clause 8.2.2.</p> <p>5.) The maximum heat flux values on the façade given for tests M0 to M3 in clause 9.2 don't correspond to the peak values as shown in the diagrammes in appendix 1. In addition, the same values are given in the conclusion in clause 9.4 but with [kW] instead [kW/m²].</p>		<p>1) The moisture content was measured with a moisture meter. About 3-4 measurements were done in some random piece of wood that composed the wood crib. The value showed in the table is an average value of these values measured</p> <p>2) Yes, exactly.</p> <p>3) Indeed the diagram with plates appears twice. However the diagram of flux is just below in the following page</p> <p>4) Indeed time scale to be adapted or observation table in 8.2.2 to be split and modified accordingly</p> <p>5) Yes, it will be corrected and units in §9.4 also</p> <p>THR is calculated for the complete duration of test.</p> <p>Report will be updated accordingly</p>
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				To which time point do the given values for THR _{tot} and total mass loss relate in clauses 9.2 and 9.4 – to the intended exposure time for the coming test method or the termination of the wood crib tests?		
419	DIBt (Germany)	Test report EFR-20-000358 (result of large exposure crib tests)	Ge / te	<p>The following points are identified where clarification is needed:</p> <p>1.) The absolute values for the moisture content are missing in the table of clause 2. Furthermore, it is unclear, whether these values are average values and how (number of measurements) and where (place of measurements) the moisture was measured und calculated. This should also be clarified in clause 8 and with regard to the data provided in table 6.</p> <p>2.) The description of the nailing of the cribs in clause 5.1.1 is not clear. Did you only nail always two neighboring layers to each other and then the several bi-layered elements were stacked without further nailing to form the crib?</p> <p>3.) In table 10 the information about the base of the cribs (solid plate or grating) should also be added to get a better overview.</p> <p>4.) The height of the position of the thermocouples and the heat flux meter in front of the combustion chamber is unclear (only the distance is shown in drawing 20).</p> <p>5.) To which time point do the given values for THR_{tot} and total mass loss relate in clauses 9.2 and 9.4 – to the intended exposure time for the coming test method or the termination of the wood crib tests?</p> <p>In the data files of the LEC tests HRR curves are given based on the mass loss. Why are these curves not presented in the</p>		<p>1.) In clause 2 is intended to highlight on the moisture level as main parameter (low, average or high) more than on the absolute value. The moisture content was measured with a moisture meter. A total of 10 measurements were done in some random piece of wood that composed the wood crib. The value showed in the table 8 is an average value of the 10 values measured</p> <p>2.) Yes exactly</p> <p>3.) OK will be done</p> <p>4.) They were placed at mid-height of the crib</p> <p>5.) The calculation is made for 60 min after ignition, see appendix 10</p> <p>Report will be updated accordingly</p> <p>In the data are compared the HRR values measured by calorimetry to MLR. There is no calculation of HRR through MLR. The title of the tab "Determination HRR from MLR" is bringing confusion. In fact an arbitrary coefficient was applied to the MLR so that it fits with the calorimetric HRR. It was only for information to get an idea of this coefficient.</p>

				test report for comparison to the HRR curves based on the oxygen deflection method? Which calorific value was used for the determination of HRR based on the mass loss and from which source was this value taken?		
420	DIBt (Germany)	Draft Progress 2	3.2.1 Table 1	<p>The proposed parameters for the medium exposure crib (MEC) deviate from those considered in the wood crib tests M0 to M3. As already said in the 2nd SG meeting, for the further development of the test method, its repeatability and reproducibility as well as its later application by many labs throughout Europe it is necessary to determine the relevant data (e. g. HRR, THR, MLR etc.) for the now proposed final MEC too. Therefore, further investigations are necessary as basis for the requested decision of the SG about the final design of the MEC.</p> <p>For the proposed target value of the moisture content please see comment to clause 3.2.4.</p>		<p>See comments 409, 410 and 430.</p> <p>Repeatability tests for the medium exposure are now performed. The parameters referred to are no longer valid. Please see Report "Characterisation of medium fire exposure fuel source", ReportNumber: P117805-1000Issue: 1</p>
421	DIBt (Germany)	Draft Progress 2	3.2.1 Table 1	<p>The proposed tolerance for the density of the large exposure crib (LEC) seems to high. Although the tests with the large cribs showed no significant influence, this huge tolerance range in combination with the tolerances for the dimensions of the sticks lead to very varying numbers of stick layers and the final geometry. This may later have a profound affect on the repeatability and reproducibility when using the test method by different labs throughout Europe. Thus, the density and tolerance range for the LEC should be the same as for the MEC – $475 \pm 25 \text{ kg/m}^3$.</p>		<p>We agree with this remark. The wide range of density is an effect that it is difficult for countries in southern Europe to find timber with high density and it is in general difficult to buy timber of specific densities since it is not a product declaration property. However, we are looking into limiting the geometry more, regardless of the density, due to the results of the report "Large scale exposure of fires to facade - Initial testing of proposed European method", found on the website.</p> <p>Moving the crib inwards has an effect. We see a 70-80 °C temperature decrease on TCs on the façade from</p>

				<p>Furthermore, the depth of the chamber for the LEC is now proposed with 1300 mm, but the wood crib tests were performed with a 1000 mm deep chamber. The position of the LEC in this modified chamber is not clear, because it isn't described in table 1. If – as in the wood crib tests – the crib shall be positioned with a distance of 100 mm to the back wall of the chamber, its frond edge is positioned 100 mm behind the surface of the test rig. This modification will probably have a significant affect e. g. on the exposure on the façade above the chamber. That's why further tests are needed to assess the influence of this modification in comparison to the already performed large exposure crib tests before the cornerstones for the LEC and its chamber will be confirmed by the SG and the next phase of investigations can start.</p> <p>For the proposed target value of the moisture content please see comment to clause 3.2.4.</p>		<p>using a deeper combustion chamber. To move the crib into the combustion chamber takes away the problem of having falling debris on the crib that could result in crib instability. We therefore feel that this could be the best way of keeping reproducibility for the method.</p> <p>Remember that we are developing a new method which will differ from the BS8414 test and we can adjust assessment criteria to find a compromise all member states.</p>
422	DIBt (Germany)	Draft Progress 2	3.2.4	<p>From German test experiences (and confirmed by timber experts), a conditioning of the timber in a climate of 23 °C and 50% RH leads mostly to moisture content of about 9 ± 1 %. The measured average moisture content of the crib L5 confirms this experience. Thus, the proposed target value for the moisture content of the spruce wood for the cribs should be changed accordingly in clause 3.2.4 as well as in table 1.</p>		<p>We agree that this is the case however this requirement results in extensive conditioning of timber and severely limit flexibility in testing thus we think at this point that having a higher tolerance is beneficial, if possible. Note that 9 is included in the limit 11 ± 2 which is the proposed range. If it is evident that from the repeatability or round robin tests that this too wide range then this will be changed.</p>
423	DIBt (Germany)	Draft Progress 2	3.2.8	<p>As stated in the test reports, collapsing of the medium exposure cribs occurs about 20 minutes (\pm some minutes) after ignition and collapsing of the large exposure cribs occurs about 25 minutes (\pm some minutes) after ignition.</p>		<p>The crib stability is very important, the main benefit of having two layer nailed is that it is easier to build the crib. We will take this into consideration.</p>

				<p>Considering the intended exposure times for the test method (cf. draft assessment method), collapsing of the cribs before the end of the exposure time seem to be critical with regard to the desired flame exposure of the test assembly for the whole exposure time. Experiences collected with the 200-kg-crib of the German base fire test method for facades show that nailing of each layer to the next one below prolongs the stability of the crib significantly. Thus, it is highly recommended to modify the proposal for joining the sticks accordingly instead only to nail two adjacent layers to each other and then to stack the bi-layered elements without further nailing. Each second crossing point of two sticks should be fixed by nails in such way that the nailing points of two neighboring layers are staggered in reverse order.</p>	
424	DIBt (Germany)	Draft Progress 2	3.2.9	<p>No deviation from the cross section investigated in the wood crib tests is proposed in this clause for the medium exposure crib. But it stands in contradiction to what is proposed in table 1. This should be explained and reasoned in the final progress report. Furthermore, see comment to table 1.</p>	<p>The progress report will be updated. We are sorry that this may have caused some confusion. The tests aimed at harmonization of the wood sticks used in both methods however the most repeatable result seemed to go back to the sticks used in the DIN method. The proposal is now to use the same specification on the wood crib as in the DIN standard for the medium exposure.</p>
425	DIBt (Germany)	Draft Progress 2	3.2.10	<p>It seems that the numeric simulations don't consider the now proposed greater depth of the combustion chamber (a measure is missing for the depth of the chamber in the drawing) and the probably changed position of the large exposure crib. Therefore, the simulations cannot be seen as sufficient substantiation for the modification of the chamber as proposed in table 1 and the changed crib position.</p>	<p>The effect of an increased volume of the combustion chamber will be investigated during the next testing phase. The numerical work was to give some indication of the result.</p>

				Further tests are necessary with the large exposure crib (cf. comment to table 1).		
426	DIBt (Germany)	Draft Progress 2	3.2.11	<p>As already said on the 2nd SG meeting, comparison of the wood crib test results with more real compartment fire test results are needed (e. g. report BI5-8001 96-18 from Kotthoff, MFPA Leipzig).</p> <p>Furthermore, table 4 should provide information on the complete fire load density of compartment tests covering both movable fire load and static fire load of the exposed solid timber surfaces.</p> <p>All this information would be helpful to reach a better overview to which real fire scenarios and with which fire load densities the large crib exposure is comparable / representative (see also EN 1991-1-2 Annex E).</p>		<p>Schulz et al Fire Technology, 57, 261–290, 2021, note that the fire load in the BS test is comparable to room fire load but at the same time it is expected that many room fires may be more severe. This is in line with the set-up and choice of fire load in the Report “Exposure from mass timber compartment fires to facades” Brandforsk 2021:3 by Sjöström et al. The fire load is designed to be severe but still realistic.</p> <p>The fire load of the live fuel in the tests is 502 MJ/m². Then, naturally, combustion from exposed timber surfaces add to this. During the flashover phase (which is the only phase which matters for façade exposure) the contribution from the structural timber is roughly 60 MW per m² floor area for test 1 and 340 MJ/m² for Test 5. However, the fuel load is in itself uninteresting since the exposure to the façade depends on how much of the heat that is released outside the compartment as opposed to inside. That is, in turn determined by both the area and the opening factor. Then, the exposure with respect to height above the opening will be dependent on the slenderness of the opening. As stated above, the compartment tests were designed according to a survey aimed at designing a severe but still realistic case of an exposure from a mass timber compartment.</p>

						Furthermore, note that it is the combustion outside of the compartment that is important, the estimated HRR in the Dalmarnock tests are 3-6MW at maximum intensity however there is no indication on how much is actually impinging the façade which makes a direct comparison difficult however it is of the same order.
427	DIBt (Germany)	Draft Progress 2	3.3	<p>The following points are identified for discussion / clarification and modification, where necessary, for the next phase:</p> <ul style="list-style-type: none"> - Before starting the next stage with the average inert façade tests and the parametric some further wood crib tests are necessary (cf. comments to table 1 and various sub-clause 3.2.x). - Investigation of a further uplift of the combustion chamber for the medium exposure crib is redundant. Experiences with the current test method according to DIN 4102-20, where the chamber is placed directly above the bottom of the test rig, show that radiation from the fire source is not high enough to ignite falling parts / debris on the ground. The top edge of the mostly used gas burner of the test standard is about 650 mm above the ground. That's nearly the same height as for the bottom edge of the proposed wood crib placed on a 200 mm high metal grating platform in a 0.5 m uplifted combustion chamber. Therefore, the uplift tests with the medium exposure crib should be cancelled. - The sense and need of the foreseen tests with different air supply of the medium exposure crib is not clear. On one side the consortium argues regarding 		<p>We agree that the uplift tests could be removed.</p> <p>However, for the large fire exposure this has to be investigated further. In comparison the fire is much more intense with a higher HRR and thus the radiance to the floor is increased. Tests has been done previously showing that there is indeed risk of ignition of some elements. This must be investigated further.</p> <p>See comment 430.</p>

				<p>the parameters of the wood crib that it is a return to the parameters of DIN 4102-20 and therefore, no wood crib tests are needed for this crib configuration. But on the other side it wants to investigate variations of another parameter set out in DIN 4102-20. So far known, the influence of various air supply to the medium exposure crib was investigated by MFPA Leipzig in the 1990 or the early 2000 years. It's recommended that the consortium asks MFPA Leipzig which data are still available for evaluation. However, the need of this investigation should be discussed in the SG again before commencing the scheduled tests.</p>		
428	DIBt (Germany)	Presentation to the 2 nd SG meeting about results of investigations regarding the assessment of falling parts		<p>As already discussed during the 2nd Steering Group meeting on 20th April 2021, a detailed questionnaire should be prepared and distributed to SG members. This should help to clarify e. g. the following issues:</p> <ul style="list-style-type: none"> - Safety objectives of the national regulations (separately for non-burning falling parts / mechanical collapse as well as for burning / flaming parts / droplets - Criteria for the assessment of non-burning falling parts (weight, size of parts, dimension of damaged area on the test wall etc.) - Duration of falling of flaming parts / droplets <p>Size and duration of a secondary fire on the ground in front of the test rig</p>		A questionnaire has been created and sent out. The results are analysed at the moment.
429	DIBt (Germany)	Draft 2 of the assessment method	Performance criteria for smouldering	An obvious error has been identified in this clause:	Update assessment method.	Thank you for this comment the wording has been reviewed and updated accordingly. Although, no new version

				<p>The current wording means that the test has to be considered as failed, if any of the thermocouples measures a temperature higher than 50 °C within the 6 hours period after beginning of the test. This criterion is hardly to fulfill. Even in a mineral wool insulation layer, higher temperatures may occur if exposed by flames of a large-scale façade test method directly or indirectly through a thin render layer. However, objective of assessment of this characteristic is to determine that smouldering processes (if occurs) are self-extinguishing within a certain time period and its total spread is limited. The failure of the test occurs, if</p> <ul style="list-style-type: none"> - the damage of the test assembly by spread of smouldering processes exceeds the assessment level (height above the lintel of the combustion chamber; still to be defined) or reach the lateral edges of the test assembly – both has to be assessed after termination of the test – or - a temperature of higher than 50°C is measured at any of the thermocouples at the end of the 6 hours period after beginning of the test. 		<p>has been publish as of now but will be issued before the round robin tests.</p>
430	DIBt (Germany)		Summary of conclusions	<p>Considering all the comments before given to the wood crib test reports as well as to the draft progress report the following steps are seen as mandatory from the German point view:</p>		<p>The uplift tests were removed from the test series.</p> <p>We have asked for test reports or calibration reports in order to be able to calibrate or assessment method however we haven't received any.</p>

				<p>a) The scheduled uplift tests with the medium exposure crib in the next project phase should be cancelled.</p> <p>b) The scheduled test to investigate various air flow to the medium exposure crib might also be cancelled, at least if MFPA Leipzig is able to provide data from respective investigations for the DIN 4102-20 test method in the past many years ago.</p> <p>c) The obtained test and time capacities caused by the cancellations proposed under "a)" and "b)" should be used for further wood crib tests as proposed below the comment table separately to verify the proposed crib configurations in table 1 of the Draft Progress Report 2 (also with some proposed slight modifications) in comparison to the data obtained in the already performed wood crib tests and presented in the test reports EFR-20-002989 and EFR-20-000358.</p> <p>Just after presentation and discussion of the results of these required tests, the SG should decide which wood crib parameters shall be used for the further tests and which tests shall actually performed in the next phase.</p>		<p>The idea is not to compare the "alternative method" element-by-element to BS method and/or DIN method. This approach would exactly convert the "alternative method" into "proposed method". The idea is to develop a methodology that will give more or less comparable results at the level of the "whole method" (i.e. higher level calibration, including test method and related classification). This means that the "alternative method" and its elements must be controlled in such a way that the tests are repeatable and that they produce results that will be comparable between different laboratories. This is what we are aiming at, and it is why, before the SG meeting, we called for comments backed up by data, i.e. providing evidence that would "alter/challenge" the conclusions of the project consortium.</p> <p>See also comment 409 and 410. For further information, see "Large scale exposure of fires to facade - Initial testing of proposed European method",</p>
431	EUMEPS	Draft progress report 2 /		As conclusion of the wood crib tests, several conclusions were proposed. It is		The uplift tests were deleted in order to give space for further tests on cribs. See e.g. "Large scale exposure of fires to

		steering group meeting 20 Apr		<p>well known that various factors interact in a way that is not well predictable.</p> <p>Confirmation of the effects of the individual and of the combined modification proposals is necessary by a limited number of tests.</p> <p>If it is difficult to fit that in the budgetary constraints, it could be solved by not performing some of the planned tests included in the contract, eg the outdoor tests or the testing of the variation in uplift of the chamber.</p>		facade - Initial testing of proposed European method".
432	EUMEPS	Draft progress report 2 / steering group meeting 20 Apr		<p>The density tolerances of the wood for the high fire load is a range from 400- 600 kg/m³. This is a far too wide tolerance, leading to significant variation of the exposure.</p> <p>The tolerance for the high and the medium fire load should be the same. If the effort would be too big to achieve and get confirmed such narrow tolerance, an alternative method must be described to confirm such narrow tolerance. For example the density not to be measured and confirmed on a stick by stick basis, but a higher number of sticks together.</p>		<p>In the test series it is found that the density mainly influences the initial development of the fire withing this range. The same result was found from the tests on repeatability "Large scale exposure of fires to facade - Initial testing of proposed European method".</p> <p>The tolerances have been discussed to be more limited in the future, in particular the higher end of the range.</p> <p>We do not understand why the tolerances for the medium and large exposure tests must be the same since they represent two different exposures.</p>
433	EUMEPS	Draft progress report 2 / steering group meeting 20 Apr	3.2.11	<p>Par. 3.2.11 does not contribute to the goal of this stage of the project to align best as possible with the exposure by the DIN and the BS test. The tests cited in 3.2.11 are not done with a typical room, because there is an unusual high fire load from the wooden elements in the room construction which adds disproportionally to the fire load inside the room. We consider it</p>		<p>The comparison with results from the Report "Exposure from mass timber compartment fires to facades" Brandforsk 2021:3 by Sjöström et al. is interesting since the fire loads and opening factors are chosen to be a severe fire but at the same time the alternative approach has the same target HRR of 3 +/- 0.5 MW as the BS method.</p>

			<p>therefore not to be the best reference for the purposes of this project. Alternative, more appropriate references were mentioned during the SG meeting.</p> <p>We propose to delete par 3.2.11 as it does not contribute to the goal of this stage of the project.</p> <p>If deemed necessary to have such paragraph included, then other references, like mentioned during the SG meeting should be used instead.</p>		<p>Thus, it act as a “worst case” scenario, which obviously is in line with the exposure from the British test. We take other tests into account even though there are very few which could be compared to the ones presented here. However, it should be noted that passing a test or not is not only due to the exposure but also the assessment criteria defined together with the exposure.</p> <p>See also 438.</p>
434	EUMEPS	Falling parts presentatio n/ steering group meeting 20 Apr	<p>We support the proposal to a survey on the backgrounds and fire safety objectives behind the fire safety requirements (exact, clearly specified) of member states that regulate on falling parts.</p> <p>We were happy that in the steering group of 20th April it was confirmed that a proposal on testing and classification for falling needs to be part of the initial tests and the round robin test. This avoids that a method can be included without evaluation by a properly organised round robin.</p> <p>Falling parts should be a façade characteristic that can be determined by performing a single a large scale façade fire test in a meaningful (related to the clarified fire safety objectives), reliable and repeatable way (it cannot be a lottery how a faced is classified by the test method).</p> <p>Note that the method and criteria need to be clarified as part of the initial test. Only then it is possible to include this element</p>		<p>Thank for the support.</p> <p>The falling parts is as you say a necessary feature since it is included in some MSs regulations.</p> <p>We also agree that it has to be as repeatable as possible and as few subjective assessments as possible.</p> <p>We have started investigations on the falling parts and it will be included in the round robin however the measurements and classification may change throughout the project.</p>

				of the test in the round robin test, which is the basis for finalising the proposal for the method regarding falling parts.	
435	Modern Building Alliance	Draft progress report 2 / 2 nd steering group meeting	3.2.1	<p>The large exposure test is designed to produce comparable results to the existing BS 8414 test. This can only be expected if the exposure for the tested façade system in the new method is equivalent to BS 8414. With the introduction of the spruce crib instead of pine crib a first step in this direction has been done.</p> <p>Further changes have been proposed by the project team after the initial wood crib tests.</p> <ul style="list-style-type: none"> - Inner width of combustion chamber - Depth of combustion chamber - Position of wood crib. <p>In our opinion the changed wood crib position and the subsequent change of the depth of the combustion chamber may not be needed, because the crib will not be protruding if the finally tested façade system has been applied, due to the currently needed insulation thicknesses.</p> <p>The change of the width of the inner combustion chamber may have practical advantages for the laboratories but it could also be done with the original design, as many years of experience with BS 8414 have shown.</p> <p>Therefore we are recommending to keep the original BS 8414 configuration.</p>	We note this opinion. There have been several discussions on how and why to change the combustion chamber leading to the result as it is now. The exposure is comparable, but not identical to the BS8414 method. However, it does not need to be equivalent since this is a new method.

436	Modern Building Alliance	2 nd steering group meeting		If it is decided to implement the changes proposed currently by the consortium, the existing assessment by FDS calculations regarding the effects of the combustion chamber size and shape should be verified by additional comparative tests, in which for each test only one parameter is changed. Additional verification needs to be done in the phase 2 of the initial tests on a full façade test rig.		Geometry of chamber and crib placement was investigated in this phase. See "Large scale exposure of fires to facade - Initial testing of proposed European method" on our website.
437	Modern Building Alliance	2 nd steering group meeting		As answer to the question asked about which tests could be removed in order to allow other necessary tests, we suggest that following tests could be skipped: <ul style="list-style-type: none"> - outdoor tests - additional tests on ventilation of crib for the medium exposure test - possibly some of the tests on the uplift 		Thank you for these suggestions. Uplift was removed from the tests performed this year as suggested. However, we think it is valuable to characterize the cribs as well as possible including flow from the medium crib. Outdoor testing cannot be out ruled yet. This is one of the factors that makes testing possible in more than one or two labs in Europe and can definitely keep costs down to something affordable for the industry. Until we really see that outdoor tests can be reproduced we will keep this option.
438	Modern Building Alliance	progress report 2	3.2.11	As the tests cited in 3.2.11 of the draft progress report do not represent typical room fires (extremely high fire load from the room construction in addition to the fire load of the furniture inside the room) we propose not to use this reference. Instead, we propose to include information about tests presented in the research report B15-8001 96-18 (Erarbeitung realer Prüfbedingungen für die Durchführung von Original-Brandprüfungen an B 1- Fassadensystemen und eines Verfahrens zur Berechnung von Brandabläufen an Fassaden, 03.10.2000- from the German federal agency for		Thank you for this comment and the opportunity to make a few clarifications. Note that the current proposed crib and combustion chamber configuration yield a HRR of the same order as in the specification of the BS method 3+/- 0.5 MW however the tests performed according to the BS method in the BS rig had larger HRR. It has been noted that Schulz et al Fire Technology, 57, 261-290, 2021, that the fire load in the BS test is comparable to room fire load but at the same time it is expected that many room fires may be more severe. This is in line with the set-up and choice

				<p>construction (Bundesamt für Bauwesen und Raumordnung). Also the results of the Dalmarnock tests which in UK were used as a reference to real fires should be taken into account (https://era.ed.ac.uk/handle/1842/2037).</p>	<p>of fire load in the Report "Exposure from mass timber compartment fires to facades" Brandforsk 2021:3 by Sjöström et al.</p> <p>Furthermore, note that it is the combustion outside of the compartment that is important, the estimated HRR in the Dalmarnock tests are 3-6MW at maximum intensity however there is no indication on how much is actually impinging the façade which makes a direct comparison difficult however it is of the same order.</p> <p>Investigating the old tests performed in Germany, e.g. looking at figures 6.61 and 6.64 in Brandversuche an einem zum Abbruch bestimmten, viergeschossigen modernen Wohnhaus in Lehrte from 1978 the temperature 1 m above the lintel of the fire room is similar to what we have measured in the wood crib test.</p> <p>Also, exposure to the facade is very dependent not only on HRR in the room and opening factor but also the slenderness of the openings. Thus, the exposure chosen here is ONE example (a severe one) which is possible and the one that will be benchmarked against.</p> <p>Also, it is important to recognize when newer tests were performed it has been observed that fires may be more severe with newer furniture etc see Hofmann et al Fire and Materials.2021;45:155-166, thus comparing to older tests may also be misleading.</p>
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439	Modern Building Alliance	Progress report 2	5	<p>We acknowledge the fact that on page 35 of the draft progress report 2 it is now considered, to develop a classification system which will be in the same format as the classification system for reaction to fire for building products.</p> <p>Using this approach will make it much easier for member states and also for industry to implement the new system and to keep the validity of existing test results. Therefore we support this approach.</p>		Thank you for this comment.
440	Modern Building Alliance	2nd steering group meeting		<p>We support the proposal made during the meeting to initiate a review of the requirements of member states regarding falling parts (burning and non burning). It would be a valuable input for the project progress, to make a clear definition available of the parameters measured, the measurement methods and the criteria currently applied and needed due to regulations in the different member countries.</p>	A questionnaire has been prepared and sent out and is currently analysed.	Thank you for this comment.
441	EAE	Progress Report 2 and SG meeting		<ul style="list-style-type: none"> - We observed that with the medium wood crib we seem to be close to the existing test method DIN 4102-20; we agree to return to the parameters given there. However, some details of the test environment need to be further investigated. - With the large wood crib changing from pine to spruce, from a grated to a closed platform and to a fixed mass lead into the direction to match with the parameters of HRR and THR as given in BS 8414-1. The proposed tolerances (e.g. 		<p>Yes, this has recently been explored further as a part of the initial testing. Repeatability tests were performed. The report regarding Medium scale will be updated with more results.</p> <p>It is important to remember the assessment method, i.e, rig, combustion chamber, crib etc may be updated throughout the project. Thus, the current version is not final and will not be final until at the end of the project. Regarding the façade systems to be tested we rely on all representatives from the Member States and stakeholders to provide such that we can perform the round robin task.</p>

				<p>wood density) seem to be too large; the same parameters as for the medium wood crib should be used. As several parameters have been changed in parallel, it is not clearly visible which effects derive from which variation. Therefore, first some additional parametric studies (tests) should clarify this.</p> <ul style="list-style-type: none">- Only after that final decisions regarding the specification wood cribs to be used for the initial tests can be taken; the same applies to the definition of the borderline systems to be used as references with existing test methods. Therefore, we recommend to postpone these decisions to another Steering Group meeting to be scheduled in summer after the supplementary tests have been finished.- Tests with the borderline systems should be carried out first in one lab before starting round robin tests. Results must be compared with existing test results to make sure that the new test do not lead to more severe requirements.- Regarding the secondary opening tests should first be performed without an opening; existing test results according to DIN 4102-20 and BS 8414-1 only consider a plain surface of the test specimen		<p>We will have a SG meeting after the next stage of initial tests which will show further how the parameters, combustion chamber and placement of the crib will influence the result. At this meeting, discussion on the round robin stage will take place.</p> <p>In order to compare with existing façade systems and test result we also rely on stakeholder to provide with these reports and data however in the autumn several tests with one façade system including tests with secondary windows will be performed where indications on a borderline system may be obtained.</p>
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				<p>as there has not been any requirement so far.</p> <ul style="list-style-type: none"> - Once comparisons have been made with the plain surface, tests can be performed to evaluate the impact of a secondary opening and its position. 		
442	PU Europe	Progress Report 2 and SG meeting		<p>With regards to the large exposure test and its modified combustion chamber and modified crib position: It can be assumed that with the modified combustion chamber and a different position of the crib in this chamber the exposure may be significantly higher than with the BS 8414 combustion chamber. This would lead to significantly different testing conditions and we therefore strongly recommend to use a combustion chamber of exactly the same size as BS 8414 currently defines. The numerical simulations alone do not sufficiently justify a change. If changes are deemed necessary for the large exposure test, then a proper evaluation of the ensuing changes shall be made (experimental verification to be part of the project).</p> <p>We would suggest the following changes of the stage 2 of the program for the initial tests which could allow to implement this comparison with BS 8414 via the addition of tests comparing the proposed crib position and combustion chamber with:</p> <ul style="list-style-type: none"> - Original chamber and position as BS 8414 - Widened chamber as proposed - Widened chamber and increased depth of chamber with changed crib position <p>In order to avoid spending additional resources for these tests we propose to</p>		<p>This was further evaluated in the report "Large scale exposure of fires to facade - Initial testing of proposed European method" on our website.</p>

				skip in this phase of the project the tests regarding the proposed uplift as well as the environmental conditions (especially outdoor testing).	
443	PU Europe	Progress Report 2 and SG meeting		Concerning the medium exposure test and its air supply for the wood cribs: We question the reasoning which has led to concluding that "for the medium exposure, two additional tests will be performed with different values of air flow blowing on the wood crib." As the air flow is clearly defined in the German standard (400 ± 40) m ³ /h), why is there a need for doing these tests? It can be expected that changes of the ventilation would make a difference for the burning rate of the crib. We however wonder which meaningful conclusions - if any - can be derived from that.	It is assumed that the heat impact of the façade in dependence of the air flow can be assessed to conclude on the range of air flow which is given on the air flow so far. Furthermore this is a new method although the starting point is the DIN method however therefore all variations is of interest to document. We have performed the tests considering 380 and 420m ³ /h. Because the flow rate is so small there is not a significant difference between the 340-380m ³ /h, 380-400m ³ /h and 420-440m ³ /h.
444	PU Europe	Progress Report 2 and SG meeting		Regarding the comparison to real façade fires (page 24 of the progress report): The report which is used for this comparison is not representing a normal room fire flashover situation. The typical fire load of the furniture in a room (movable fuel load density) is increased significantly by large-exposed areas of wooden walls and ceilings. This is a special case and looking at the videos available on the RI.SE website, it is obvious that the ceiling, and where applicable the exposed Glulam walls, give a major contribution to the fire development (see also the RISE Report 2020:94). The following conclusions are therefore not valid: "The exposures from the L1 - L7 tests are also compared to the exposure from a number of real compartment tests carried out by RISE during fall of 2020 in a USDA funded project on exposure of mass timber surfaces in tall buildings (Brandon et al, 2020)" and "the thermal exposure of a solid	See 438. We will also take the recommendations into account and check the comparison.

				surface is highly similar in the wood crib arrangements studied here and highly severe but realistic compartment fires". We propose to use instead the publication from I Kotthoff mentioned in the report of the first phase of the project and the Dalmarnock fire tests, which have been used in the context of verifying the BS 8414 test.		
445	PU Europe	Progress Report 2 and SG meeting		When looking at the classification system (page 35 of the draft progress report 2): Our industry strongly supports the approach for the classification system as it is now detailed[1] and we would like to restate our call the forthcoming European assessment methods to be designed in a way that does not invalidate existing national tests and classifications.		The Assessment methods includes requirements from MS which were not addressed by the DIN or the BS method before. Therefore, changes to the methods might be necessary. The possibility of further use of test results from national tests is not part of this project.
446	ETEX	SG meeting	Report on Large scale tests	For determination of fire exposure the "thermal thickness" of the flame is important, rather than the height. Would you also capture the images from the side, rather than only from the front?		We have looked into this the "Large scale exposure of fires to facade - Initial testing of proposed European method" on our website. The temperatures and heat fluxes to water cooled gauges are assessed there.
447	PU Europe	SG meeting	Report on Large scale tests	If you neglect fixed mass based on the influence of moisture content only -does that mean that the different densities of wood (there is a tolerance) are not taken into account?		It seems as if height of the crib is the largest factor determining exposure within these tolerances. See "Large scale exposure of fires to facade - Initial testing of proposed European method" on our website. Thus, we are working to find a suitable compromise.
448	Kingspan	SG meeting	Report on Large scale tests	If you keep a fixed position of the crib, how do you see the impact if the facade construction gets thicker from the rig front to the front face of the facade? looking at the photographs it looked like the flame thickness and hence the impact on the facade can be quite different?		Yes, that is true – that was discussed extensively within the consortium: a real fire would not change position, this configuration therefore is the more realistic one. For reproducibility it might be beneficial to move the position – the final conclusion has not been made.

449	ETEX	SG meeting		Not sure about the ignition of falling parts: if this is not excluded, what does that represent in reality: a fire at ground floor? is that what we want?		It was agreed within the stakeholder group that there is a distinction between burning and not-burning falling parts.
450	PU Europe	SG meeting	Report on Large scale tests	For the solid perimeter around the crib - does this not influence the parameters which in the existing tests have been measured		The main influence is on the crib stability. The effect of the large platform on the fire dynamics will be investigated further before any decision is made.
451	Rockwool	SG meeting		I believe the position of the crib in BS8414 assumes always that you will have minimum 50-100mm of facade construction added to the wall, hence the position of the crib and the 1.0 m of the combustion chamber. Based on this isn't it more suitable to maintain the same location of the crib in the test?		See 448.
452	ETEX	SG meeting		Leading for the position of the crib should be a "similar" thermal "attack" on the facade - if this is influenced by the test specimen thickness and build-up, I suppose some adjustment is necessary		See 448.
453	IFD	SG meeting	Report on Large scale tests	Great influence of wind speed: Was a horizontal component measured (x,y) or was the measurement parallel to a wall? It must be ensured that the angle of the wind flow to the wall is known.		Agreed, for the measurements see the report on the "Large Scale tests" where data of win in different directions and speed is recorded at different positions.
454	EMO	SG meeting	Assessment method	Have there been any considerations on other test conditions except wind? eg temperature at the test day / in the test hall?		Yes, ambient conditions are defined in allowed limits. Temperatures are known to play a minor role compared to wind.
455	GROW	SG meeting		What is the proportion of labs able to run these types of tests indoors out of the all labs?		We do not have that information at the moment, however a question within EGOLF is raised and will be reported.
456	Rockwool	SG meeting	Assessment method	Outdoor testing is an issue and not reproducible!		The outdoor tests are outstanding. We will know more after the tests. Agreed, there are issues but air velocity can be an issue also in indoor testing. Therefore, limits for conditions in which the tests can be performed are crucial.

457	PU Europe	SG meeting	Assessment method	Would it not be expected that if a new method for indoor is really introduced more labs would build a hall?		The Consortium cannot comment on that.
458	ETEX	SG meeting	Assessment method	This should be resolved: we've spent a lot of time on the cribs but might "throw away" a lot of achievement in harmonisation when allowing testing outdoors under non comparable conditions.		See 456
459	EUMEPS	SG meeting	Assessment method	It is even more problematic as we do only one outdoor test and windspeed is highly variable		See 456
460	Huntsman PU	SG meeting	Assessment method	What about the effect of air humidity. Is there experience of this? With low humidity fire is easier.		Humidity of the crib is measured. Air humidity is measured and documented, controlling that would mean a testing hall with conditioned air – we should be careful to describe tests that can be performed. Experience tells us that air humidity affects combustion mostly indirectly through changing the humidity of the fuel. Compared to other parameters the RH of air is secondary for determining the exposure.
461	MS Finland	SG meeting		Who will pay the costs in real product testing for those tests which after the start of tests are not acceptable because the environmental conditions are not met? Labs, I assume.		The ambient conditions are measured in the beginning of the test. A test not meeting the requirements can't be started. For instance, the requirement for air flow velocity is not applied during the test as clearly the wood crib will influence these conditions significantly.
462	EUMEPS	SG meeting		Would it be an idea to have a poll on this topic as input for EC to decide now.s now: what is the opinion of the experts in this group on the topic of inside/ outside testing. Now but also later we will never have full unanimity.		See 455.

463	PU Europe	SG meeting		For the medium exposure - is the "laminated facade" already defined? what exactly will that be?		
464	PU Europe	SG meeting		Regarding tests with zero airflow in the combustion chamber - I think tests in Germany have already shown, that this does not make sense - comments from DIBt (JSP) would be appreciated		The remaining tests done on the medium scale explored airflows within the allowable limits to obtain more data.
465	ETEX	SG meeting	Falling parts	I would be in favour of Q1 method 3 (measure, but leave assessment to local regulators). At least for now, and with a view to move forward with the testing method. Several arguments for this: there is no EU agreement on the need for requirements ("to protect the fire brigade" is way too vague a reason: they would not walk unprotected close to, let alone underneath the flame volume). In addition, NFPA 285 does the same: it describes falling parts, but the IBC does not provide requirements (yet)		We agree in principle, the contract with the Commission requires a classification system though. We have issued a questionnaire regarding falling parts to obtain more information regarding these issues.
466	EUMEPS	SG meeting	Falling parts	On the weight of falling parts and the timing of sustained flaming the proposals seem arbitrary. Further study and justification is suggested, also clarifying the relation to the goal of reducing risks (actual injuries statistics).		More data on this topic are highly appreciated. If statistics might be available, please send them to us.
467	TUDELFT	SG meeting	Falling parts	We should not forget, that the glass of a windows will also fall down and we (have to) accept it.		Agreed, but windows that break (and we accept that as a risk) does not mean that the façade specimen should disintegrate as well.
468	MBA	SG meeting	Falling parts	Would not you agree that falling parts would mean all systems need to be tested despite material classification? Non-combustible parts can also fall down. This also results in collapse.		Agreed. A certain stability of the system should be ensured.
469	Rockwool	SG meeting	Falling parts	I am thinking if it might be possible that labs evaluate the size/area of the falling parts based on their weight. Labs will know at the beginning of the test density of all		We will further assess that.

				materials used in the test and video/observation indicate which product corresponds to the mass registered by the scale. Trying to help but not easy to evaluate size/area of the falling parts.		
470	ETEX	SG meeting	Falling parts	It's not only the weight and size, but also the trajectory (at which distance from the face/flame volume)?		It will be very cost-intensive to monitor the falling in real time and 3 D – falling parts is one parameter of many – it has to be assessed how much effort should go into this parameter.
471	EUMEPS	SG meeting	Falling parts	Is including the description of behavior for the aspect of falling parts in the report as information to the designer not the most important.? Classification resulting in just pass/fail might obscure that information.		See 465
472	DOW	SG meeting	Falling parts	What is the outcome of the review of the MS regulations and philosophy of falling parts which was being looked into ? this was supposed to be taken into account in this aspect		The reasoning behind the national regulations is often not known, we have to work with the information we can gather.
473	MS Sweden	SG meeting	Falling parts	It's important that falling parts are included in the classification system and this have to my knowledge from the beginning been a part of the mission to the consortium		Agreed, see 465 as well.
474	ETEX	SG meeting	Falling parts	The fact that criteria exist in some countries and that it's in the project mandate, does not rule out proper thinking about the real need for these criteria, If we want buy in of all stakeholders, we should have proper arguments on this and what it is that we really want to achieve, based on evaluation of real incidents. This goes beyond agreeing on the size or weight.		That would be ideal, the project consortium has not the resources for that research.
475	EOTA	SG meeting	Falling parts	It is a difficult topic for assessment and classification. In real fires of high rise buildings always unexpected collapsing of (larger) facade parts might happen, which will not come at the surface during testing of falling parts. But in the there is a need		Agreed.

				to assure a certain minimum stability of facade constructions during fires. This means that the use of testing and assessment this characteristic should lead to the design and manufacture of better fire resistant facade products.		
476	DIBT	SG meeting	Falling parts	I agree that falling parts have to be assessed, but I'm against a inflexible classification systems, where maybe some aspects are not considered properly with regard to national regulations. Therefore I strongly plead only to prescribe in the coming test standard what aspects shall be observed, recorded and reported. But the judgement of these aspects / parameters for the assessment of falling parts with regard to national requirements should be done on national level.		See 465
477	EUMEPS	SG meeting	Falling parts	Quantitative registration of weight and time seems undisputed. The question is more about the arbitrary establishment of a pass/ fail threshold on both aspects.		Agreed.
478	MS Finland	SG meeting	Falling parts	Concerning the risks it's also about the trajectory, not just the weight and size.		See 470
479	PU Europe	SG meeting	Experimental Round Robin	When we discussed earlier it was said that the experimental RR does not only have the goal to test repeatability and reproducibility, but also to calibrate it comparing to the existing methods - is that still the goal? Existing test reports will in many cases not contain all the criteria which shall be assessed here, because the existing methods do not contain all parameters.		The calibration against existing methods have to be conducted on the national level.
480	BRE	SG meeting	Experiemental Round Robin	Can I assume you are aware of the DCLG tests carried out post Grenfell for ACM CAT2 and combustible insulation - from memory 2 of these were borderline in the context of the UK criteria. We can provide		Yes, we are aware. Thank you for the recommendations, it is considered.

