COMMENTS HANDLING DOCUMENT

Comments received up to July 8, 2020

All comments have not yet been treated and those are marked as "TBA" in the column "Answer by consortium"

In the following table are all written comments received during the project assembled. 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
Column 7 – Answer by the consortium: A short description on how the comment has been handled

The answers given by the consortium in this document are valid for the time they were written, but the answers may change during the course of the project.

Nº	Body Reference	Comment on document	Parag./Figure/ Table	Comment	Proposed change	Answer by consortium
1	EUMEPS	Webinar		Will the presentation be shared and some minutes?		The presentation will be available on the web page.
2	SINTEF	Webinar		Is there a web-page where the details about the project are given?		A new web page for the project has been created.
3	EUMEPS	Webinar		Possibilities for participation like the request?		Yes, it will be possible to participate in the project as stakeholder. We welcome help with reviewing results and proposals as well as selection of systems and materials for testing. A new invitation with more details will be sent out.
4	CPE	Webinar		Will there be more than the 2 webinars, 1 at start and one at the end of the project?		The plan is to give more webinars, at least two per year. They will be planned so there will be some news to presented, and the next webinar will probably be held in the beginning of July, 2020, when the theoretical

						round robin has been held and we have a more detailed plan for the initial testing.
5	European Aluminum	AM May 7, 2020	3	The definition of façade also includes curtain wall, which is outside the scope of the method.	It is proposed that curtain wall is removed in this definition.	TBA
6	FSEU	2020-06-12		A detailed description of the direct field of application (and also extended field of application) is missing. This should be the key part of an assessment/testing method to avoid individual interpretations from a test result.		It is correct that the field of application is not covered and that it is an essential part of the assessment method. The field of application is outside the scope of the present project, and therefore not included in the document. Work certainly needs to be started on the field of application since it is a very large and complex task. It is comparable to the extended field of application standards made for fire doors, where there are several separate standards, one for each general type of door. Something similar would be needed for facades.
7	FSEU	2020-06-12	Assessment method Sec 7.4	The document refers to EN 1364-3 and EN 1364-4 for curtain wall systems. On the other hand it describes a method for façade-to-floor junction which looks similar to the detail of a curtain wall perimeter joint/junction as covered by EN 1364-3 or EN 1364-4. Why is a 10 second continuous flaming for integrity performance accepted?	To avoid a misuse of this document for curtain wall testing or parts of it we propose to delete the floor-to-wall option as in 7.4. and refer to EN 1364-3 and EN1364-3. Such "junctions" in practice will always require a certain movement capability based on wind loads, traffic loads, etc., which is also not considered in this document. In case the "Façade-to-	TBA

					floor junction" will not be excluded, the performance criteria in 11.3 needs to be adapted to the criteria acc. to EN 1364-3 or EN 1364-4.	
8	FSEU	2020-06-12	Assessment method Sec. 6.2	The definition uses the terms "fire barrier" and also "fire stop". In 6.2 also the term "cavity barrier" is used.	We propose just to replace the term "fire stop" with "fire barrier" or "cavity barrier" in order to avoid confusion.	Agree, the same wording shall be adopted throughout the document, and it shall be the one used in the definitions. The assessment method shall be updated with the correct definitions.
9	FSEU	2020-06-12	Assessment method 6.2	In 6.2 it says: One specimen shall be tested. In the case where the mounting can be made in different ways (e.g. panels mounted vertically or horizontally), or where different details can be used (e.g. different types of fire stops or cavity barriers), or where other features can be done in different ways, then additional test specimens may be required.	The word "may" has to be replaced by "shall". It needs to be clear that it should be mandatory to include each different detail in a test and also that these details are part of the entire façade system - if not covered by the field of application.	Agree. It shall be clarified in the assessment method that the number of specimens needed to test depends on the field of application.
10	European Aluminium	2020-06-16	3. Terms, definition,.. Definition of "Façade"	"A complete external wall construction of any type (massive wall or curtain wall …etc.) or constitution (masonry, combustible material …etc.)"	Delete reference to curtain wall, as it clarified in many other sections of the document that curtain walls are not in the scope of this work	TBA
11	European Aluminium	2020-06-16	4.1. 1st paragraph after bullet list	There is no reference to the uplift of the test rig, which should instead be included in this paragraph. "The test rig consists of a structural frame, eventually	We propose the uplift by a height of e.g. 2.000 mm to secure that falling parts will be easily recorded and that they will not be exposed to the severe	This is part of the study, and it will be experimentally examined in Task 2 of the project. Therefore, the height of the uplift is not defined yet. During the initial testing program, we will investigate different uplift, from

				covered by a supporting construction, composed of a main face and a return wing, fitted with a combustion chamber, [lifted from the floor at a height of XXXX mm]. The rig utilizes a vertical structural frame, representative of a structural steel framed building and shall be capable of enduring the effects of the test procedure without itself suffering undue damage or distortion, see 4.3 for details."	levels of radiation due to the combustion chamber.	500 mm and upwards in order to define the amount of uplift that will be necessary to ensure a reliable measurement on falling burning parts.
12	European Aluminium	2020-06-16	4.5	It is essential to obtain that the method is developed on a way that material which reaches the ground of the laboratory (falling parts) is not close to the combustion chamber as: Observation of size as well as of burning particles and/or burning droplets will be difficult. It could be influenced by radiation originating from the combustion chamber that may cause self-ignition, while that will not happen in the unlike event of a fire which occurs on a floor of a building.	We propose the uplift by a height of e.g. 2.000 mm to secure that falling parts will be easily recorded and that they will not be exposed to the severe levels of radiation due to the combustion chamber.	This is part of the study, and it will be experimentally examined in Task 2 of the project. Therefore, the height of the uplift is not defined yet. During the initial testing program, we will investigate different uplift, from 500 mm and upwards in order to define the amount of uplift that will be necessary to ensure a reliable measurement on falling burning parts.
13	European Aluminium	2020-06-16	4.6	Experience with existing full-scale fire tests evidenced that the vague definition of the crib can cause a variation of 50% of the fire load. Hence, parameters like the mass and calorific value of the timber must be also clearly defined.		An experimental study is in progress within Task 2 of the project where the wood crib is one of the tasks. The aim is to define the necessary tolerances on density, geometry, moisture content, specific surface, calorific value and in addition nailing and other aspects are examined. The results will be available during the fall 2020.

14	European Aluminium	2020-06-16	4.7.6 1st para	Reference to "A weighing load cell platform with an accuracy of ±1 N shall be used to measure falling parts." is very good. But then the use of such weighing load cell is never mentioned again in the relevant parts of the test method dealing with falling parts. Please ensure consistency.		The techniques to determine the weight and size of falling parts will be studied in Task 2 of the project, and thus it is still too early to define the needed accuracy. It will of course be included in the final assessment method.
15	European Aluminium	2020-06-16	4.7.6 1st para	It must be possible to weigh not only at the end of the test but also during the implementation of the test (incremental measurement)		Correct. The measurements shall be done continuously throughout the whole test. Although, the needed time increments for the data acquisition has not yet been decided, and that will be set after the test programs have been finalized.
16	European Aluminium	2020-06-16	10.4	Reference to "incremental weighing" to be added. Falling parts should not only be weighed at the end of the test.		Correct. The measurements shall be done continuously throughout the whole test. Although, the needed time increments for the data acquisition has not yet been decided, and that will be set after the test programs have been finalized.
17	European Aluminium	2020-06-16	11.2 1st para	The 1st para says "Falling parts include all solid or liquid material falling from the test specimen. They are assessed by visual observations, until a suitable measurement technique is available." This is not consistent with 4.7.6, where it is envisaged the use of a weighing load cell. This solution, even if more technical complex, is recommended.		The techniques to determine the weight and size of falling parts will be studied in Task 2 of the project. Image analysis and different weighting techniques will be investigated before it is decided on what to propose in the assessment method. The aim is to introduce measurement techniques to continuously measure size and weight of falling parts, and not rely on visual observations.
18	European Aluminium	2020-06-16	11.2.1 Bullet point on mass	We agree on the principle of weighing single falling parts as the total amount of falling parts	Thus, it is advised to raise the limit for	Agree that it is the individual parts that are of interest. We should measure both the individual falling

				is not significant for the purposes of the safe evacuation of people and safe intervention of fire fighters. As a matter of fact, it is not the total amount of falling parts that reflects danger for occupants and firefighters, but the mass of the falling parts themselves. For example, 5 parts of 4 kg each falling during the test are less dangerous than a single falling part weighing 20 kg. Furthermore, building entrances have covering above them and protection from falling parts is assumed in those areas.	failure to at least 2 kg.	parts and the total mass of falling parts. The failure criteria to be used will be based on the requirements currently used in the MS, if not the regulators in the MS can come to some other agreement.
19	European Aluminium	2020-06-16	11.2.1 Bullet point on area	Reference of failure of the falling part criterion due to falling parts is to be deleted. The reasons are the following: 1. no endangering to occupants and emergency service during evacuation of a building → the endangering depends on the mass and shape of the falling part, not of the area size. The mass results in the impact due to gravity. However, a larger area, e. g. 1-2 m² of textile fabric, which waves down "like a leave" would be less dangerous than a dagger-shaped piece of glass having a mass of 0,5 kg. Hence we would recommend to eliminate	Reference of failure of the falling part criterion due to falling parts is to be deleted.	The failure criteria to be used will be based on the requirements currently used in the MS, if not the regulators in the MS can come to some other agreement. Since some MS have requirements regarding burning falling parts/droplets, it will be included in the assessment method.

				an area limitation or introduce factor like mass/area. 2. no secondary fire from falling burning parts → it is quite difficult to estimate time and quantity of a material to ignite an additional fire. In Russia they put bituminous foil on the ground and observe whether it ignites during the test. However, the radiation of the primary fire source influences the behaviour. Hence the EN 13823 (SBI) and/or EN ISO 11925-2 should be sufficient for evaluation.		
20	European Aluminium	2020-06-16	11.2.2 Entire paragraph	Chapter to be deleted: no secondary fire from falling burning parts → it is quite difficult to estimate time and quantity of a material to ignite an additional fire. In Russia they put bituminous foil on the ground and observe whether it ignites during the test. However, the radiation of the primary fire source influences the behaviour. Hence the EN 13823 (SBI) and/or EN ISO 11925-2 should be sufficient for evaluation.	Delete chapter 11.2.2	The failure criteria to be used will be based on the requirements currently used in the MS, if not the regulators in the MS can come to some other agreement. Since some MS have requirements regarding burning falling parts/droplets, it will be included in the assessment method. The Russian method is used to ensure that no fire spread occurs to a roof below the fire. This is currently covered by ENV 1187 in Europe and EN 13501-5.
21	European Aluminium	2020-06-16	11.2.2 Bullet points for liquids and solids	Chapter to be deleted (see comment above) However, being the radiation of the primary fire source influences the behaviour of falling parts, the presence of burning debris for up to 60	Delete chapter 11.2.2	The failure criteria to be used will be based on the requirements currently used in the MS, if not the regulators in the MS can come to some other agreement. Since some MS have requirements regarding burning falling parts/droplets, it will be included in the assessment method.

				seconds inside the control zone should be acceptable. What would pose additional risks is the presence of burning debris far away from the façade, posing additional risks to the surrounding buildings, objects, people.		
22	European Aluminium	2020-06-16	ANNEX A	Don't see the connection with this method and the use of a weighing cell as envisaged in chapter 4.7.6. Weighing cell is the method to be preferred. Furthermore, reference to mass and area of allowed falling part is to be revised (see comment 9 and 10 from European Aluminium)		The techniques to determine the weight and size of falling parts will be studied in Task 2 of the project. Image analysis and different weighting techniques will be investigated before it is decided on what to propose in the assessment method. The aim is to introduce measurement techniques to continuously measure size and weight of falling parts, and not rely on visual observations.
23	Paroc	2020-06-17	Façade systems to be tested general	What does belong to a façade system? Is there a clear description of the terminology and what it includes?		There is no clear definition of a façade system, and it becomes even more unclear on what to include in a test when looking on the regulations in the MS. In some MS the regulation covers the complete exterior wall, while in other MS it is the outer skin that needs to be assessed. Therefore, the European assessment method needs to cover all, and it will be important to have a good description of the field of application together with the test and classification report.
24	Paroc	2020-06-17	Façade systems to be tested Fig 2/ p. 3	Why to use a facade system that is not representative of widely used system? Why to choose a wooden façade when they are not common for high rise buildings?		The aim of the study is to finetune and evaluate the test method, and therefore do we need different façade systems, and the ones used shall give valuable test results. With the inert façade system (included in the tests)

						we will be able to determine the repeatability and reproducibility of the fire source. To define the failure criteria of fire spread we need systems that are on the border line between pass and failure, and where we have results from previous tests in accordance with the current national methods.
25	Paroc	2020-06-17	Façade systems to be tested Fig 2/ p. 3	Do floor and ceiling belong to a façade system?	We think that it should not be part of the tested specimen because the purpose of the test is not to test the whole construction	TBA
26	Paroc	2020-06-17	Façade systems to be tested Fig 2/ p. 3	What could be a mineral fiber Euroclass D? Or is it wood fiber insulation if euroclass D is requested? wood fiber insulation is not used in high rise buildings		We have only given an example, but we will need your, and other stakeholders, help to define what to be used in the tests.
27	Paroc	2020-06-17	Façade systems to be tested Fig. 3 /p.7	Is this type of façade system relevant? Is it used in certain countries?		The aim of the study is to finetune and evaluate the test method, and therefore do we need different façade systems, and the ones used shall give valuable test results. With the inert façade system (included in the tests) we will be able to determine the repeatability and reproducibility of the fire source. To define the failure criteria of fire spread we need systems that are on the border line between pass and failure, and where we have results from previous tests in accordance with the current national methods.
28	Paroc	2020-06-17	Façade systems to be tested Fig. 3 /p.7	Is a Euroclass B HPL a combustible material? Should it be a class D or E?		We need your, and other stakeholders, help to define which type of materials to be used in the tests. What's important is that the

						system will be on the border line between pass and fail, and that there is some evidence that it is on the border line from tests made with current national methods. This system was chosen as an example since there are data available from public available tests.
29	Paroc	2020-06-17	Façade systems to be tested Fig 4/p.6	The render should be better defined. What type (organic/inorganic)? Thickness?		We need your, and other stakeholders, help to define which type of materials to be used in the tests. What's important is that the system will be on the border line between pass and fail, and that there is some evidence that it is on the border line from tests made with current national methods. This system was chosen as an example since there are data available from public available tests.
30	Paroc	2020-06-17	Façade systems to be tested Fig 4/p.6	Should gas filled PIR/Phenolic foam be tested as a part of one reference construction as it behaves in fire totally different than melting EPS?		We need your, and other stakeholders, help to define which type of materials to be used in the tests. What's important is that the system will be on the border line between pass and fail, and that there is some evidence that it is on the border line from tests made with current national methods. This system was chosen as an example since there are data available from public available tests.
31	Paroc	2020-06-17	Façade systems to be tested Fig.5/p.7	Do floor and ceiling belong to a façade system? we thing that it should not be part of the tested specimen because the purpose of the test is not to test the whole construction		TBA

32	Paroc	2020-06-17	Façade systems to be tested Fig.5/p.7	What could be a mineral fiber Euroclass D? Or is it wood fiber insulation if euroclass D is requested? wood fiber insulation is not not used in high rise buildings		We need your, and other stakeholders, help to define which type of materials to be used in the tests. What's important is that the system will be on the border line between pass and fail, and that there is some evidence that it is on the border line from tests made with current national methods. This system was chosen as an example since there are data available from public available tests.
33	Austrian Wood Industry	2020-07-01	Assessment Method and Testing Program	The position of the second opening has an impact on the fire behaviour on the façade. In our opinion, the secondary opening will act as a fire stop and therefore we think that the eccentrically placed variant is the less favourable case. In any case, several different façade systems should be tested (not only ventilated wooden façades), because different results are expected. The shown examples of the different façades need to be adjusted.		The position of the secondary opening has not yet been decided, and it will be investigated further in Task 2 - Initial testing. It is correct that the secondary opening can act as a fire stop. The aim is to find a position of the secondary opening where we have both a possible weak part (the detailing around an opening) and a continuous façade surface. The reason for this is that in several current national methods are the openings mandatory, while in other methods they are not. Therefore to aim with the present proposed method is to combine both.
34	FSS	2020-07-01	General	Test set up to accommodate alternative pass/fail criteria We assume that the standard shall record performance only. Setting pass/fail criteria is not part of the EC project. So left to test case-by-case based on code or fire strategy requirements.	Please make sure the rig and instrumentation can accomodate or allow to accomodate tests to verify burn-through time of cladding, self-exinction after spread to top of rig, smoke spread exterior to cavity and between cavity compartments.	In accordance with the Invitation To Tender from EC, part 2, chapter 1.2.1 a proposal on classification and failure criteria shall be included in the project. It shall, however, be noted that this will only be a proposal from this project, and decisions on classification and failure criteria will be made after the project is finalized. It shall also be noted that in the present draft of the assessment

					This is important in view of new sets of criteria to raise the bar on flame/smoke spread to escape routes and to allow materials to be tested based on their specific premises of fire protection. Substantiation attached at the end.	method some values are given on location of measurements as well as failure criteria and classification. This has been included in order to make the theoretical round robin possible, but the values given in the method can, and will probably, be changed.
35	FSS	2020-07-01	General	Hearth opening – effect on test results of ventilating facades. Test evidence indicate that tests simulating an open window (by an unprotected opening) in front of the fire room instead of simulating a breaking window (by removing an insulated shield at the time of a set condition, e.g. flashover at 700 °C) yields widely different fire spread developments in rainscreen (ventilating) façades. This is due to fire barriers relying on intumescent and abrupt flux of buoyant unburnt gas and flames. Simulating breaking of window is the obvious realistic and sound conservative way of testing. Testing with "open window" is a rare occurance that emits inert (burnt) smoke by a mainly fuel-controlled fire, which do not ignite combustibles in cavity or at ventilation outlet gaps or panel joints.	At present, we consider choices to be: 1. Carry out comparison testing (open window vs breaking window) and approve or re-design test rig/procedure to fit. 2. Exclude rainscreen testing containing intumescent from scope and refer to product testing (ASTM 2912 or similar).	It is true that the fire exposure on the façade system will be different if you have a shutter that opens when you have a fully develop fire in the combustion chamber compared to the proposed method where the opening to the combustion chamber is open from when the wood crib is ignited. Although, we have to remember that this test method is a rough but repeatable and reproducible model of what happens in real fires, and we will never be able to have a test method which correctly represents a real fire. Furthermore, it will in principle always be possible to find a more severe scenario, and therefore we have to define a level which is good enough and will give a level of fire safety that is acceptable in the MS.

				Substantiation attached at the end.		
36	FSS	2020-07-01	Façade systems to be tested – Figure 1 and text	If the secondary opening are to become similar for all products tested it must be allowed to install windows as tested only. Skewed window locations in façades are less popular. If the sponsor plan to use windows on a symmetrical vertical centre line the system will not be installed in practice as it was tested. If the intent is to allow location and size of windows to deviate without further testing, both the location and size of the secondary opening are questioned. Please explain. Is breaking glass in the secondary opening an issue that require test verification? It appears you intend to investigate fixing details of cladding only? No glass? A professional guesstimate is that the time to break glass in the secondary opening may vary more than time to failure of fixing and have greater consequence. Window/glazing in the secondary opening ought to be part of test. Please explain.		The method will not include windows. Although in some cases it may be necessary to include some of the protection a window frame will give to the façade system, and in these cases a model of a window frame, or parts of the framing will be included in the test. This will then have consequences on the field of application for the façade system.
37	FSS	2020-07-01	Façade systems to be tested – Figure 2	Drawing show a non-ventilated façade with cavities. So fire will attach the outer face only, i.e. one-sided exposure to cladding.		The aim is to examine fire spread both on the outer surface and in the cavity, and the temperature measurements for a system where we

				The text states «ventilating wooden facade». If so, exposure may become two-sided. Please clarify. If fire expose ventilated wood panel two-sided it is realistic and severe. If you expect test to complete before burn-through of façade panel, in order to investigate outer surface fire spread in the «borderline test series» as the single factor only, we suggest to simply fix thick OBS to solid supporting structure. If you include air cavities as shown with no ventilation, and with risk of gaps in cladding by deflection during fire, you may encounter multiple factors impacting the results which will complicate the borderline case-analysis. Ventilated cavity are by far most common in facades and most challenging. We are clearly in favor of testing such - in order to reveal and record interactions of all factors.		have fire spread both within and on the surface of the façade system. In addition, we want a system where we can examine the effect of the secondary opening, i.e. a system where there are features around the opening that can contribute to the fire spread. A ventilated system, where there are ventilation openings at the edges of windows is such a system. Therefore a ventilated wooden façade has been proposed, where there are ventilation openings at windows.
38	FSS	2020-07-01	Façade systems to be tested – Experimental Round Robin	A good array of categories. We just miss one typical: • Open joints panel cladding Example: 10-20 mm open joints between metal panels, i.e. metal edges bent to avoid influx of rain. Open joint panels may perform well in facade tests but allow		It has not yet been decided in detail on which systems to be used in the experimental round robin, although the present approach is to have a rainscreen, an ETICS and a wooden ventilated façade (in addition to a non combustible inert façade). The budget in the project is limited, and it is not possible to add any additional tests, and therefore we have to choose the

				smoke to pass from cavity to exterior and vice versa. This is unique in relation to new set ofs criteria on fire/smoke spread. It also allow hot unburnt smoke in cavity passing to exterior and ignite at higher level. Your proposed details as shown by figures should be checked for practical design not for suitability at borderline tests only: They ought to be common and realistic. We suspect parts of shown designs are less realistic. Substantiation attached at the end.		ones which is believed to give the most valuable results for the project.
39	FSS	2020-07-01	Façade systems to be tested – Experimental Round Robin – Falling parts	Two challenges with the "falling parts" issue: 1. Two member states are concerned by this only. 2. Broken glass shards is dominating concern of falling parts at almost any façade fire. Most often it happens before cladding parts drops, and before rescue personell set up barriers. So our response: There appears to be no inert façade system were falling parts is an issue more severe than falling glass. Falling glass shards are impossible to avoid in foreseeable future and even those are being considered a	We suggest you review how to handle glass shards in tests. We expect the issue to eventually not be handled in test standard.	There are MS who have requirements regarding falling parts and therefore it shall be included in the test method, which is also detailed in the Invitation To Tender from EC. It is not possible for the project team to make these decisions. The failure criteria to be used for falling parts will be based on the current regulations in those MS that regulate for falling parts, if no other agreement is made between the MS.

				manageable risk on incident sites. These views are as recalled from a CEN TC 127 WG 1 meeting about three years ago.		
40	FSS	2020-07-01	Façade systems to be tested - Experimental round robin – Combustible rainscreen and non-combustible insulation – Figure 3	Cladding appears ok. The window: Suggest replacing glass in windows by a non-combustible shield for these tests in order to assess the frame fixing performance of facade system without interference of glass breaking. Then, separately include glazed windows in all-inclusive tests. Explanation: A single float glass versus multi-layered glass can make the facade system fail or pass differently.		There will never be any glass in the secondary opening, it will always be "closed" with some non-combustible, and mechanically stable material.
41	FSS	2020-07-01	Façade systems to be tested -ETICS	Again, breaking window panes result in glass shards - the most hazardous falling parts. Hard to imagine EPS etc resulting in falling parts of similar severity.	Note our suggestion to move falling parts-issue out of fire test-ing; perhaps by regulation of construction discipline instead. We do not test ceiling or light fixture for dropping in fire either.	There are MS who have requirements regarding falling parts and therefore it shall be included in the test method, which is also detailed in the Invitation To Tender from EC. It is not possible for the project team to make these decisions. The failure criteria to be used for falling parts will be based on the current regulations in those MS that regulate for falling parts, if no other agreement is made between the MS.
42	FSS	2020-07-01	Façade systems to be tested – Ventilated wooden façade	Again (as fig 2), figure show non-ventilated air cavities on an insulating wall. This is a no-no design within building physics, so not realistic. Also, such a specimen will not allow fire spread into cavity until integrity failure of cladding	Test should be done in ventilating mode which is conservative and realistic.	As stated in the letter sent to stakeholders we are looking for a wooden test specimen giving a fire spread on the surface as well as in the ventilation cavity, and which will show a failure sometime within 20-30 minutes into the test. The specimen does not have to be representative of

				occur. A wood panel as shown will likely burn through within 6-9 min from outside. Fire spread into a sealed non-ventilated cavity as shown will therefore not cause significant charring on the rear side of panel if tested this way. So not a realistic ventilating design even in terms of fire.		what is built in practice, since these tests are made only with the aim to evaluate the test methodology, and not the test specimen. We would appreciate any suggestions on a design of a ventilated wooden façade which would give this kind of failure.
43	PU Europe	2020-07-01	Test Method as published on the website	We would like to understand why the changes to the assessment criteria and position of thermocouples have been made, deviating from the BS8414-1 approach. These changes mean that there is no guarantee for current (borderline-pass) systems to comply with requirements. We assume currently approved compliant systems remain compliant.	Additional changes proposed are - decrease in the height for measuring the temperatures in the large exposure - Introducing new additional criteria for lateral flame spread Introducing a different level (lower) temperatures for the large exposure test	There is no scientific background to the positions for measurements given in the latest version of the assessment document. There have not been any decisions on how and where measurements shall be performed, and these decisions will be made only after all tests have been performed and we have all data available. The intention is that the failure criteria in the new European method shall be approximately at the same level as the present ones for the DIN 4102-20 and BS 8414 methods. In order to simplify the methodology, we are looking for the same failure criteria for both the medium and large fire exposure scenario, i.e. that the same temperature level is used. This is not the case currently in the DIN and BS methods.
44	PU Europe	2020-07-01	Letter to stake-holders - Definition of borderline	In defining borderline we seek to understand further which is more important in defining borderlines: the temperature limit or just failure at the end of the test.		We are looking for systems that have been tested in accordance with some of the current available façade test methods, and that in those tests have been on the borderline between pass/failure in accordance with that methods failure criteria, especially regarding fire spread.

45	PU Europe	2020-07-01	Questionaire regarding proposals for systems to be tested	Although data on borderline systems for the old national tests are probably available, based on our earlier remarks about refining the test assessment and limit conditions, these systems are unlikely to be borderline systems now for the proposed test with the currently revised testing and assessment procedure (see RISE website). We cannot predict outcome performance for these systems with the revised criteria and the additional window opening.		The intention is that the new method shall give approximately the same classification as the current national methods, i.e. approximately the same safety level. Therefore tests made with the current national methods will give the information needed.
46	PU Europe	2020-07-01	Initial tests (2.) and text below figure one "some kind of weakness of the system at the secondary opening…."	What is the explanation for why the window surround is weakened and how does this relate to end use? How will you achieve this?		It is not intended to introduce any additional weaknesses in the systems to be tested. We are looking for systems that have details that are challenging with respect to the failure criteria used in the method, and in this case fire spread. A typical weak detail is ventilation openings around windows where an extensive fire spread can be achieved in the ventilation cavity if combustible materials are used, and due do the chimney effect that might occur. In other words, we are looking for systems that have in the design built in weaknesses at openings.
47	PU Europe	2020-07-01	Façade systems to be tested- Inert façade and fallen debris	You state you want to evaluate falling debris using the inert system and give some examples how to do this without influence by fire spread in the system. To be able to do it without influence of the system on fire spread it would		If we can find a way to examine the measurement techniques to evaluate falling parts which would give relevant information in the experimental round robin, it would be good. Although, we are aware that falling parts may be very random, and thus it can be difficult to evaluate

				be needed to test without a cavity on an inert wall but this would not have any valuable information on system degradation and only very minor debris would be expected? What is the value of this evaluation? And how about weight changes if extinguishing water is absorbed?		these measurements in the round robin. We would then need specimens where we can minimize the spread in time of falling parts and also where we know the size/weight of the falling parts. The measurements are carried out continuously during the whole test, so it is not a single measurement after the test is finished. Therefore does eventual water during extinguishing not affect the results.
48	PU Europe	2020-07-01	Façade systems to be tested - Ventilated façade	At this point in time in the project, PU Europe would like to raise its concerns on the fact that the second proposed system "combustible rainscreen and non-combustible insulation" has potential to discriminate against façade systems which fulfil the requirements of some national building codes while using combustible insulation material. In our view, the pass/fail criteria should also be suitable for those systems (with combustible insulation) and not just those based on non-combustible insulation.		It is not a question on discriminating any systems. The main objective is to test the method with some different façade systems, and the systems used shall give valuable information, therefore we are looking for border line systems.
49	PU Europe	2020-07-01	Façade systems to be tested -ETICS	We have data from a test with PIR insulation in an ETICS which passed the BS 8414-1 test. If you are interested, we can send the test data for your information if we get a clear statement regarding confidentiality.		We appreciate all help we can get with historical test data. We will sign a confidentially agreement between the project team and the stakeholder providing confidential information.

50	PU Europe	2020-07-01	Plan for the project and inception report - Outdoor testing	Introducing external test rigs gives an added complication. Outdoor testing is not easily controllable / reproducible. Our view is that resources would be better spent on the optimization of the internal testing. External test rigs introduction could be developed in a later phase once the test regime has been more fully confirmed and tested.		We agree that the control of environmental conditions when testing outdoors will complicate the project. One of the parameters to be studied in the project is the effect of the environmental conditions, and thus especially the effect of wind. We also have to keep in mind that outdoor testing can be done in many different ways, it is possible to use protection from the wind. Furthermore, also when testing indoors the environmental conditions can vary. Generally, some kind of ventilation system is needed which will introduce forced air movements in the lab. The aim is thus to see how big effect the wind have on the test, and thereafter set limitations on the environmental conditions.
51	EUMEPS	2020-07-01	Request for information, General comment - In your request you state: "It is important that the chosen façade systems assessed are on the border line between the pass and fail criteria. Therefore, we will need evidence from previous large-scale tests in accordance with at least one of the currently used	From this text there is a considerable risk of misunderstanding. The proposed assessment method differentiates between the medium and high fire exposure, which might be defined differently from the original German and UK test methods. In addition many elements of the proposed method are different. For this reason we need to clearly differentiate between at least four different borderline systems and if we talk in the project about this identify them precisely:		We are mainly looking for border line systems using the DIN 4102-20 for the medium heat exposure tests and using the BS 8414 for the large fire exposure tests. The new assessment method is not very different from the DIN and BS methods when looking on the geometry and the heat exposure, and the aim is to get approximately the same results with the old DIN and BS methods as with the new EC method.

			national methods in Europe showing that the system is on the border line.”	1. A borderline system for the German DIN test 2. A borderline system for the UK BS test 3. (A borderline system for another national test, as specified) 4. An (expected) borderline system for the proposed method exposed to medium fire exposure (with and without second opening) 5. An (expected) borderline system for the proposed method exposed to high fire exposure (with and without second opening) In the documents the clear confirmation should be provided that the aim is to choose the specifics of the proposed test set up in such a way, that the combination of these choices leads to an overall performance level that is calibrated towards the levels 1 and 2 respectively. Deviations from the choices (including pas fail criteria) on the specifics of the proposed test set up therefore should be scientifically justified. This means a solid argumentation that it aims for more preciseness and will not lead to a significantly different (higher/ lower) requirement level.		

52	EUMEPS	2020-07-01	Request for information, General comment - Missing argumentation for changes in the specification for the proposed method.	In the documents the clear confirmation should be provided that the aim is to choose the specifics of the proposed test set up in such a way, that the combination of these choices leads to an overall performance level that is calibrated towards the levels 1 and 2 respectively. Deviations from the specifics (incl. measurement height and temperature criteria) of the original methods and previous versions of the proposed method therefore should be scientifically justified. This means an solid argumentation that it aims for more preciseness and will not lead to a significantly changed impact (higher/ lower) for the resulting requirement level.		The positions of measurements and failure criteria are not yet set for the new method. If the positions of temperature measurements are moved in any direction compared the DIN and BS methods, the aim is to calibrate the failure criteria so it will be at approximately the same safety level as historically. In the experiments measurements will be done in accordance with the current BS and DIN methods, in addition to the position given in the proposed assessment method. There will also be made more temperature measurements at other locations so we will have a good coverage of the temperature field over the whole test specimen. That would enable us to define suitable positions for temperature measurements, and also failure criteria that calibrates against the current BS and DIN methods.
53	EUMEPS	2020-07-01	Request for information, General comment - In your request you state: "The systems selected for the tests can deviate from those used in practice if it is anticipated that they will give the needed information."	In case preferably public reports are available for systems are tested, where results provide evidence that those systems are borderline positive results for type 1 or borderline type 2 (see above), then there must be solid scientific justification to deviate from these system specifications. Every change made in the system specification adds an additional factor of variation and will make calibration of the proposed method towards		Agree.

				borderline levels 1 and 2 more difficult.		
54	EUMEPS	2020-07-01	Request for information, General comment - In your request you state: "The aim of the initial tests is to investigate the effect of the position of the secondary opening."	The aim of the initial test should be to find out what the most critical specifications are of the secondary opening. The focus should be on finding out what choices create a realistic, most severe exposure for the construction details for a system exposed to the proposed test method. Note: no calibration towards borderline levels 1 and 2 is possible, because the original tests do not include such secondary opening.		Agree
55	EUMEPS	2020-07-01	Request for information, General comment - In your request you state: "Furthermore, there shall be some type of weakness of the system at the secondary opening which accelerate the vertical fire spread." and "In the tests would the window details be removed, i.e. the window frame, the drip plats, the windowsill, completion boards, caulking, and internal windowsill."	There is no justification to make such choices: a system that would (borderline) pass without opening and then on purpose including poor detailing for the secondary opining to let the system fail with such secondary opening. What is the justification for this poor detailing? The intention of the regulator requiring such secondary opening to be tested could be at least twofold: - The impact of a secondary opening of the overall reaction to fire performance of the system in general - The reaction to fire performance of the opening itself		It is not intended to introduce any additional weaknesses in the systems to be tested. We are looking for systems that have details that are challenging with respect to the failure criteria used in the method, and in this case fire spread. A typical weak detail is ventilation openings around windows where an extensive fire spread can be achieved in the ventilation cavity if combustible materials are used, and due do the chimney effect that might occur. In other words, we are looking for systems that have in the design built in weaknesses at openings.

				For both objectives a failure on purpose included in the design will not create a meaningful result as described in the row above. As EUMEPS we have no opinion on any of the details for wooden facades.		
56	EUMEPS	2020-07-01	Request for information, General comment - In your request you state: "We will therefore eliminate some of the factors that may affect the results in order to define whether any changes are needed in the test procedure and test set-up."	What are those factors that affect the result? What does it mean that you will eliminate those? How is this done and what will it mean for the specific details of the systems to be tested?		These factors include interpretation of the test method, mounting of the test specimen, i.e. the factors caused by the laboratory. We will therefore have a team of test leaders that follows and control all tests, and we hope that we can get help from stakeholders to provide mounting of the test specimens to ensure it is done in the same way for all tests.
57	EUMEPS	2020-07-01	Request for information, General comment - Transparency and public availability of reports used to decide upon specification of the systems.	We request maximum transparency of the scientific evaluation process to arrive at the system specification. This means that there should be hierarchy of sources to be used. If public reports are available these should be used preferably. Only if data gaps remain non-public reports should be used. In those cases the main data should be available to follow and verify this process. In any case for the reports the institute performing the		Agree

				research and the funding of the work must be transparent. Also the objective of the test done must be clear: whether the aim was a regular positive classification for a system or that there was another objective for performing the test series.		
58	EUMEPS	2020-07-01	Request for information, General comment - In your request you state: "Furthermore, the test shall also show a failure due to falling parts, and in this case burning material."	We disagree with the need to include a system that will fail on these criteria. Also for these criteria calibration should be aimed for. This means the description of these criteria should be in such way that for a test done according to the proposed method on a system that passed the DIN, resp BS test, the new proposed description of criteria should lead to a pass as well.		The failure criteria for falling parts has not been set, it is just a proposal in the assessment method and this is based on the requirements in some MS. We agree that it will probably be very difficult to examine falling parts in the round robin, so the project will mainly focus on the measurement techniques to enable continuous measurement of falling parts.
59	EUMEPS	2020-07-01	Façade systems to be tested Page 2 and 5 Question on specimen for position of secondary opening - Figure 2. Example of test specimen for study of the position of the secondary opening. Question to stakeholders: Is the suggested test specimen a good alternative, or do you have any other	For answering this question we need clarification how the window opening will be built up – will the removed parts be replaced by a covering instead of the window frame? (see comment no.3) Before this is done it needs to be clarified: • Why do you want to weaken the window surrounding? • Should there not be a realistic end-scenario with the construction as proposed in a building?		In the tests will only eventual parts of the window frame, or window detailing be included that needs to be in place to achieve the wished fire performance of the system, i.e. if parts of the window is necessary to protect the façade system, it will also be present in the test. Although, this will have an effect of the field of application which thus will be more limited. In the test set up the opening where the window normally will be installed, it will be closed with a non combustible material, as is shown in the assessment method.

			suggestion? Are there any details in the suggested test specimen that should be changed to give the desired result? And question in text page 2 Which position of the secondary opening shows best eventual weakness of the detailing around openings? "Furthermore, there shall be some type of weakness of the system at the secondary opening which accelerate the vertical fire spread."			
60	EUMEPS	2020-07-01	Façade systems to be tested - Page 4: Questions to stakeholders: Do you have any suggestion on an inert façade system where falling parts will be an issue?	The program should include some kind of evaluation of the reliability of the proposed method to classify for falling parts. The result of the test cannot be a lottery, results must be repeatable, else the result and classification based upon it are meaningless. Objective measurement of the (risk of) falling parts includes many technical challenges. Focus now seems to be on the purely technical measurement if a part falls, but there are more aspects to it than only that.		Agree. The experimental exercise will include measurements of the falling parts in relation with time. The laboratories involved in the round robin procedure will compare the data and will assess the reliability of the proposed method. We are aware that the method should produce reliable results. The task group may produce more refined and detailed procedure and criteria after the calibration exercise.

				There are a lot of different reasons which might cause falling parts and their nature will be different – failure of fixings by melting or burning leads to big falling pieces, cracking of outer layer etc. may lead to an accumulation of smaller parts- it is not possible to define one inert façade which could represent all of this.		
61	EUMEPS		Façade systems to be tested - Figure 4. Example on an ETICS with combustible insulation. Questions to stakeholders: Is the suggested test specimen a good alternative, or do you have any other suggestion? Are there any details in the suggested test specimen that should be changed to give the desired result?		There is a big variety of systems and two systems at borderline level 1 and borderline level 2 will be proposed according to the current DIN and BS test standard.	Noted. We are looking at systems which can offer as much information during the test as possible. Ideally the systems we chose to test would have been tested with national methods. Please let us know if you can provide some information. The systems used in the tests will most probably be different for the medium and the large heat exposure tests.
62	EUMEPS	2020-07-01	Draft assessment method as published on the website - Fig. 13 and 11 Performance Criteria	The proposed changes seem to change the proposed assessment method compared to existing national methods (BS and DIN test). Therefore comparison to existing results where systems are currently compliant would become difficult or impossible. It would also change the requirement levels defined by such test,		For memory, this assessment method shall not cover only DIN and BS tests but shall be able to deliver data which can answer to all requirements existing in all Member States regarding the fire safety of façade. There are some changes proposed in relation with existing testing methodologies. The current assessment method is expected to provide the same level of

				which was not the intention. This would lead to market distortion compared to the current market. Can you provide a scientific justification for changing measurement levels and assessment criteria like: - Reduction of the height for measuring the temperatures in the large exposure - Proposing additional criteria for lateral flame spread - Proposing lower limit temperatures for the large exposure test		performance compared with the existing test standards. A more refined view regarding measurements such as temperature, incident heat flux, falling parts etc., will be present once the experimental exercise will be done. At the moment there is a proposal for a lower bound limit for the temperature criteria. This limit may change based on the data collected in the calibration exercise. Furthermore, at this stage of the development of the method, we can inform that: - the reduction of height is not yet definitive. - the criterion for lateral flame spread is not new but more accurate. It aims to issue a more objective criterion than only a visual observation. This is similar with what was done at the top of the rig in the last revision of BS 8414 - the temperature level is based on n harmonization between BS and DIN temperature criteria
63	EUMEPS	2020-07-01	Inception report and Facade systems to be tested - Presentation and Inception report – fuel source	Our request is to make exposure data and details of the wood-crib available when the wood cribs are defined and the initial tests with the additional window openings have been done (temperatures, heat flux, heat release)?		Noted. We are aiming for as good transparency as possible in the project and we will publish as much experimental data as possible. It will not be possible to publish everything, such as all films and photos, due to limited size on the web page. Although, if someone would like to have those data, we will provide it. There may, however, be some data that will not be public and that is

						confidential information given by stakeholders. Data from the experiments will be published as soon as they have been quality checked, and the aim is to publish them in a usable format (Excel or similar).
64	EUMEPS	2020-07-01	Inception report - Task 3.4 Purchase of façade systems to be tested Task 3.5 Send façade systems to participants and perform the tests The materials selected from the manufacturers (and packed to closed containers) will be send to the laboratories with the accompanying documents	It is important to make sure, that the façade systems for the round robin are built up by the same craftsmen doing the build up. It would be very difficult to this in a correct way, certainly for ETICS by non-craftsmen, but by fire specialists. Alternatively all installers should be trained in such way that it guarantees correct and identical installing n all laboratories. Otherwise in different laboratories different build-ups might be tested and it would not be possible to assess the repeatability and reproducibility of the test method itself because there would be a contribution to variability from the different installers.		Agree. We will need assistance with the installation of the test specimens. The testing laboratories will have as little involvement as possible in the installation process. We will need approved contractors for each type of system to be tested to reduce as much as possible the potential installation variations. We hope to receive help from the stakeholders.
65	EPFA	2020-07-01	Façade systems to be tested - General	The presentation of the project at the March webinar set out a number of parameters to be explored in the initial tests on slides 10 and 11. However, in the latest document this has been narrowed down to say that 'the aim of the initial tests is to investigate the effect of the position of the secondary opening'. No explanation is		The aim of the experimental exercise is to investigate a series of parameters such as fuel properties, mass loss, HRR for the fuel source, air flow, secondary opening, etc. Please refer to the last presentation/ webinar on 08.07.2020 hosted by the Project Director Lars Boström. It is not intended to introduce any additional weaknesses in the systems

				provided for such a significant reduction in scope and why the other issues remain unaddressed. If the stated aim of the investigation is to determine the location of the secondary opening, by introducing another variable i.e. a weakness around such a window, this could lead to an incorrect conclusion being reached on the main objective (location) and that in turn could lead to the wrong conclusion being adopted in the final assessment method?		to be tested. We are looking for systems that have details that are challenging with respect to the failure criteria used in the method, and in this case fire spread. A typical weak detail is ventilation openings around windows where an extensive fire spread can be achieved in the ventilation cavity if combustible materials are used, and due do the chimney effect that might occur. In other words, we are looking for systems that have in the design built in weaknesses at openings.
66	EPFA	2020-07-01	Façade systems to be tested - General	In reducing the scope of the 'ask' within the document, a number of important elements have been lost. An example would be Slide 13, where reference to the measurement of falling parts is clearly a critical issue. This is picked up later in our comments under the Inert Façades section.		At the moment the project team is investigating various measurements options to assess the falling parts to ensure that we will obtain a reliable and repeatable result (to a certain extent). A more refined view of the measurement techniques will be available after the calibration exercise. During the initial tests will different techniques such as image analysis and weighting techniques be investigated.
67	EPFA		Façade systems to be tested - General	While we understand that the RISE team needs some scientific leeway to complete its research objectives, we would caution against diverging too far from conventional tests. Indeed, the project seeks input from stakeholders on evidence from 'previous large-scale tests' which implies the opposite. Since the purpose of the project is to support the development		Agree. The aim of the assessment methodology is to provide an equivalent level of performance as existing national test standards. Any departures from the existing methods will look to improve any gaps in the current procedures. Please refer to the last presentation/ webinar on 08.07.2020 hosted by the Project Director Lars Boström for a closer view of the experimental

				of a test method which replicates the performance of border-line system, it would seem that any departure from conventional testing rationale would need to be justified.		programme and the proposed measurements.
68	EPFA	2020-07-01	Façade systems to be tested -General	The stated desire is to focus on borderline cases. EPFA members have a large body of evidence regarding the performance of ventilated rainscreen systems that incorporate phenolic insulation and ACMs. This includes a number of European tests, in general, but, in particular, in respect of BS 8414. It includes systems that are identical all bar one parameter, and that fall narrowly either side of the pass/fail boundary. We would therefore see it to be important to the RISE project that this information is capitalised upon, since comparisons with mineral wool performance will be important. To facilitate the use of this information, we believe it is vitally important to incorporate phenolic insulation in the proposed ventilated façade test. Phenolic insulation is used widely in practice in this application.		Agree. If possible, please let us know your views regarding the systems to be included in the experimental exercise and if you can offer further support. We will use any information publicly available such as the Ministry of Housing and Communities and Local Government (MHCLG) testing reports done in the UK to decide what is to be included within the programme. Please supply test data and provide more specifically how you can support us.
69	EPFA	2020-07-01	Façade systems to be tested - Exp. RR	It is very unlikely that you will have a single facade system which will prove to be a borderline case when subjected to both the medium and large scale fire loads. As the test methods are likely to represent		Noted. The aim is to specify systems which can offer as much information as possible tailored for each type of exposure. If you have any recommendations, experimental results and views please let us know.

				different safety levels, you would expect a system which is a borderline pass using the medium scale test to be a failure in the large scale test. To provide more useful information, it therefore seems logical to test one expected borderline facade system in the medium scale test but a different borderline system in the large scale test.		The system arrangement will be different for each exposure
70	EPFA	2020-07-01	Façade systems to be tested -General	Within the currently proposed test programme, there seems to be a lack of coverage and therefore direct comparisons between other combustible insulation materials. It is important that any test proposals arising from the project properly differentiate performance between individual combustible insulation materials. From our experience there is likely to be a significant difference between the fire spread performance of thermosplastic and thermosetting insulation type products when incorporated into similar façade systems but this aspect seems to have been overlooked in the current proposed test programme. The differences between thermos-plastic and thermosetting insulation products can often be far greater than when the latter, particularly phenolic foam, is compared to mineral		Will be considered. We are aware of the differences in performance between thermoplastic and thermosetting materials in respect to heat flux and temperature of ignition and potential of fire spread. The aim is to evaluate the overall performance of the cladding systems proposed in such way that we can compare the outcome with existing test data from national test method.

				fibre products. To provide further information on this matter, we would suggest that RISE considers testing similar systems incorporating an Expanded Polystyrene insulation with the medium fire load and a phenolic foam insulation with the high fire load. These could be expected to provide the stated objectives of borderline cases for the two different fire loads.		
71	EPFA	2020-07-01	Façade systems to be tested -General	Considering the small number of systems being considered for this programme, we believe greater benefit would be gained by increasing the number of systems instead of repeating the same system at different laboratories. We note that the systems themselves are intended to be installed by the same teams and so this should reduce variation for this aspect and ongoing technical discussions between laboratories (on what should be a standardised procedure) would be expected to reduce variations in the test procedure. By decreasing testing of identical systems at different laboratories but increase the number of different systems, a greater understanding of the		Noted. This potential option will be discussed within the group. The project has a set budget and any variations in terms of number of tests will have a significant impact on the budget. On the other hand, the repeatability and reproducibility of the assessment method has to be shown within the experimental procedure. It is possible to perform additional tests beyond the round robin provided that they are sponsored by external partners.

				comparative performance and potential ranking of commonly used façade systems could be achieved.		
72	EPFA	2020-07-01	Façade systems to be tested - General	With so few systems being considered for evaluation in this test programme, it becomes essential that additional information from existing national testing can be used for comparative purposes to increase the knowledge data-base for the test methods and commonly used systems. How can 'borderline' systems be identified / determined when the pass/fail criteria being proposed in this test method differs from that specified in current European large scale facade tests? We would advocate that the current pass/fail criteria (in terms of thermocouple heights, positions and temperatures) are adopted from existing national tests and regulatory guidance.		Noted. The experimental matrix was developed so it can fit within the allocated budget. The project team welcomes any other test data that you may have and can be made available for the database. We are incorporating in the analysis test results such as the experimental programme carried out by MHCLG in the UK. Most of the measurements proposed are similar with the specifications from national standards. Please refer to the last presentation/ webinar on 08.07.2020 hosted by the Project Director Lars Boström for a closer view of the experimental programme and the proposed measurements. The temperature limits proposed in the assessment methodology may change after the calibration exercise.
73	EPFA	2020-07-01	Façade systems to be tested -Inert and combustible rainscreen facades	It is unclear whether the inert facade will incorporate any insulation. In the current climate of energy conservation, testing an un-insulated facade does not appear to be the best use of resources in such a restrictive test programme. If mineral wool was to be considered as an insulation in an otherwise inert system then this could allow a different insulation to be incorporated		Noted. The tests on the inert facade are part of the calibration procedure. The inert façade aims not to be representative of any existing system. Based on the results obtained the project team will be able to make judgements regarding the repeatability of heat exposure as well as the different measurements.

				into the system using the high pressure cladding product. In addition, there is no indication as to whether the inert facade would include a cavity (ventilated or un-ventilated). If the facade is to be as inert as suggested, then it is unlikely to facilitate the spread of fire anyway. We would therefore urge RISE to reconsider the benefits of testing an inert facade system but if it is concluded that it is vital to maintain such a system in the test programme then incorporate mineral fibre in that system but replace mineral fibre in the rainscreen system with a commonly used alternative insulation such as phenolic foam		
74	EPFA	2020-07-01	Façade systems to be tested - Inert facades	If the intention of testing an inert facade system is primarily for the determination of falling debris, then the current proposed test method offers no guidance on how the weight of any part falling from the facade shall be separated from any partially burnt timber falling from the crib. Equally, there is a need to record the typical size of any falling debris, since this will be a significant factor in consequential risk to those in the vicinity of the fire. We would propose that a robust method is placed in the test		TBA

				procedure for the purposes of recording the weight and average size of falling debris from the system being tested and separate it from debris arising from the timber crib. Such details should be applicable to all façade systems. It is also critical when assessing the weight of falling debris that account is taken to deduct the weight of any water which has been used in the extinguishment of the crib and façade at the end of the test.		
75	EPFA	2020-07-01	Façade systems to be tested - Combustible rain screen	To satisfy the stated intention of testing borderline cases, consider changing the insulation being proposed for this test.	To achieve this, we would suggest that the mineral fibre insulation currently proposed in the this test is substituted by a commonly used thermosetting insulant such as phenolic foam, as per our comment #8 above.	Noted. This will be discussed within the consortium. The aim is to use facade systems that have been tested through national testing standards.
76	EPFA	2020-07-01	Façade systems to be tested - ETICS	If the intention of the test programme is to assess both vertical and horizontal fire spread on both the surface and within the facade system, consider testing a system with EPS in the medium fire load as a borderline system and a phenolic system in the high fire load. This would be expected to provide information on two different systems with two different performance levels.		Noted. This will be discussed within the project task group. We agree that a borderline system for large exposure may not have the same behaviour when subjected to the medium exposure procedure. The facade systems will be carefully discussed and selected in such way that we maximise the data collected during the experiments. Your suggestions will be considered.

77	EPFA	2020-07-01	Façade systems to be tested -Exp. RR	There are no details currently provided on the locations and fitting of fire barriers. Will such decisions be at the discretion of the test sponsor? We would suggest that the current test procedure is modified so as to state that fire barriers shall be installed in accordance with the test sponsors instructions and in accordance with the way they will be intended to be installed in practice. It should also be stipulated that as the test thermocouples are intended to evaluate fire spread then any fire barriers incorporated in the system should be located below the thermocouples. FYI, the relative positions of thermocouples and fire barriers has been incorporated in the recently reviewed BS 8414 tests.		Noted. We are aware of the changes in the revised version of BS 8414-2020. The position, type and fixing procedure of the cavity barriers will be specified by the manufacturer/ test sponsor in line with what is used in practice.
78	EPFA	2020-07-01	Early termination of test Section 10.7 of test method	Whilst we appreciate the reasons for terminating the test once flaming has spread beyond the limits of the test rig, the fact that the height of the rig has not been set (apart from stipulating a minimum height of 6m above the combustion chamber opening) allows an infinite variation for this parameter. We would urge you to consider the decisions reached at BSI on standardising the height of the BS 8414 test		TBA

				to 7.7 ± 0.1m above the combustion chamber and to introduce this change before the commencement of the test programme. This change would enable the determination of early termination to be consistent and standardised.		
79	EPFA	2020-07-01	Presentation first webinar - General	Indoor versus outdoor testing In the webinar the details highlighted outdoor testing to be part of the project. Would it not be a better use of resources to focus on indoor first and get this repeatable before moving outdoors (maybe in a second phase during harmonisation?) This would also allow for the inclusion of additional systems for indoor testing.		Noted. This will be discussed within the project task group. Outdoor tests are voluntarily introduced at this stage to assess the potential impact of environment at an early stage, considering that contrary to reaction to fire and fire resistance test representing almost only indoor scenarios. Façade fires are always outdoor scenarios and the majority of national test benches are outdoors.
80	EURIMA	Assessment method - draft 1 dated May 7 2020 - SI 2 825082.pdf	Paragraph 5.1	The test method describes in paragraph 5.1 that the ambient air velocity is measured only before the test. If this test will be performed outdoor it is necessary to monitor wind velocity and direction also during the test. The wind velocity and direction can change or fluctuate significantly during the test and this will influence the results of the fire test.		TBA
81	EURIMA	Assessment method - draft 1 dated May 7 2020 - SI 2 825082.pdf	Paragraph 7.2.1 Figure 9	It is known that for many traditional buildings in European countries, existing buildings that are in use today, a typical spandrel height of 1.2-1.3 m is used.		TBA

				A difference of 30 cm in the flame region can have a significant influence of the behaviour of the façade around the window opening. The proposed test method shall be applicable also for existing buildings with spandrel heights of 1.2-1.3 m. This is particularly important given EU focus on renovation of existing buildings.		
82	EURIMA	Assessment method - draft 1 dated May 7 2020 - SI 2 825082.pdf	Paragraph 9, Figure 12, and Figure 13	Design guides and regulations for the design of facades require that installation of fire barriers in continuation of the floor slab. This detail is important for the test method in as the location of fire barriers on the test rig will also influence the temperature measurements. As such, it is important that the test method describes with sufficient precision the location of the floor (slab) on the test rig in order to ensure that the test reflects the details of the façade installed in reality. Such information shall be precisely described in Paragraph 9, Figure 12 and Figure 13.		TBA
83	EURIMA	Façade systems to be tested	Initial tests Questions to stakeholders:	We agree with the proposed system. However, we wonder why to use a facade system that is not representative of widely used system? Why to choose a wooden façade when		TBA

				they are not common for multi-story buildings? Do floor and ceiling belong to the façade system? We think that it should not be part of the tested specimen because the purpose of the test is not to test the whole construction What could be a mineral fiber Euroclass D? Or is it wood fiber insulation if euroclass D is requested? wood fiber insulation is not used in multi-story buildings. If linear fire stopping at floor level is to be considered the location of the junction should be considered carefully same as secondary opening to be representative i.e. Right above the crib seems unlikely Secondary opening should be a representative distance for research/ baseline testing. In our view, this is not the case for the 1,5 m proposed.		
84	EURIMA	Façade systems to be tested	Experimental round robin	EURIMA is not aware of systems that fail the test after 30 minutes. Such tests reports/evidence will be difficult to find. EURIMA members experience with façade test methods is that normally the temperature registered after 30 minutes decreases as the fire source is extinguished. This is a weakness of the test method,	EURIMA recommends that the wood crib is not extinguished in the test method in order to assess the performance of the façade for minimum 60 minutes. In reality, there are very few cases when fire service arrives on site	Noted. This is discussed within the project task group at the moment. The project team may investigate the burnout of the fuel within the calibration exercise. More information will be available after the analysis of the results. It is, however, Important that the test is repeatable and this may be affected negatively if a complete burnout is

				both in BS 8414 and DIN 4102-20, since it does not allow an assessment to be performed for the complete burning of the wood crib.	and extinguish a fully developed compartment fire within 30 minutes. The crib should be left to burn out especially if the smouldering assessment is 6hrs later	used due to the fact that the stability of the wood crib will decrease during the fire and it is difficult to ensure that the crib does not collapse at any stage during the test.
85	EURIMA	Façade systems to be tested	Inert façade Questions to stakeholders	For the purpose described in the document, it is recommended to use inert façade cladding made of fibre cement. Fibre cement boards are inert surfaces that are being used on the market as rainscreen claddings in combination with both non-combustible and combustible insulations.	We recommend to consider heavier facades such a corium brick slip as they could fall off quicker and cause more damage	Noted, we will look at such possibility
86	EURIMA	Façade systems to be tested	Combustible rain screen and non-combustible insulation Questions to stakeholders:	Agree with the proposed system. However, we wonder if this is a relevant type of façade system? Is it used in certain countries? Is a Euroclass B HPL a combustible material? Should it be a class D or E?		Such systems have already been tested according to national standards. Material with Euroclass B and below are considered as combustible material in this assessment method
87	EURIMA	Façade systems to be tested	Combustible rain screen and non-combustible insulation Questions to stakeholders:	Installation instruction for HPL boards recommend minimum 10 mm joints.	Thus, it is recommended that the fire test will be conducted on a system with a 10 mm HPL boards installed with 10 mm joints. For a borderline system thicker HPL boards (10 mm) are recommended as	Noted.

					thicker boards have a higher thermal inertia which will delay the ignition/combustion of the board.	
88	EURIMA	Façade systems to be tested	Combustible rain screen and non-combustible insulation Questions to stakeholders:	When installing on a wooden sub construction, often a vapour open foil is used. The standard vapour open foil used is not classified. To eliminate the need to an vapour open and the influence of such combustible element it is recommended that the HPL boards are installed using aluminium. fixing metalwork, which is a common installation method for rains screen facades.		TBA
89	EURIMA	Façade systems to be tested	Combustible rain screen and non-combustible insulation Questions to stakeholders:	In the façade construction, fire barriers are to be installed at every compartment floor level. Fire barriers are part of the ventilated façade system and will influence both the external and internal temperature measurements. As such, it is recommended that fire barriers are introduced in the façade system at every compartment floor level.		If fire barriers are part of the system to be used, they will of course be installed. Although, it is important to note that in the assessment method fire barriers will not be mandatory. It is on the client choose whether fire barriers shall be used or not. The selection of the façade systems to be tested will be updated on the basis of received proposals.
90	EURIMA	Façade systems to be tested	Combustible rain screen and non-combustible insulation	A similar system have been tested in England by MHCLG. Test report can be found at the following link: https://www.gov.uk/government/publications/fire-test-report-mhclg-bs-8414-hpl		Yes, this is one of the main supporting document for the proposal in our letter
91	EURIMA	Façade systems to be tested	Combustible rain screen and non-	EURIMA will like to reiterate its' support for the project and provide donations of mineral		Thank you, it is much appreciated

			combustible insulation	wool insulation products necessary for the testing of this type of façade system.		
92	EURIMA	Façade systems to be tested	ETICS with combustible insulation and render Questions to stakeholders	Agree with the proposed system.		Noted
93	EURIMA	Façade systems to be tested	ETICS with combustible insulation and render Questions to stakeholders	In many countries, the building regulations and/or design guides for ETICS require fire barriers made of non-combustible material to be installed at every second floor level. Requirements for fire barriers around the window openings are less common. For the purpose of this test it is recommended that fire barriers are installed at every second floor level. The render should also be better defined. What type (organic/inorganic)? The thickness? Should gas filled PIR/Phenolic foam be tested as a part of one reference construction as it behaves in fire totally different than melting EPS?		If the selected system to be tested have fire barriers, they will of course be used. Although, it is important to note that in the assessment method fire barriers will not be mandatory. It is on the client choose whether fire barriers shall be used or not. The selection of the façade systems to be tested will be updated on the basis of received proposals. The render will also be defined on the basis of stakeholders answers. As explained in the letter the aim of these tests are to evaluated the test method as priority and not to evaluate each (sub)family of façade systems.
94		Façade systems to be tested	Ventilated wooden façade Questions to stakeholders	Agree with the proposed system. It is acknowledged that the test method shall be applicable for all types of façade systems that can be installed on buildings.		TBA

				For this purpose the proposed system is important to be evaluated. However, we do not recognize this type of construction as being used in multi-story buildings across Europe. Do floor and ceiling belong to a façade system ? we think that it should not be part of the tested specimen because the purpose of the test is not to test the whole construction. What could be a mineral fiber Euroclass D? Or is it wood fiber insulation if euroclass D is requested? wood fiber insulation is not not used in multi-story buildings.		
95	MBA	Façade systems to be tested Page 2 and 5 Question on specimen for position of secondary opening	Figure 2. Example of test specimen for study of the position of the secondary opening. Question to stakeholders: Is the suggested test specimen a good alternative, or do you have any other suggestion? Are there any details in the suggested test specimen that should be changed to give the desired result? And question in text page 2	For answering this question we need clarification how the window opening will be built up – will the removed parts be replaced by a covering instead of the window frame? (see comment no.3) Before this is done it needs to be clarified: • Why do you want to weaken the window surrounding? • Should there not be a realistic end-scenario with the construction as proposed in a building?		Generally, we are not talking about any weaken of the façade system. On the contrary, the secondary opening and the window details can have a strengthening effect on the exterior wall. In some cases, the frame of the window is needed to protect the façade system, and in those cases, some of the window details may be needed in the tests. This will of course affect the field of application so these window details will be mandatory for the façade system. Both alternatives are thus possible, either the end scenario or a weakening of the detailing (i.e. maybe not all window details are needed but some protection to the façade system).

			Which position of the secondary opening shows best eventual weakness of the detailing around openings? "Furthermore, there shall be some type of weakness of the system at the secondary opening which accelerate the vertical fire spread."			If no detailing from the window system is needed to protect the façade system, the widest field of application will be obtained.
96	MBA	Façade systems to be tested	Page 4: Questions to stakeholders: Do you have any suggestion on an inert façade system where falling parts will be an issue?	There are a lot of different reasons which might cause falling parts and their nature will be different – failure of fixings by melting or burning leads to big falling pieces, cracking of outer layer etc. may lead to an accumulation of smaller parts- it is not possible to define one inert façade which could represent all of this.		Noted.

97	MBA	Façade systems to be tested	Page 5 Figure 3. Example on a rain screen system, vertical section. Questions to stakeholders: Is the suggested test specimen a good alternative, or do you have any other suggestion? Are there any details in the suggested test specimen that should be changed to give the desired result?	There is a big variety of systems and there will be some proposals from MBA members for systems which are borderline according to a current test standard. Before it can be decided in detail, which systems shall be tested the questions and comments no. 6, 7, 8 and 10 from this document need to be answered. For the selection of specimen we would propose to consider also the publicly available test results according to existing national assessment methods (i.e. published on UK Government web-site)., where you would not have any issues with confidentiality. This would allow to have an open discussion on selection of the systems to be tested.		Noted. The proposals made are inspired from test report in the public domain
98	MBA	Façade systems to be tested	Figure 4. Example on an ETICS with combustible insulation. Questions to stakeholders: Is the suggested test specimen a good alternative, or do you have any other suggestion? Are there any details in the suggested test specimen that should be changed			TBA

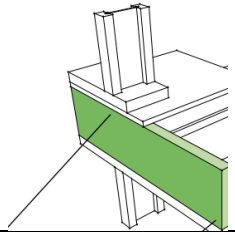
			to give the desired result?			
99	MBA	Façade systems to be tested	Figure 5. Example of test specimen for round robin on ventilated wooden facade. Questions to stakeholders: Is the suggested test specimen a good alternative, or do you have any other suggestion? Are there any details in the suggested test specimen that should be changed to give the desired result?			TBA
100	MBA	Draft assessment method as published on the website	Fig. 13 and 11 Performance Criteria	The proposed changes seem to change the new assessment method compared to existing national methods (BS and DIN test) and no longer allow comparison to existing results where systems are currently compliant. Can you provide a scientific justification for changing measurement levels and assessment criteria like: - Reduction of the height for measuring the temperatures in the large exposure - Proposing additional criteria for lateral flame spread - Proposing lower limit temperatures for the large exposure test		For memory, this assessment method shall not cover only DIN and BS tests but shall be able to deliver data which can answer to all requirements existing in all Member States regarding the fire safety of façade. There are some changes proposed in relation with existing testing methodologies. The current assessment method is expected to provide the same level of performance compared with the existing test standards. A more refined view regarding measurements such as temperature, incident heat flux, falling parts etc., will be present once the experimental exercise will be done.

				This would lead to market distortion compared to the current market.		
101	MBA	Inception report and Facade systems to be tested	Presentation and Inception report – fuel source	Will you make exposure data and details of the wood-crib available when the wood cribs are defined and the initial tests with the additional window openings have been done (temperatures, heat flux, heat release)?		All data obtained within the project will be made available, with the exception of eventual confidential details regarding the test specimens received from stakeholders. Most of the data will be made available on the web page, but it will not be possible to upload everything. Although, if you have need for more information than that on the web page, you shall contact the consortium. Experimental data will be made available on easily readable format (Excel or similar).
102	MBA	Façade systems to be tested	Page 4	Are you looking for systems which at the same time are borderline in both exposure levels in the proposed assessment method? We don't think that that would be the same systems! We think it would have to be two different systems for the two exposure levels in the proposed test.		The aim is to specify systems which can offer as much information as possible tailored for each type of exposure. If you have any recommendations, experimental results and views please let us know. The system arrangement may well be different for each exposure type.
103	MBA	Inception report	Table 18	Outdoor testing is not easily controllable. Resources would be better spent on the optimization of the internal testing and external testing could be developed in a later phase.		Noted. This will be discussed within the project task group. Outdoor tests are voluntarily introduced at this stage to assess the potential impact of environment at an early stage, considering that contrary to reaction to fire and fire resistance test representing almost only indoor scenarios. Façade fires are always outdoor scenarios and the majority of national test benches are outdoors.
104	MBA	Inception report	Task 3.4 Purchase of façade systems to be tested	It is important to make sure, that the façade systems for the round robin are built up by		Agreed, it is exactly our plan and we hope to receive help for this work from stakeholders.

			Task 3.5 Send façade systems to participants and perform the tests The materials selected from the manufacturers (and packed to closed containers) will be send to the laboratories with the accompanying documents	specialists who would be trained how do this correctly. Otherwise in different laboratories different build-ups might be tested and it would not be possible to assess the repeatability and reproducibility of the test method itself because there would be a contribution to variability from the different installers.		
105	European Aluminium	Facade systems to be tested.pdf	Initial test → Evaluation of position of secondary opening	We have knowledge of timber facades tested according to BS 8414, where the timber cladding failed as it got completely burnt. Thus, we suggest to test a façade system where an opening is critical to the point that its testing can be of added value to this project, e.g. ETICS.		Noted. The selection of the façade systems to be tested will be updated on the basis of received proposals. Therefore, any input is appreciated. Please send the test reports you have in mind. A CA (confidentiality agreement) can be signed before.
106	European Aluminium	Facade systems to be tested.pdf	Experimental round robin → Inert façade system	Almost all ventilated systems have issues with falling parts. Thus, European Aluminium made a proposal for an inert ventilated façade with solid aluminium cladding.	Indicative description of the components of the façade solution offered: • Ventilated façade system • External cladding – cassettes, solid aluminium (2mm)– Aluminium profiles • Fixing brackets – Aluminium profiles • Wall fixations – Screws + plastic anchors • Joints – open joints	Noted. The selection of the façade systems to be tested will be updated on the basis of received proposals.

					• Insulation – Rockwool (180mm thickness) • Horizontal fire barriers w/o intumescent at each level • Edges of specimen closed Using the proposed solution together with the necessary improvements would make possible to observe falling parts both in solid form and liquid form (while this would not be possible with e.g. light concrete solutions).	
107	European Aluminium	Facade systems to be tested.pdf	Experimental round robin → Combustible rain screen and non-combustible insulation	HPL per se withstand a fire for a certain period. However, in combination with timber substructure, this system is mainly used for low rise buildings.	In order to achieve the desired effects regarding horizontal and vertical fire spread, we suggest using a system which might be suitable to be used for high-rise buildings and use a non-combustible sub-construction. Alternatively, a EN 13501-1 Class B aluminium composite panel as combustible rain screen might be suitable (European Aluminium could directly engage in the	Noted. This option will be also considered. The selection of the facade systems to be tested will be updated on the basis of received proposals.

					development of such solution).	
108	European Aluminium	Facade systems to be tested.pdf	Experimental round robin → ETICS with combustible insulation and render	No opinion.		Noted
109	European Aluminium	Facade systems to be tested.pdf	Experimental round robin → Ventilated wooden façade	Type and position of fire barrier should be considered.		If the selected system to be tested have fire barriers, they will of course be used. Although, it is important to note that in the assessment method fire barriers will not be mandatory. It is on the client choose whether fire barriers shall be used or not. The selection of the façade systems to be tested will be updated on the basis of received proposals.
110	European Aluminium	Assessment method - draft 1 dated May 7 2020 - SI 2 825082.pdf	11.1 Fire spread	From our extended experience with temperature measurements according to BS 8414, we have concerns that the position and temperature criteria of 500K is not suitable for the evaluation of vertical flame spread. Depending on the tolerances in the fire source (timber crib) the value of 500K is reached by almost every inert facade.	Hence, we suggest to have a mapping over several levels (e. g. 4.5, 5.5 6.5m) and look for more accuracy on the definition of the fire source.	The criteria and measurement positions are not set at the moment, this will be investigated in the experimental program where the façade specimen will be heavily instrumented. A suggestion of suitable criteria based on the evidence from the experimental program will be supplied at the end of the project.
111	Ventilated wooden façade	9 mm wind protection (wood panel)	Figure 5	We assume that a wood fibre board is chosen WF according EN 13171 or soft board according EN 622-4 ? The external insulation system is not state of the art.	Replace outer insulation + horizontal wall stud + wind protection with a rigid underlay out of WF Joint system tongue and groove Thickness ≥ 22 mm	The systems to be tested are not decided yet. The project relies on suggestions from the Stakeholder group and also that these suggested façade systems can be supplied. It is also important that historical data from national tests show a border line behaviour.
112	Ventilated wooden façade	Insulation (Mineral fibre –	Figure 5	Cavity insulation specified in Euroclass E is sufficient, e.g. biogenic insulation material		Ok. The systems to be tested are not decided yet. The project relies on suggestions from the Stakeholder group and also that these suggested

		Euroclass D)		(flexible wood fibre matts, cellulose fibre…)		façade systems can be supplied. It is also important that historical data from national tests show a border line behaviour.
113	Ventilated wooden façade		Figure 5 Vertical cut	A suitable ventilation of the facade is not given	Use of perforated steel plates	The systems to be tested are not decided yet. The project relies on suggestions from the Stakeholder group and also that these suggested façade systems can be supplied. It is also important that historical data from national tests show a border line behaviour.
114	Ventilated wooden façade		Figure 5 Ceiling detail	Ceiling connection in ballon framing offers no test results Set detail with rim board 		The systems to be tested are not decided yet. The project relies on suggestions from the Stakeholder group and also that these suggested façade systems can be supplied. It is also important that historical data from national tests show a border line behaviour.
115	IFD	Systems to be tested		In your questions on the proposed scenarios, the objective is formulated that the project should achieve a desired result. We are currently not quite clear what this result actually consists of? • Is it merely the technical test development on the basis of a barely tolerable worst-case scenario, with the subsequent opportunity for design-related fine tuning? • Or are all basic test conditions already fixed by the test setup in a way that cannot be changed?		The desired result is to test and assess the test method not the façade systems. Testing on systems that barely passed or failed is to see the level of safety achieved so that it approximately corresponds to previous European methods. The criteria and measurement positions are not set at the moment, this will be investigated in the experimental program where the façade specimen will be heavily instrumented. A suggestion of suitable criteria based on the evidence from the experimental

						program will be supplied at the end of the project.
116	IFD	Standardization process		We cannot estimate the currently available time frame of the European coordination processes. Within the framework of the European Union's decrees (Delegated Act), a second period of 2 years is described, but in your current message 10-15 years of work in standardisation committees is described. • Which temporal development can be expected for the development of the test standard, which for the evaluation criteria? • In what way can the evaluation criteria / performance classes of the new European test standard be brought into line with the very nationally oriented protection target requirements of preventive fire protection? • How are the national testing experiences with regard to e.g. temperature curves of certain height ranges taken into account in your testing considerations?		Revision on the CPR is currently in process. This may change the standardization process, and the following is based on the current CPR. After finalizing this project EC needs to initiate a standardization request (SR) for a horizontal "facade fire testing" standard, which takes 2-3 years. When SR is clear and accepted by CEN, the horizontal standard shall be developed (based on the technical development performed in this project). Time estimate is 2-3 years. Thereafter the work on product standards can start (so around 2027-2028). Potentially speaking on 10-15 years from now. Suggested evaluation criteria based on the experimental program will be given by the project. The criteria and measurement positions are not set at the moment, this will be investigated in the experimental program where the façade specimen will be heavily instrumented. A suggestion of suitable criteria based on the evidence from the experimental program will be supplied at the end of the project.
117	IFD	Assessment method		From our point of view, it is important to choose a test setup that allows a reproducible measurement of the parameters to be tested. The measurement itself must therefore be possible at all.		The criteria and measurement positions are not set at the moment, this will be investigated in the experimental program where the façade specimen will be heavily instrumented. A suggestion of suitable criteria based on the

				• Are the temperatures named as failure criteria fixed or suggestions? We see the problem that these temperatures are already almost reached by the test fire. • Where does a specification for falling parts in the order of 0.1 m² come from?		evidence from the experimental program will be supplied at the end of the project. The falling parts is adopted from methods currently in used within Europe such as in the Swedish and in the Hungarian methods.
118	IFD	Systems to be tested		As described by you, the systems to be tested should have properties "on the border line between the pass and fail criteria". The INTERNATIONAL FEDERATION FOR THE ROOFING TRADE (IFD) represents both systems which are exclusively without combustible materials (inert) and systems with combustible rain protection and non-combustible thermal insulation. The right choice has a significant influence on the latter systems: • the material of the substructure • the structural design of the substructure the thermal insulation (e.g. glass wool (A2)) • the cladding (e.g. building material class B1, according to the required qualities and from an assured source) • and determining the depth of the rear ventilation gap.		A proposal on a testing frame for tests with complete exterior walls, and a description of the supporting construction used when testing the outer parts of an exterior wall will be included in the assessment method. Regarding what a tested and approved façade system can be mounted on will be determined by the field of application, which is out of the scope of the present project.
119	MA 39		Position of secondary opening	Figure 2. Example test specimen ok.	Keep internal windowsill and the completion boards.	The systems to be tested are not decided yet. The project relies on suggestions from the Stakeholder

						group and also that these suggested façade systems can be supplied. It is also important that historical data from national tests show a border line behaviour.
120	MA 39		Inert facade	Using a facade with ceramic tiles on a horizontal support construction (aluminium), with mineral wool and a ventilation gap. Alternative fibre cement boards.		The systems to be tested are not decided yet. The project relies on suggestions from the Stakeholder group and also that these suggested façade systems can be supplied. It is also important that historical data from national tests show a border line behaviour.
121	MA 39		General remark	Facades with metallic cladding, mineral wool insulation covered by a plastic wind protection sheet with aluminium panels or other construction elements?		The systems to be tested are not decided yet. The project relies on suggestions from the Stakeholder group and also that these suggested façade systems can be supplied. It is also important that historical data from national tests show a border line behaviour.
122	Permasteelisa Group		General	No appropriate test and assessment criteria for unitised curtain walls are available. Will Curtain Walling be included in the method?		TBA
123	FSEU	Façade systems to be tested	General / whole document	What does belong to a façade system? Is there a clear description of the terminology and what it includes?		There is no clear definition of a façade system, and it becomes even more unclear on what to include in a test when looking on the regulations in the MS. In some MS the regulation covers the complete exterior wall, while in other MS it is the outer skin that needs to be assessed. Therefore, the European assessment method needs to cover all, and it will be important to have a good description of the field of application together with the test and classification report.

124	FSEU	Façade systems to be tested	General / whole document	Euroclasses of product proposed are not realistic and should be better defined. For example: What could be a mineral fiber Euroclass D? Or is it wood fiber insulation if Euroclass D is requested? Wood fiber insulation is not used in multi-story buildings. Other example: Isn't' HPL a combustible material? Should it be a class D or E instead of Euroclass B?		The systems to be tested are not decided yet. The project relies on suggestions from the Stakeholder group and also that these suggested façade systems can be supplied. It is also important that historical data from national tests show a border line behaviour.
125	FSEU	Façade systems to be tested	General / whole document	As regards the position of the secondary opening: it should be at 1200 mm above the combustion chamber and not 1500 mm.		Since the position is not fixed we need to look at the source for 1.5m This is a relevant comment due to the common distance between windows. The position of the secondary opening has not yet been decided, and it will be investigated further in Task 2 - Initial testing. It is correct that the secondary opening can act as a fire stop. The aim is to find a position of the secondary opening where we have both a possible weak part (the detailing around an opening) and a continuous façade surface. The reason for this is that in several current national methods are the openings mandatory, while in other methods they are not. Therefore to aim with the present proposed method is to combine both.
126	FSEU	Façade systems to be tested	General / whole document	For inert facades, the testing should go beyond falling parts, and look into melting droplets, or non-inert parts falling off, as well as non-cementitious inert systems (glass, metal).		Ok. The techniques to determine the weight and size of falling parts will be studied in Task 2 of the project. Image analysis and different

				We should: • evaluate burning droplets next to falling parts, and ask for quantification of the risks and the need to regulate these (any façade will produce falling parts or burning droplets…) keep these for observation only, not for any criteria, before more information is available. We suggest the use of inert façade cladding made of fibre cement.		weighting techniques will be investigated before it is decided on what to propose in the assessment method. The aim is to introduce measurement techniques to continuously measure size and weight of falling parts, and not rely on visual observations. The systems to be tested are not decided yet. The project relies on suggestions from the Stakeholder group and also that these suggested façade systems can be supplied. It is also important that historical data from national tests show a border line behaviour.
127	FSEU	Façade systems to be tested	Initial tests	The figure shows that the secondary opening is located 1500 above the top of the combustion chamber. A large part of the building stock in EU countries, traditional building that are being in use, have a typical spandrel height of 1.2-1.3 m. This difference can influence the behaviour of the façade around the window opening. Considering the existing building in EU and the increased focus on building renovation it is necessary that the proposed test method will also be applicable for existing buildings. Thus, the method shall adequately reflect the façade behaviour for the case when windows are installed with a typical spandrel height of 1.2-1.3 m.		This is a relevant comment due to the common distance between windows. The position of the secondary opening has not yet been decided, and it will be investigated further in Task 2 - Initial testing. It is correct that the secondary opening can act as a fire stop. The aim is to find a position of the secondary opening where we have both a possible weak part (the detailing around an opening) and a continuous façade surface. The reason for this is that in several current national methods are the openings mandatory, while in other methods they are not. Therefore to aim with the present proposed method is to combine both.

				Nb: Comment refers also to Paragraph 7.2.1 and Figure 9 in document "Assessment method - draft 1 dated May 7 2020 - SI 2 825082.pdf".		
128	FSEU	Façade systems to be tested	Initial tests	If linear fire stopping at floor level is to be considered, the location of the junction should be considered carefully same as secondary opening to be representative i.e. Right above the crib seems unlikely		Noted.
129	FSEU	Façade systems to be tested	Figure 1. Eccentrically placed secondary opening	Secondary opening should be a representative distance for research/ baseline testing. In our view, this is not the case for the 1,5 m proposed.		This is a relevant comment due to the common distance between windows. The position of the secondary opening has not yet been decided, and it will be investigated further in Task 2 - Initial testing. It is correct that the secondary opening can act as a fire stop. The aim is to find a position of the secondary opening where we have both a possible weak part (the detailing around an opening) and a continuous façade surface. The reason for this is that in several current national methods are the openings mandatory, while in other methods they are not. Therefore to aim with the present proposed method is to combine both.
130	FSEU	Façade systems to be tested	Figure 2. Example of test specimen for study of the position of the secondary opening	The facade system to be used should be representative of widely used systems. Wooden façades are not common for multi-story buildings buildings.		The objective with the experimental round robin is to test the assessment method not the façade systems. The desired result is to test and assess the test method not the façade systems. Testing on systems that barely passed or failed is to see the level of safety achieved so that it

						approximately corresponds to previous European methods. The criteria and measurement positions are not set at the moment, this will be investigated in the experimental program where the façade specimen will be heavily instrumented. A suggestion of suitable criteria based on the evidence from the experimental program will be supplied at the end of the project.
131	FSEU	Façade systems to be tested	Figure 2. Example of test specimen for study of the position of the secondary opening	Floor and ceiling should not be part of the tested specimen because the purpose of the test is not to test the whole construction.		TBA
132	FSEU	Façade systems to be tested	Figure 2. Example of test specimen for study of the position of the secondary opening	A horizontal batten is blocking the ventilation entry and exit.		The systems to be tested are not decided yet. The project relies on suggestions from the Stakeholder group and also that these suggested façade systems can be supplied. It is also important that historical data from national tests show a border line behaviour.
133	FSEU	Façade systems to be tested	Initial tests - Questions to stakeholders	Agree with the proposed system with the consideration described in Comment 9-11.		Noted.
134	FSEU	Façade systems to be tested	Experimental round robin	Based on our experience it is very difficult to obtain tests reports/evidence showing a façade system that fails after 30 minutes into the test. For most of the façade test the temperature registered after 30 minutes decreases as the fire source is extinguished. The extinguishing of the wood crib in BS 8414 and DIN 4102-20		The time limit is something that will be determined as assessment criteria however it is unlikely that we can recommend a total burnout of the crib. A burnout of the crib would extensively prolong the needed time for the test. A complete burnout of the wood crib can give both advantages and disadvantages. We are now looking

				represent a major weakness of the tests since it does not allow an evaluation of the façade behaviour for a complete burnout of the wood crib. This shall be corrected in the new test method in order to permit a more comprehensive assessment of the fire behaviour of façade systems. FSEU recommends that the wood crib is not extinguished in the test method. In a real fire event, in very few cases fire service will arrive on site and manage to extinguish a fully developed fire in 30 minutes.		for a harmonized method with which products can be classified. Thus the method shall have a good repeatability and reproducibility. The problem with wood cribs is that the stability of the wood crib will be lost due to the charring of the wood, and the time and how the crib collapses is random. If a total burnout is used, the heat exposure from the wood crib will therefore be quite random, and the repeatability will be very low. Therefore the proposal will give a time for extinguishing the wood crib, in order to ensure that the heat exposure to the test specimen from the fuel is repeatable.
135	FSEU	Façade systems to be tested	Experimental Round Robin 3rd paragraph	The crib should be left to burn out especially if the smoldering assessment is 6hrs later		A complete burnout of the wood crib can give both advantages and disadvantages. We are now looking for a harmonized method with which products can be classified. Thus the method shall have a good repeatability and reproducibility. The problem with wood cribs is that the stability of the wood crib will be lost due to the charring of the wood, and the time and how the crib collapses is random. If a total burnout is used, the heat exposure from the wood crib will therefore be quite random, and the repeatability will be very low. Therefore the proposal will give a time for extinguishing the wood crib, in order to ensure that the heat exposure to the test specimen from the fuel is repeatable.
136	FSEU	Façade systems to be tested	Figure 3. Example on a rain screen system, vertical section	Not sure if this type of façade system is relevant at EU level. Is it used in any EU countries?		The façade systems used in the experimental campaign does not have to reflect what is used in practice. The systems used shall enable us to

						evaluate and test the test methodology, and therefore we can use any type of system as far as they are relevant for the study to be made. Although, in many of the tests to be performed we need some evidence that the system is on the border line of approval, and thus do we need some evidence from tests with some national test method. That would most likely ensure that the systems used in our tests are relevant for at least one MS.
137	FSEU	Façade systems to be tested	Inert façade - Questions to stakeholders	Fibre cement boards are being used on the market as rainscreen claddings in combination with both non-combustible and combustible insulations. This type of inert material is expected to provide information about measurement of falling parts. Heavier facades such a corium brick slip should be considered as they could fall off quicker and cause more damage		Thanks for the proposal. It is not yet decided whether we will include studies on falling parts in the experimental round robin since there will always be a randomness of the time when parts fall down. Although it may be possible that we include it in order to check that the measurement technique works.
138	FSEU	Façade systems to be tested	Combustible rain screen and non-combustible insulation	Wood system may not be very representative of the European market, compared to masonry, concrete or SFS substrates with ventilated façade.		The façade systems used in the experimental campaign does not have to reflect what is used in practice. The systems used shall enable us to evaluate and test the test methodology, and therefore we can use any type of system as far as they are relevant for the study to be made. Although, in many of the tests to be performed we need some evidence that the system is on the border line of approval, and thus do we need some evidence from tests with some national test method. That would most likely ensure that the systems

						used in our tests are relevant for at least one MS.

139	FSEU	Façade systems to be tested	Combustible rain screen and non-combustible insulation - Questions to stakeholders:	Agree with the proposed system.
				Following technical modification are recommended to obtain the desired result:
				• Test of 10 mm HPL boards.
				  ○ Thicker HPL boards ignite more difficult and have a slower fire growth. This boards are recommended for construction of a borderline system.
				• 10 mm installation joints
				  ○ Major HPL producers recommend minimum 10 mm joints for the installation of HPL boards.
				• Install the boards on using aluminium supports and fixings
				  ○ Aluminium metalwork is commonly used in rains screen facades
				• Fire barriers to be installed in continuation of every floor slab
				Fire barriers are components of a rainscreen façade in order to ensure compartmentation at every floor slab. The barriers will influence both the external and internal temperature measurements.
						Thanks for the proposal. When deciding on the systems to be used we will primarily rely on historical data obtained with some national tests showing that the system is on the border line of approval. Therefore we hope that some stakeholder can provide the necessary information.

140	FSEU	Façade systems to be tested	Figure 4. Example on an ETICS with combustible insulation.	The render should be better defined in terms of the type (organic/inorganic) and thickness.		Thanks for the proposal. When deciding on the systems to be used we will primarily rely on historical data obtained with some national tests showing that the system is on the border line of approval. Therefore

						we hope that some stakeholder can provide the necessary information.
141	FSEU	Façade systems to be tested	Figure 4. Example on an ETICS with combustible insulation.	Should gas filled PIR/Phenolic foam be tested as a part of one reference construction as it behaves very differently in a fire compared to melting EPS?		We will not be able to compare different materials within this study. The systems to be tested shall be quite different, and chosen so we can examine and test the test methodology.

142	FSEU	Façade systems to be tested	ETICS with combustible insulation and render - Questions to stakeholders	Agree with the proposed system.
				Following technical adjustment is recommended to obtain the desired result:
				• Install fire barriers at every second floor level.
				  ○ In different national regulations and design guidelines it is required to install fire barriers (non-combustible material) at every second level.
				  ○ Fire barriers around the window openings are less commonly used.
						Thanks for the proposal. When deciding on the systems to be used we will primarily rely on historical data obtained with some national tests showing that the system is on the border line of approval. Therefore we hope that some stakeholder can provide the necessary information.

143	FSEU	Façade systems to be tested	Figure 5. Example of test specimen for round robin on ventilated wooden facade.	Floor and ceiling should not be part of the tested specimen because the purpose of the test is not to test the whole construction.		This is part of the contract with EC, and it is possible for us in the project team to make those decisions. Since the floor/external wall connection is included in the French method, it has also been included in the present methodology. The question will be discussed further within the project group as well as with EC.
144	FSEU	Façade systems to be tested	Figure 5. Example of test specimen for round robin on ventilated wooden facade.	Fig. 5 is the build up for a wooden ventilated façade, however a horizontal batten is blocking the ventilation entry and exit.		Noted. As pointed out these are only examples on facades and we are now asking for help with the designs so we can get the most value and experience from the tests as possible.

145	FSEU	Façade systems to be tested	Ventilated wooden façade - Questions to stakeholders	Agree with the proposed system.		Noted
146	Kingspan	Façade systems to be tested	General	Borderline on the current test method should mean that the pass fail criteria should be accommodated to get to a same level of system performance, how do you explain changes to TC position and temperatures as the impact would be significant Keep a differentiation in temperature and TC positions between medium and high fireload similar to the difference in the current EU large scale façade tests. By keeping the rig identical but varying TC position it would give the wanted simplification of the test rig however would allow the method to be validated seperatly as fire load will impact flame height and flame density (therefore emissivity and HF on the surface)		We will do additional measurements of temperature at positions equivalent with the DIN and BS methods which will make it possible to compare the results with historic ones. It is important to note that the failure criteria on temperature, and the final positions of thermoelements are not yet fixed. If the position of thermoelements are moved upwards or downwards, it may still be possible to calibrate the failure criteria by choosing a temperature level that would give the same level of safety as previously with the national method.
147	Kingspan	Façade systems to be tested	General	« tests are to be seen as more scientific experiments and may therefore deviate » This does not comply with the request to have a borderline system. In order to know the borderline system we would need to have test evidence which will be contradictory to "less conventional tests".		There have been lots of tests done historically for different purposes, research, development or approval. Thus it may be possible that we can find suitable test specimens from research or development tests that would fit our purpose, even if these systems not are used in practice. We also have to be aware that it may not be possible to find systems where we have historical evidence that they are on the border line, and thus rely on some modifications that that we

						assume would get them on the border line (through inter- or extrapolation).
148	Kingspan	Façade systems to be tested	General	« Scientific experiments » To still be able to take a scientific approach it should be considered that there is a vast amount of evidence in the UK on identical system build (with minor build variations involving ACM FR 1) MMMF and 20 mm joint, bordeline pass 2) Phenolic with 20 mm joint, bordeline fail 3) Phenolic with 10 mm joint, pass		That is of course preferable. Although, it may not be possible to find suitable systems for these tests where there are vast amounts of evidence, so we have to rely on the proposals that we get from the stakeholders and we hope that we will find relevant systems where there are good evidence from historic tests.
149	Kingspan	Façade systems to be tested	Presentation first webinar	Indoor versus outdoor testing In the webinar the details highlighted outdoor testing to be part of the project. Would it not be a better use of resources to focus on indoor first and get this repeatable before moving outdoors (maybe in a second phase during harmonisation?)		All initial tests will be performed indoors, so outdoor tests will only be made during the experimental round robin.
150	Kingspan	Façade systems to be tested	Initial tests	« there shall be some type of weakness of the system at the secondary opening which accelerate the vertical fire spread. » What is the reason to introduce a weakness around the window during the investigations of the window location? Is this just for this investigation or also in the final assessment method?		It is not intended to introduce any additional weaknesses in the systems to be tested. We are looking for systems that have details that are challenging with respect to the failure criteria used in the method, and in this case fire spread. A typical weak detail is ventilation openings around windows where an extensive fire spread can be achieved in the ventilation cavity if combustible materials are used, and due do the chimney effect that might occur.

						In other words, we are looking for systems that have in the design built in weaknesses at openings.
151	Kingspan	Façade systems to be tested	Experimental Round Robin	The aim of this RR is to determine R&R of the method so less about the differences in labs. We will therefore eliminate some of the factors that may affect the results in order to define whether any changes are needed in the test procedure and test set-up. Focus is about the method and all factors of lab variation should be eliminated. What does this mean? 1) Technicians will work with the same test leader despite the lab where it is tested? 2) System installed at all locations by same installer? 3) How do you see this with the aim to also do outdoor testing as we all know this will have a high influence on the test result?		It is correct that we want to eliminate the influence of a number of parameters as you have mentioned. We will have the same test leaders who follows the whole round robin. We hope that we can rely on stakeholders for the mounting of the test specimens, so we can ensure that the mounting is made similarly in all tests. Regarding outdoor testing, so will those be done in order to see how much influence outdoor testing will have compared with indoor testing. We also have to monitor the environmental conditions in indoor testing since also the ventilation used indoors varies and may have an effect on the tests.
152	Kingspan	Façade systems to be tested	Experimental Round Robin	You want to have systems being borderline on both tests This seems a bit strange as they represent a different safety level and therefore you would expect a borderline on the large scale test with medium fire load to fail on the test using the large fire load.		The test specimens used for medium heat exposure do not need to be the same as for the large heat exposure tests.
153	Kingspan	Façade systems to be tested	Experimental Round Robin	How do you detail fire barriers in the tests?		Fire barriers is one component that may be included or not in a test setup. So, whether fire barriers shall be included or not in the experimental round robin depends on how the

						façade system was tested before. If fire barriers were included and the system was on the border line, then it will be included in the present tests.
154	Kingspan	Façade systems to be tested	Inert facade	Difference between lab conditions without influence of the system contradicts the statement in the paragraph just above about the goal of this unconventional Round Robin?		We want to test a system which does not influence on the test, i.e. a system where there is no flame spread and it does not contribute to the fire. We know that each laboratory is different from all other, so even if the test is carried out indoors there will be differences due to the size of the lab hall, distance to walls and roof, ventilation conditions. So, in these tests we will see how much this affects the heart exposure to the test specimen during the full test time.
155	Kingspan	Façade systems to be tested	Inert facade	Falling parts to be evaluated in inert façade this means again there is an influence of the system? Which contradicts previous statement		Falling parts, and especially the measurement techniques, will mainly be evaluated and tested in a separate test program. If we can find a way to study falling parts in the experimental round robin it would be good. Although, we are aware of the difficulty due to the randomness of falling parts.
156	Kingspan	Façade systems to be tested	Inert facade	From the suggestions made of inert system with ability to evaluate falling parts without influencing fire spread we feel the only option would be with concrete spalling and no air cavity. Other options seem to rule themselves out as the influence on flame spread in a system would be influenced by the presence of a cavity (Colwell et. All Fire Safety of External		Tests of falling parts will mainly be made in a separate test program. The aim is to have a technique with which falling parts (size and weight) continuously is measured during the whole test, i.e. not a single measurement after the test. If we can find a way to study falling parts in the experimental round robin it would be good. Although, we are aware of the difficulty due to the randomness of falling parts.

				Timber Wall Facades. Proceedings Interflam 2007). This poses the question how to deal with falling debris in real life once the test is introduced and classification being based on spalling concrete? How about debris which takes up the extinguishing water?		
157	Kingspan	Façade systems to be tested	Combustible rain screen	Questions to stakeholders: Is the suggested test specimen a good alternative, or do you have any other suggestion? Are there any details in the suggested test specimen that should be changed to give the desired result? As previously mentioned there is a good evidence base with ACM FR in the large fire exposure with borderline pass and borderline fail why not use this as a start point		Thanks for the proposal. We will keep in touch.
158	Kingspan	Façade systems to be tested	ETICS	The aim of this system is to obtain a vertical and horizontal fire spread on the surface as well as within the system.	Why not test a system with a thermoplastic insulation in the medium fire load as a borderline system and a thermoset system in the high fire load ? two different systems with two different performance levels to be expected	Thanks for the proposal.
159	Kingspan	Façade systems to be tested	Wooden facade	For the wooden façade it needs a clear input on weather and breather membranes and its positions (maybe even on a region base as they might differ in European climates)		As pointed out in earlier comments, the system to be used in these tests do not need to be the ones used in practice. Although, we rely on evidence from historical tests and thus it will probably be a system which is used in some part of Europe.

160	TECNALIA	Façade systems to be tested	Initial tests	Placing the opening eccentrically seems to give more information than placing it centrally, where the fire could easily reach the opening and we could not be able to detect how flames are spreading through the external face or even the ventilated cavity, allowing us just to check if the opening acts as a fire stop. Another possibility is to increase the vertical distance between opening and combustion chamber, in a manner that could allow to check such fire behaviour, initial fire spread and barrier effect of the opening. Reducing total thickness of the system will benefit also fire spread, due to chimney effect or also leap frog effect. Having open joints in the external surface could also help to introduce fresh air in the cavity and benefit the internal spread		Thanks for your comment, it will be considered.
161	TECNALIA	Façade systems to be tested	Inert facade	Standard gypsum based boards (not fire rated nor reinforced) could bear the test at the beginning but after some time (close to 30 minutes), they will crack and fall down in relatively large pieces. A simple substructure and a minimum density of fixings could be enough to obtain the desired effect.		Thanks for your proposal. It will be considered when selecting the test set up.
162	TECNALIA	Façade systems to be tested	Combustible rainscreen and non-	Having a ventilated cavity in the system will benefit or boost vertical propagation through		Thanks for your proposal. It would be good if you have any evidence on

			combustible insulation	this cavity. If the idea of the test is only to check fire spread on the external surface of the system, it may be better to omit this cavity and to redirect fire plume to the external surface. E.g. you could place omega shaped horizontal profiles onto the supporting wall and fix the panels directly. If the influence of the air cavity is also of interest, we could maybe think on a different cladding element with a worst fire spread behaviour or lower euroclass. E.g. we can think about an agglomerated stone cladding (concrete polymer) or claddings with external protective or decorative layers or films with high combustibility properties.		such systems showing the behaviour in some façade test.
163	TECNALIA	Façade systems to be tested	ETICS with combustible insulation and render	Removing mineral board strips in the lintel area will allow flames to attack directly the ETICS and lead to a worst-case scenario. To allow dripping of flaming or burning insulation material, reinforcement mesh with the highest mesh size and smallest tensile resistance will help to such desired effect. If the mesh is made of combustible material, test sample will present worse results. Base coats with small thicknesses and smallest compressive resistance will be desirable to increase deterioration of the complete		Thanks for the proposal. We will, however, obit any intentional weakness in the system, and perform test on an equivalent test specimen as used in historic tests.

				system and total disintegration of the external layers, that encapsulate and protect the combustible EPS insulation.		
164	TECNALIA	Façade systems to be tested	Ventilated wooden facade	Placing the external wood panels in vertical position could help to the external fire spread. Additionally, having open joints between those panels will also benefit fire spread due to chimney effect in the cavity. E.g. external wooden cladding with euroclass D-s2, d0 and a combustible varnish finishing could be suitable for the desired performance.		Thanks for the proposal. We would welcome any evidence from historic tests.
165	EUMEPS	Webinar	General	Will there be a notification as well to stakeholders when new info is published?		The web-page will be updated regularly however no notifications will be sent. Please check it regularly.
166	EUMEPS	Webinar	General	You said you want to stick close to methods and criteria from current methods. Why do you start with deviating from these on topics like criteria on measurement heights, temperature criteria and falling parts and melting. Proposal is to start with a default value to be identical to current methods and have thorough justification for changes as a project result, not the other way around.		We do intend to keep a similar safety level as is used in previous national standards. However, this means that there will be variations to criteria and times since this is not exactly the same for all MS. A calibration of the proposed method will, as far as possible, be calibrated against the DIN method for the medium heat exposure, and against the BS method for the large heat exposure.
167	EUMEPS	Webinar	General	There seems to be some friction with confidentiality and transparency?		The project group will keep most reports and findings public unless specifically asked by customer and controlled by an Confidentiality Agreement (CA).
168	EUMEPS	Webinar	General	Regarding the parallel testing program. What is done? What role will those programs play in		We have a communication with bodies involved with parallel testing programs. We are then looking for

				the project? Do we not need full transparency there?		possibilities to gain more information, and to avoid that we perform exactly the same tests (if we do not see a gain with that). The amount of transparency depends on the degree of confidentiality in the parallel testing programs. Although, it is necessary that there is a reasonable degree of transparency in order to incorporate the results from those projects in the present one.
169	EUMEPS	Webinar	General	Can others get involved as well? On what conditions?		Yes. We invite all stakeholder to get involved more deeply in the project e.g. by supplying façade systems. This will be regulated by a contract between the stakeholder and the project and an NDA may be added if need be.
170	EUMEPS	Webinar	Experimental round robin	Do you aim to select systems that were on the borderline to pass previous testing?		Yes. It is from the border line systems we can get the information needed in the project.
171	CPE	Webinar	General	The field of application is not in scope of this project- how do you see this being achieved resource wise? it cannot be started until the test method is defined?		There is no funding available at the moment for the work on the field of application. Resources in form of experts to lead such work is available, but funding will be needed. The work can start right now. An important task is to collect historical data. A lot can be learned from past experience obtained with the current national tests.
172	Kingspan	Webinar	General	How do you see the step to product standards? This is a system test and not a product test so the step from 2027 onwards seems a strange one?		It will most probable be a long time before we have the first harmonized product standard published. Although, when the new method is published, which probably is much earlier, it would be possible to CE mark through EOTA.

173	Kingspan	Webinar	General	what kind of studies are these parallel testing programs which already started up?		Different testing campaigns are being launched at some institutes, funded by different companies/stakeholders. We are now communication with some, and we will see if and how we can come to an agreement to use those results in the present study. We are also discussing the content of the parallel testing programs in order to get as much value as possible from them.
174	Kingspan	Webinar	Experimental program	Where will the large heat exposure average test take place?		The average tests with large heat exposure will be performed at RISE Sweden.
175	Kingspan	Webinar	Experimental round robin	How can you compare it to a borderline system currently tested if it not a used system? Systems tested are the ones used on buildings?		The aim is to find systems of the different kinds (ventilated wood, ETICS and rain screen) which have been tested in accordance with a national testing method and that showed that the are on the border line at those tests. If we cannot find those we have to look for alternative solutions.
176	Kingspan	Webinar	General	In the EC document it stated it needs at least two tests per system at the same location?		In the invitation to tender it states that each system shall be tested with both the medium and the large heat exposure and at three different locations. It does not say that any double tests shall be performed.
177	European Aluminium	Webinar	General	This project goes to a certain extent beyond the scope of the CPR		This is a question you have to take with EC. We are performing a work defined in the Invitation To Tender.
178	European Aluminium	Webinar	Initial testing	Experience with existing full-scale fire tests evidenced that the vague definition of the crib can cause a variation of 50% of the fire load. Hence, it is good that parameters like the mass		This is part of the study to be performed in the Task 2 – Initial testing. The aim is to define the tolerances and characteristics needed to get a repeatable and reproduceable heat exposure to the test specimen.

				and calorific value of the timber are also clearly defined.		
179	European Aluminium	Webinar	Experimental round robin	When and how will you decide on the type of system to be used for the various facade system?		The system to be used in the initial tests, Task 2, will be decided in October at the latest. The systems to be used in the experimental round robin shall be decided at the end on this year, i.e. December 2020
180	EAE	Webinar	Initial testing	Why only one test with pine?		Due to the limited budget and time we do not have the possibility to add more tests on pine. It would of course be of value to do more tests, and perhaps also with other wood species.
181	EAE	Webinar	Experimental program and experimental round robin	Is it planned, to determine the temperature over the whole test rig afterwards? To find systems to be tested, the temperature spread over the hight of the rig should be known. Will it be determined before decisions are made to the systems in the experimental round robin?		All tests will be heavily instrumented, both in the initial tests and the experimental round robin.
182	EAE	Webinar	Experimental program	Regarding the repeatability of the test method: how many tests will be done on the same identical rig?		In the initial tests will all tests with the large heat exposure be performed at RISE Sweden, except one outdoor test which will be performed by Efectis France. All initial tests with medium heat exposure will be performed by BRE UK. So in principle all tests in the initial test program will be performed on identical test rigs.
183	PU Europe	Webinar	Initial testing	How can you assess the exposure of the test specimen with these wood crib tests, because the shape of the test rig is important for the burning process and the exposure?		In the wood crib tests we will look on the effects of different parameters regarding the fuel. It is thus not necessary to evaluate exactly how the flames protruding the combustion chamber exposes the test rig. Therefore a smaller rig, although it is relatively large, can be used in these

						tests. The gain is that data such as heat release rate can be obtained with good accuracy.
184	PU Europe	Webinar	Experimental round robin	Are looking for a failure of a borderline system regarding the time to failure or how far it is from the temperature criteria (this might be systems which would pass even over the whole time but very close to temperature criteria		The main criteria we are looking for is the temperature. A border line system is thus a system where the temperature is close to the failure criteria when the fire in the combustion chamber is extinguished.
185	PU Europe	Webinar	Experimental round robin	How is it possible with ETICS to get a specimen which is easy to mount - you always would need training to mount an ETICS appropriately as well in reality as in a test?		We hope that we can get the help from stakeholders for the mounting of the façade systems.
186	PU Europe	Webinar	Experimental round robin	I understood, that the tender specified some types of systems as used in practice		The Invitation To Tender does not specify that the systems to be tested shall be of use in practice. If we are able to find such systems and they fulfil the requirements as border line systems it would be good.
187	ULMA	Webinar	Experimental round robin	Does the rainscreen has open joints into the cavity?		This has not been decided yet. We still welcome stakeholders to come with ideas and information on suitable systems to be included in the study.
188	FSS	Webinar	Experimental round robin	Your figure on rainscreen show a sealed cavity (not ventilated). That is not realistic and will not yield useful results.		This has not been decided yet. We still welcome stakeholders to come with ideas and information on suitable systems to be included in the study.
189	Peham	Webinar	General	How can it be ensured that facade systems that have been tested and approved in the member states today will not be excluded from the market in the future by the new test?		We cannot guarantee that all systems approved today will pass the new test.
190		Theoretical RR	General	Maybe add that it also assesses dropdown of parts of the façade. The part about the		TBA

				medium fire exposure scenario does not make that much sense and it makes it seem useless, which maybe it is.		
191		Theoretical RR	General	- Are BIPV façades and glazed curtain walls included in the scope?		TBA
192		Theoretical RR	General	addition of optional measurements with regard to heat transmission through façade; add explanation for necessity of secondary opening; explanation, if secondary opening is optional or obligatory.		TBA
193		Theoretical RR	Assessment method	it isn't clear, essentially, what difference between "external cladding system", "external wall assembly", "facade" and "facade system"		TBA
194		Theoretical RR	Assessment method	There is a need to define window frame especially to clearly make a difference with structural frame		TBA
195		Theoretical RR	Assessment method	Maybe add under "Euroclass", that it has to be the "reaction to fire" for each individual material and not a composite material like for example an insulation with foil on that reduces its reaction to fire from eg. C to B or a steel plate in front of another burnable material that again helps it to get a better Reaction to fire class.		TBA
196		Theoretical RR	Assessment method	Is there some system without opening protection? We think there will be always some profile, window sill etc.		TBA

197		Theoretical RR	Assessment method	definition of "finished corner" is identical with "inner corner"; definition of "Euroclass" mentions "… D, E, F, …" what lower classification as F is possible?		TBA
198		Theoretical RR	Assessment method	Definition of hygroscopic material is missing		TBA
199		Theoretical RR	Assessment method	Please give definitions or references to other standards - where they are defined - to all products and systems which are listed in the scope. (rain screen, ETICS, etc.) Additionally 'hygroscopic materials' shall be also defined.F		TBA
200		Theoretical RR	Assessment method	Definition of hygroscopic material is missing		TBA
201		Theoretical RR	Assessment method	are sometimes unclear, ie structural frame, protecting the opening		TBA
202		Theoretical RR	Assessment method	Supporting construction: ... mounted on the structural frame (not test rig) onto which...		TBA
203		Theoretical RR	Assessment method – Test specimen	1) Is specimen (main face and wing) the equipment??? 2) In Figure 4 (first drawing) isn't marked depth of combustion chamber (1000 mm) like in Figure 3 (800 mm) 3) in Figure 4 and 6 (first drawings) shown that base layer should consist of 15 short wood sticks, but in the description (4.6.3 7 line) written 10 long sticks (i.e. the sticks of the layer at the bottom are parallel to the rear wall of		TBA

				the combustion chamber, like in case of medium fire exposure). Drawing correction required.		
204		Theoretical RR	Assessment method – Test specimen	In case of medium fire exposure, distance of combustion chamber opening from finished corner (50 mm) is very small. It could cause problem for the setup of the protection to opening of the combustion chamber.Chapter 4. 4. note says : It is recommended to fix the supporting construction on the structural frame for safety reasons. This should not be a simple note, it shall be mandatory		TBA
205		Theoretical RR	Assessment method – Test specimen	1. It would be a lot better to change the distance called D in figure 2b above to 250 mm for the medium scale fire so it is the same for the two sizes. It will make it a lot easier to make and change the combustion chamber for the two setups and the wing will not have to be able to move an extra 200 mm for a medium fire test. 2. The distance from the top of the combustion chamber to the bottom of the secondary opening is 1.5m. In our experience, this is a bit too big. In existing buildings, this height is normally 1.2-1.3m, which is a "worst case" scenario. We would suggest changing the wording to "The secondary opening shall be 1200 mm width, 1200 mm		TBA

				height. It shall be located 1200 mm above the top of the combustion chamber and 1250 mm from the finished corner. See figure 9.”		
206		Theoretical RR	Assessment method – Test specimen	4.4 Also it should be allowed to mount the facade system to an associated supporting construction, if the facade is intended for this mounting. In this case there should be different rules in DIAP. 4. 7.1 A detailed description of the design of the thermocouples (external and internal) would be useful.		TBA
207		Theoretical RR	Assessment method – Test specimen	- Are horizontal steel elements of the rig positioned as they were on site floor slabs? Distance between floors could be part of the definition for the actual test specimen - Is a Light Steel Frame external wall ever considered as a supporting wall (i.e. LSF wall placed between floors) or do you consider it always as part of test specimen? Fire scenario for walls mounted between floors, according to the relative distance between the crib and the exposed face of façade, seem to be less favourable		TBA
208		Theoretical RR	Assessment method – Test specimen	4.7.4 the number of cameras during the test could be difficult to fulfil in our conditions, but we understand this recommendation 4.7.5 Is it necessary to use the		TBA

				load cell platform during the test? It is only information about the course of the test, but it is not used in the assessment. 4.7.6 We can't imagine much how to weigh it, it can be a subjective evaluation that the customer will try to have questions and it is a space for speculation.		
209		Theoretical RR	Assessment method – Test specimen	Test rig and the combustion chamber connection detail could be more in detail		TBA
210		Theoretical RR	Assessment method – Test specimen	Explanation required on structural design of the frame. Details required on the specification of load cell, its placement and protection. Drawings of load cell platform has to be provided. Specification and arrangement of fan to be used in the medium fire exposure. Number of sticks for crib to be specified in medium exposure. Explanation on method of mass measurement of falling parts using load cell is required and clear definition.		TBA
211		Theoretical RR	Assessment method – Test specimen	I think that concrete blocks (not only aerated concrete) could be used for supporting construction. Detailed examples of steel frames may be incorporated.		TBA
212		Theoretical RR	Assessment method – Test specimen	. inclusion of the load cell for the timber crib will add to the difficulty of the test. 2. An example or schematic drawing of testing rig would be		TBA

				beneficial; 3. The lower beam at 2.5m is coinciding with the chamber's roof. Therefore, this position needs to be modified. Also this will have a direct impact on tests where floor joints are going to be tested; 4. The method of measurements of the falling parts need further clarification because the current given method is not precise.		
213		Theoretical RR	Assessment method – Test specimen	Supporting structure belong to test specimen or is it part of test stand? How should air flow of fan be determined? The setting of fan or measurement of air flow must be made uniform. How should cribs be stacked? Stacking according to DIN 4102-20, Fig. A.4? Density for spruce is ca 450 kg/m³, pine 350-500 kg/m³. How should 400 +- 25 kg/m³ be achieved? Define the base frame for the crib more precisely. Grating? Surrounding frame? Closed sheet metal? 3 mm TC is more practical		TBA
214		Theoretical RR	Assessment method – Test specimen	: The load cell below the heat source is technically complex and expensive without creating important added value. Well defined timber crib specifications should be sufficient. Test rig shall continue 500 mm ± xx mm below the lower edge		TBA

				of the combustion chamber instead of at least 500 mm. Details concerning fan for medium source test.		
215		Theoretical RR	Assessment method – Test specimen	The load cell below the heat source is technically complex and expensive without creating important added value. Remove load cell. Well defined timber crib specifications should be sufficient. Test rig shall continue 500 mm ± xx mm below the lower edge of the combustion chamber instead of at least 500 mm. Details concerning fan for medium source test.		TBA
216		Theoretical RR	Assessment method – Test specimen	At figure 2 "Secondary opening (see 7.2)" instead "7.3"		TBA
227		Theoretical RR	Assessment method – Test specimen	questioning the practicabillity of the load cell		TBA
228		Theoretical RR	Assessment method – Test specimen	For the Forced Ventilation at the back of the combustion chamber? And requirement about the exact location? It should be at the centre of the back of wall? Since it is forced ventilation, the location seems important		TBA
229		Theoretical RR	Assessment method – Free comment	For the two methods the placement of the secondary opening changes, this will also make it a lot harder to construct the structural system. Would it be possible for the medium fire test to move the combustion chamber up to the top right corner of the large fire combustion chamber? This		TBA

				would make it a lot easier to build.		
230		Theoretical RR	Assessment method – Free comment	The distance from the bottom of the combustion chamber to the floor should according to the standard be minimum 500mm called G in figure 2a. We suggest also adding a maximum because we have experienced, when testing façade systems, that the height below the combustion chamber will affect the flow up the façade and apply of air to the fire a lot. The larger the distance to the floor the more powerful the fire will be.		TBA
231		Theoretical RR	Assessment method – Free comment	Regarding the thickness of the supporting construction it is currently set to 200mm in thickness would it be possible the make this a range from minimum100mm or from 100 - 250mm this will not affect the test results but it will help to have some more freedom in the design of the façade rig.		TBA
232		Theoretical RR	Assessment method – Free comment	The combustion chamber should according to the standard be constructed by aerated concrete. In our experience this aerated concrete will not last for that many fire test before it will have to be changed. Would it be possible to allow for eg. A 50 mm Ceramic wool to be mounted inside the combustion chamber to reduce the fire load on the aerated concrete. Of course the fire chamber would		TBA

				need to be a bit bigger to insure the inside dimension a kept after the wool is added.		
233		Theoretical RR	Assessment method – Free comment	The density of the wood should be 400 kg/m³ +-25 kg/m³. Is this the average density of the total wood crib or how should this be understood. We also think that it will be very hard to buy wood with a specific density, because wood is not sold like that it is sold by type/species and dimensions or by strength class like C18. It will be very time consuming work to prepare for a test and make it very expensive if a standard product is not used.		TBA
234		Theoretical RR	Assessment method – Free comment	It is very unfortunately that the square sections of the wood sticks varies in the medium and large fire. This makes the upkeep for the tests a lot harder to control and to have room for. We would suggest that only one dimension of the square sections is used preferably the 50x50mm one. Also the 50x50 is not a standard wood size in our country we use 45x45mm or sometimes 50x47mm.		TBA
235		Theoretical RR	Assessment method – Free comment	The conditioning of the wood should be made easier. The demand of 23°C at RH50% is to strict and will require a very large special room for this with an automatic control. We suggest that the demand should have some more variations like temperature		TBA

				between 10-30°C and RH between 40-60%.		
236		Theoretical RR	Assessment method – Free comment	The measurements of the mass loss of wood cribs introduces a new challenge. To be able to measure the weight of the crib down to 1% of the total load the floor the wood crib platform stands on will need to have air gaps all around the four sides so there is no friction against the walls. This will introduce an airflow from the area below the combustion chamber to the combustion chamber itself. This flow will increase, as the chimney effect grows larger during the test especially for the large fire exposure where there is no opening for fresh air to enter from. It is our believe that this air gap could change the results of the test depending on how big it is. A solution could be to remove the mass loss measurement or to specify the allowed gap size eg. 5-10mm.		TBA
237		Theoretical RR	Assessment method – Environmental conditions	on page 18 - …test hall shall be large enough…, maybe it's possible to set any minimal distance?		TBA
238		Theoretical RR	Assessment method – Environmental conditions	It should not be necessary to measure the air velocity for an inside test for 15 minutes before each test. Only when changing the test rig should it be verified that the air flow is below 3 ms-1. An airflow of 3m/s seems like a lot for an inside test even though the		TBA

				ventilation is running on full speed. We would prefer if the demand was lowered to maximum 1 ms-1 to insure similarly results at all labs. Ambient should just be measured during the test at a place not affected by the radiation. It should just follow the same rules as in EN 1363-1, no need to invent something new here.		
239		Theoretical RR	Assessment method – Environmental conditions	- Is it necessary to measure humidity or pressure conditions before the test? Or are those measurements in the "Ambient conditions" file for the exercise for information only? - Which is the reference line for the measurement angle for air velocity? Orthogonal or parallel direction regarding the main wall?		TBA
240		Theoretical RR	Assessment method – Environmental conditions	5.4 The dimensions of the hall must be such that there is no back radiation - how to judge it? It is quite complicated.		TBA
241		Theoretical RR	Assessment method – Environmental conditions	Ambient temperature range for the commencement of test, installation, and curing has to be extended considering countries with extreme climatic conditions.		TBA
242		Theoretical RR	Assessment method – Environmental conditions	5.1 Measurement over 15 min necessary? Is 1 min not enough? 5.1 How should anemometers be aligned? Vertical to the main face to the wing or to the floor? 5.4 Size of the test chamber is		TBA

				very spongy - specify more precisely.		
243		Theoretical RR	Assessment method – Environmental conditions	Indoor testing: ventilation is allowed, not obligatory? Too less ventilation may cause a reduction in burning velocity of the crib as not enough O2 present.		TBA
244		Theoretical RR	Assessment method – Environmental conditions	Indoor testing: ventilation is allowed, not obligatory? Too less ventilation may cause a reduction in burning velocity of the crib as not enough O2 present.		TBA
245		Theoretical RR	Assessment method – Environmental conditions	maybe given ranges could be more praticable, ie for wind spead		TBA
246		Theoretical RR	Assessment method – Environmental conditions	Why is the vertical component of the air speed not measured? That seems to be the parameter of more interest especially when using an extraction system (indoor testing)		TBA
247		Theoretical RR	Assessment method – Environmental conditions free comment	Outdoor testing should not be allowed it makes no sense to allow this: It states that the ambient air velocity is measure before the test. For outdoor test both velocity and wind direction can change/gush during testing. This will influence the results of the fire test. And should at least be measured during the test to have any possibility of being valid. The factor of rain/snow is not taking into account, if it has rained before the fire test or two days before the fire test.		TBA

				How do you insure that the test specimen is dry and in equilibrium before the test. For ETICS façade where most of them will need 28 days of curing before a fire test how do you ensure that the façade is dry and in equilibrium before a test, there should at least be some rules about this in the standard. A final point to not allow outdoor testing is the environmental part. The façade can consist of many different things and to allow the test to be performed outside will result in unnecessary pollution of the environments and the planet we all have to live on, and this cannot be the wish for an EU standard. It mentions that the distance from walls to the test specimen has to be large enough; it would be a lot better with an minimum distance. Also the flow and oxygen percentage is affect a lot by the size of the test hall and the change air. We suggest that there should be a minimum of 2 m to each side of the test rig and 5 m in front of the test rig. It could also be an idea to measure the oxygen level inside the test hall during a calibration to insure that there is an large enough change of air during a test.		

248		Theoretical RR	Assessment method –Test specimen	Maybe you would be better to just refer to EN 1363-1 like the other standards and only add the parts that is not mentioned there: "The test specimen shall be constructed as described in EN 1363-1" "Verification of the test specimen shall be carried out as described in EN 1363-1"		TBA
249		Theoretical RR	Assessment method –Test specimen	- Fire barriers may have a relevant influence in the outcome of the test and there is no provision for them in the definition of the specimen - Vertical edges shall be sealed to prevent any ventilation. Which type of seal shall be used? A1 material? - If LSF is assembled on site between floors, would it be considered as supporting wall or as tested façade? The positioning of the crib if LSF were considered supporting wall or tested façade could have a relevant influence in the final test results		TBA
250		Theoretical RR	Assessment method –Test specimen	we consider it appropriate to place Figure 2a from "Exercises.docx" file also in the assessment method, where the joints are well represented		TBA
251		Theoretical RR	Assessment method –Test specimen	More clarity is required on the requirement of additional test specimen, it should be instead additional tests or probably a worst case scenario identification. Workmanship might not be a controlled		TBA

				procedure since we don't monitor once they have left the laboratory.		
252		Theoretical RR	Assessment method –Test specimen	1. A fixed height of a test rig will allow more harmonized test method. Therefore, it is recommended that the test rigs to have a fixed height with some tolerances. Also, adding a round of thermocouples 200mm to 300 below the top of the rig with allow for more harmonized testing procedure. 2. Info about structural frame and wall is not very clear: what about eg. concrete buildings; the steel supporting construction needs to cover all types of buildings.		TBA
253		Theoretical RR	Assessment method –Test specimen	6.1 Main face width -> 3200mm necessary for medium? According to experience 2000mm are sufficient 6.3 Vertical joint for large and medium always centered above fire chamber		TBA
254		Theoretical RR	Assessment method –Test specimen	Comments: Implement a fix height of the structural frame. Info about frame and wall is not very clear: - § 4.1 General "The rig utilizes a vertical structural frame, representative of a structural steel framed building" -> what about eg. concrete buildings; - § 4.3 Structural frame "Other structural frames such as timber or concrete can be employed for specific applications." -> Which		TBA

				design required?From our point of view the steel supporting construction needs to cover all types of buildings.		
255		Theoretical RR	Assessment method –Test specimen	Implement a fix height of the structural frame. Info structural frame and wall is not very clear: § 4.1 "The rig utilizes a vertical structural frame, representative of a structural steel framed building" -> what about eg. concrete buildings; § 4.3 "Other structural frames such as timber or concrete can be employed for specific applications." -> Which design required? From out point of view the steel supporting construction needs to cover all types of buildings.		TBA
256		Theoretical RR	Assessment method –Test specimen	It should be shown on the drawing where the floor separations should be and where some systems should place their fire stop/ fire barrier which are needed in some systems and countries. Maybe add; "The test specimen shall only contain a mixture of different designs providing this is representative of end use applications".		TBA
257		Theoretical RR	Assessment method – Mounting of the Test specimen	additional point to 4 (it was to much symbols there) 4) in 4.3 are mentioned alternative structural frames (timber, concrete) it isn't clear – in what cases are they needed (for example, Specimen		TBA

				2 of this RR is wooden construction which was tested on steel structural frame, but in end use application no structural frame is used).		
258		Theoretical RR	Assessment method – Mounting of the Test specimen	Give detailed instruction with examples		TBA
259		Theoretical RR	Assessment method – Mounting of the Test specimen	If the façade overlap the combustion chamber as on Figure 10 where is the size of the combustion chamber measured at, the height on 1000/2000mm? At the roof of the combustion chamber or at the bottom of the overlapping façade? The same goes for the sides The backing board should not be a water releasing material like gypsum, but more like a CaSi board.		TBA
260		Theoretical RR	Assessment method – Mounting of the Test specimen	7.3 There should be a difference in the materials used for the frames. If they are made of combustible materials, mounting them could have a negative effect on the results. Different rules for the different materials should be added in DIAP. In this regard, can the frame at combustion chamber and at secondary opening be different?		TBA
261		Theoretical RR	Assessment method – Mounting of the Test specimen	our answers in 7.1.2 and 7.1.5 in "Exercises.docx" file apply provided that the steel sections in the figure = structural frame, but this is not entirely clear from the figure		TBA

262		Theoretical RR	Assessment method – Mounting of the Test specimen	Since the framing system could be different to end use, suitable type of fixation should be used to connect cladding systems to framing systems		TBA
263		Theoretical RR	Assessment method – Mounting of the Test specimen	7.2.1 secondary opening is not within reach of the flames (normally) would have to be moved closer to the fire chamber (see large-config.)		TBA
264		Theoretical RR	Assessment method – Mounting of the Test specimen	Fig. 10 does not match with fig. 2: 1st transom is located at approx. 3000 mm instead of 2500 mm in fig. 2. This solution seems to be better. - "When only a part of the external wall is tested, such as an ETICS, a supporting construction is necessary onto which the test specimen can be mounted. See 7.1 for more rules." -> When it is allowed to test only a partly external wall and when not? No indication on the location of fire stops		TBA
265		Theoretical RR	Assessment method – Mounting of the Test specimen	"When only a part of the external wall is tested, such as an ETICS, a supporting construction is necessary onto which the test specimen can be mounted. See 7.1 for more rules." -> When it is allowed to test only a partly external wall and when not? No indication on the location of fire stops. Fig. 10 does not match with fig. 2: 1st transom is located at approx. 3000 mm instead of		TBA

				2500 mm in fig. 2. This solution seems to be better		
266		Theoretical RR	Assessment method – Mounting of the Test specimen	unclear, floor to facade junction, which structures protect the facade opening, which opening, the one framing the window or the opening to the facade ie where flames could enter into the facade struture. The diagrams in the annex C are hard to understand. More clear detailed drawings are needed.		TBA
267		Theoretical RR	Assessment method – Mounting of the Test specimen	In clause 7.2.1 it is said that the second opening shall be incorporated. In clause 12 "Test report" you can get the impression that the second opening is not madatory (as you have to state in the report the presence of the second opening). What about prefabricated ETICS. Then the main face and the wing have to be mounted separately.		TBA
268		Theoretical RR	Assessment method – Conditioning of the Test specimen	Assessment method say : The test rig with the mounted test specimen shall be protected from adverse environmental conditions such as water, wind load and ambient temperatures outside the range +5 °C to +35 °C during the mounting, conditioning and test period. These conditions nearly obliged to test indoor. When tested outdoor, it will be difficult for the laboratory to guaranty to		TBA

				sponsor a reasonable test date.		
269		Theoretical RR	Assessment method – Conditioning of the Test specimen	It will be much better and more future proof if you just do as in all the other fire standards and refer to EN 1363-1. We suggest that the complete chapter 8 is change to: The test construction shall be conditioned in accordance with EN 1363-1.		TBA
270		Theoretical RR	Assessment method – Conditioning of the Test specimen	- Maximum curing of 28 days for i.e. ETICS systems? - Which criteria would be used to determine if a material is hygroscopic (i.e. water absortion)? - If only a component of the whole system were hygroscopic, the mock up should be made up of all the components of the façade or just with the hygroscopic one? (i.e. in stone cladding rainscreen façades, the weight variation related to the the insulation moisture content could be insignificant compared to the total weight of the mock up)		TBA
271		Theoretical RR	Assessment method – Conditioning of the Test specimen	8.2 taking individual parts from the mock-up specimen and drying should be described more precisely, when to assemble it, it is not certain what exactly the hygroscopic material is (we understand that it is not e.g. mineral wool for these cases)		TBA

272		Theoretical RR	Assessment method – Conditioning of the Test specimen	More details on the requirement of mock up for conditioning. Hygroscopic nature of the material has to quantified to avoid variation. A list of standard hygroscopic materials can also be included in the standard. Presence of supporting construction for masonry application in the mock up has to be mentioned. Accuracy of measurements in weight of the mock up shall be provided or else if it is referring back to BS EN 13238 that has to be specified.		TBA
273		Theoretical RR	Assessment method – Conditioning of the Test specimen	Consideration to limit the maximum curing period of 28days. Or alternatively, preconditioning of the materials to be allowed.		TBA
274		Theoretical RR	Assessment method – Instrumentation	Internal and external thermocouples should be positioned on same specific locations. In case, you have a lot of layers (more then 4) you have to face the situation to install external thermocouples within 10 mm on each locations with a lot of internal thermocouples in the same area. In addition, knowing that you install thermocouples by drilling from the backside of the façade system, it will be difficult to maintain the distance tolerance of 10 mm for external thermocouples.		TBA
275		Theoretical RR	Assessment method – Instrumentation	The suggested solution for mounting thermocouples in the		TBA

				façade is very hard and not possible for many façade systems. Especially for the unexposed thermocouples. You have to drill a 2 mm hole "The diameter of the holes shall be the minimum required to allow the thermocouples to be inserted from the rear to the exposed face of the tested façade". It has to go through 200 mm aerated concrete then trough the test specimen and out the exposed side through the a façade board in the example here for test 1 an ceramic tile. This is not possible.		
276		Theoretical RR	Assessment method – Instrumentation	- Which direction (angle) is considered for the measurement of ambient air velocity? - In Figure 11 it should be clarified that internal thermocouples located at mid depth of the external cladding and insulation layers are needed only when they are defined as combustible according to chapter 3 - It should be clarified the position of the façade-floor junction thermocouples in an additional vertical section to define the height at which they are installed (mid depth? unexposed side?)		TBA
277		Theoretical RR	Assessment method – Instrumentation	In 9.1.3 of the method we find the text "...In each location, internal thermocouples shall be		TBA

				positioned at the mid-depth of each combustible layer (see definition in chapter 3) and air cavity within the test specimen with a depth ≥10 mm..." not clear enough if the 10 mm are only for the air cavity, or for both the air cavity and the combustible layer. For our results we have read it as both air cavity and combustible layer.		
278		Theoretical RR	Assessment method – Instrumentation	Position of the first thermocouple in Column 1 & 2 has to be mentioned. From the drawing provided one has to guess it is in line with the head of the combustion chamber. Figure 11 is misleading and giving an idea that the internal Tc's can be placed at a distance from the external Tc or specified locations. The concept of measuring the mass loss of wooden crib has to be explained in the standard.		TBA
279		Theoretical RR	Assessment method – Instrumentation	It seems to me that too many thermocouples are employed. Thermocouples for smouldering criterion may be incorporated without referring to DIN standard.		TBA
280		Theoretical RR	Assessment method – Instrumentation	some of the thermocouples on column 1 and 2 are located at close proximity of the chamber (located about 500mm apart). Thus, when the temperature of the chamber is about 1000oC, temperature at those positions will be over 500oC regardless of the cladding. Hence, it is		TBA

				suggested to not to take the first two rows of thermocouples on those columns into account.		
281		Theoretical RR	Assessment method – Instrumentation	Ext. TCs through entire test specimen -> destroy test specimen + prevent falling parts from falling down; place ext. TCs in front of test specimen Move C1&C2 closer to fire chamber with medium fire expo. fixed TC arrangement - see EDIN4102-24 - is better. Paragraph 3 -> formulate more precisely. Insert explaination of area "A" for PTs. Specify TE pos. as test stand differs from DIN4102-20		TBA
282		Theoretical RR	Assessment method – Instrumentation	Some thermocouples are located close to the chamber. Can they cause a failure due to the heat of the burning crib? 9.4 Checking of smouldering (optional) - "When the smouldering criterion is required, additional thermocouples in accordance with DIN 410220 shall be installed within the facade system." -> information in the standard itself instead of reference to a national standard.		TBA
283		Theoretical RR	Assessment method – Instrumentation	Some thermocouples are located close to the chamber. Can they cause a failure due to the heat of the burning crib? 9.4 Checking of smouldering (optional) - "When the		TBA

				smouldering criterion is required, additional thermocouples in accordance with DIN 410220 shall be installed within the facade system.” -> information in the standard itself instead of reference to a national standard.		
284		Theoretical RR	Assessment method – Instrumentation	To drill trough a ceramic tile is hard enough it is self and to do it through a 200mm + a test specimen is impossible/ or very, very, very hard. Then you need to do it 32 times without damaging the test specimen. We have looked at it and we cannot even find any drill or person that can do this. If this is kept in the standard it will make the standard useless and if you succeed in drilling the holes the test specimen will properly be very damaged and not representative of the real thing. We see this as the biggest problem/error in the standard and it need to be changes for the standard to work. We suggest that a wire system is used on the exposed side where the thermocouples is mounted on. A wire is placed 50 mm from the test specimen at eg. Column 1. The tension is kept in the wire under the test by adding a dead load on the other end of the wire that will keep the wire in tension even though it expands by the heat. The thermocouples can now be		TBA

				attached to the wire and will measure the temperature at the same location without having to drill it through. The same can be done for column 2. For level 1 it can be done by adding a hook in the corner at the wing 5 mm out from both sides and the again use a wire placed horizontal. Then only one hole will have to be made in the test specimen to attach the hook to the supporting construction. The internal thermocouples will also be hard to install but this could be possible with you will need a minimum Ø10 mm drill to go +400 mm into a façade from behind. In column 2 in the wing we would just drill in from the side and 50 mm in this would be a lot easier than from behind. In section 9.4 DIN 4102-20 should not be mentioned. Either it is a demand/optional in the standard and the description should be here or it should be removed. An European standard should never refer to a non EU standard, EU has no control over. We think that a smoldering criterion makes sense and should be in full in the standard, and preferably in a better way than in DIN 4102-20.		

285		Theoretical RR	Assessment method – Test procedure	10.8.3 in all three rows it would be clearer if instead of for example "failure of more than 2 thermocouples…" is written "failure of 3 or more thermocouples…"		TBA
286		Theoretical RR	Assessment method – Test procedure	Extinguishing timber crib doesn't allow to observe the influence of a higher calorific load when an additional combustible mass is present during the test (example : timbers joints, CLT, ….). However, this can influence the test and the fire behavior of the façade.		TBA
287		Theoretical RR	Assessment method – Test procedure	In chapter 10.8 invalidation of test, it could be useful to: - declare that the point listed are in addition to all other request of the assessment method (they are not the only points which invalidate the test) - find a rules about problems that occurred during extinguishing of the fire source		TBA
288		Theoretical RR	Assessment method – Test procedure	Why do there have to be two methods for igniting the wood crib for the large and medium scale, please remove one to make it more simple and logical. The extinguishing of the fire source with water will be hard to do and not affect the façade with steam/moisture that will go up the façade. Would it not be a better idea to just close the combustion chamber with a		TBA

				small board or wall that is put as a front of the chamber. This could be done without having to go in front of the façade by mechanically closing the front or having the wall/board on wheels and pulling it closed with wires.		
289		Theoretical RR	Assessment method – Test procedure	10.2 Definition of the start of the test (ignition source / crib) should be made clearer. Inserting a section between 10.5 and 10.6 for "Smouldering" would be useful 10.6 For clarification it should be mentioned that the specimen shall not be extinguished after the test. 10.8 Can thermocouples be exchanged during the test if they are defective to avoid invalidation of the test?		TBA
290		Theoretical RR	Assessment method – Test procedure	- Invalidation of tests due to wind loading conditions considered? Shouldn't it be an extra criteria to stop the test? Direction and velocity of the wind has a clear influence on the test. A prodecure and assessment criteria could be determined for air measurements to be made in the surroundings of the rig (i.e. 3-4 m away from the crib) during the whole test, invalidating the test if a certain value (i.e. 9 m/s during 30s) is exceded		TBA
291		Theoretical RR	Assessment method – Test procedure	10.3 Defining start more precisely (test starts with ignition 1st or 2nd pool/wood		TBA

				strip?) 10.3.1/2 Specifying exact positions of pools/wooden parts 10.8.1 Define invalidity due to weather (What is meant by "significant" in paragraph 5.3?) 10.8.2 It would be very unreasonable to state after the test that it was invalid because the heat input was too low, for example 0.5 MJ. If the wooden crib is precisely defined, it can nevertheless be assumed that the corresponding heat input is correct.		
292		Theoretical RR	Assessment method – Test procedure	Invalidation due to heat exposure: the heat exposure should be OK, if the heat source (timber crib) is within the prescriptions of the standard.		TBA
293		Theoretical RR	Assessment method – Test procedure	Invalidation due to heat exposure: the heat exposure should be OK, if the heat source (timber crib) is within the prescriptions of the standard.		TBA
294		Theoretical RR	Assessment method – Test procedure	Think about pulling away the crib instead of trying to extinguish it.		TBA
295		Theoretical RR	Assessment method – Test procedure	10.8: All test preformed outside should be invalidated it makes no sense to allow this. It seams a but harsh to invalidate a test if two thermocouples fails in a non-critical area if no temperature is close to 500°C and if the façade shows no sign of damage.		TBA

296		Theoretical RR	Assessment method – Test criteria	We think it would be a good idea to also have a criterion for the total mass of fallen material eg. If the total mass from fallings parts reach 10 kg it fails. If a client just makes a façade of 0.9 kg heavy tiles they can all fall down and it can pass but it would still be more dangerous than one piece of 1.1 kg falling down.		TBA
297		Theoretical RR	Assessment method – Test criteria	shouldn't radiation be also performance criterion? (it is not much described in the method yet, but it will be probably added after the tests as written in Annex B)		TBA
298		Theoretical RR	Assessment method – Test criteria	Calculation of the weight of falling particles and its area is unclear, need to be explained further.		TBA
299		Theoretical RR	Assessment method – Test criteria	After re-reviewing the performance criteria, mass of falling part should be the danger whether determined by mass or area (using area density). The criteria should not be failed by area alone. Would a falling piece of 100 mm × 1000 mm tape be dangerous?		TBA
300		Theoretical RR	Assessment method – Test criteria	procedure for burning/falling parts isnt practical. Molten parts cant be weighed, number of drops of burning/molten EPS cant be counted with reasonable effort When weighting falling&burning parts ? (burning wood is gone at end of test) Evaluation of molten parts		TBA

				(e.g. plaster+EPS melt)? use temp. eval. analogous to EN16733. TCs show >50C directly after exting. fire, so test have failed. Time should be changed to 6h after ignition or to 5h after exting. fire, otherwise test would be impractical		
301		Theoretical RR	Assessment method – Test criteria	The temperature criterion is unclear. Is it a rise in temperature during a duration of 30 seconds or is it the moment the temperature exceeds the threshhold of 500°C.		TBA
302		Theoretical RR	Assessment method – Test report	l)… and the time of failure…, so in case when specimen passes 60 min test and we write that test result is 60 min does it mean that criterion fails? indeed no, so in the standard should be written "test result 60 min means that criterion didn't failure"		TBA
303		Theoretical RR	Assessment method – Test report	point n same remark that the one given for chapter 10.8		TBA
304		Theoretical RR	Assessment method – Test report	The chapter should begin with "In addition to the items required by EN 1363-1 the report shall contain the following:		TBA
305		Theoretical RR	Assessment method – Test report	- Is it possible to issue a separate classification report? Similar to the reports issued according to EN 13501 series?		TBA
306		Theoretical RR	Assessment method – Test report	(e) Point 4: is it not sufficient for the inspection body to confirm that the product has been conditioned accordingly?		TBA

				(l) How should the table be completed if the failure criteria have not been met?		
307		Theoretical RR	Assessment method – DIAP	h) illogical application, see. 7.3.8 of main answers list		TBA
308		Theoretical RR	Assessment method – DIAP	Section F) and G) should be replaced by; "When tested with an insulation of either Euroclass E, D, C, B or A2 it can be replaced with an insulation of an better Euroclass with the same thickness and density, when appropriate in regards to the stability of the system"		TBA
309		Theoretical RR	Assessment method – DIAP	- Increasing the number of joints (vertical or horizontal) could negatively affect fire performance. Decrease of joints seems to be safer scenario		TBA
310		Theoretical RR	Assessment method – DIAP	is it possible replace insulation e.g. class D by B or C? It is not described exactly in DIAP.		TBA
311		Theoretical RR	Assessment method – DIAP	Include the extension of the test results when test was conducted in a different environmental condition (For high humidity/temperature ranges)		TBA
312		Theoretical RR	Assessment method – DIAP	1. Direct field of application should allow for alternative mechanical fixings; 2. In line with EN13501-1 produces can be only tested to ISO 11925-2 and obtain Euroclass E while the product if tested to EN13283 and ISO11925-2 could obtain higher classes. As such, extend of application of insulation with		TBA

				Euroclass E to higher class could potentially be unsafe. 3. DIAP: The allowed change in dimensions of cladding panels needs to be defined		
313		Theoretical RR	Assessment method – DIAP	Are DIAP rules agreed with the national certification bodies, as they must also support the DIAP rules? Are flammable window frames really covered when tested without frames?		TBA
314		Theoretical RR	Assessment method – DIAP	What about size of boards. Only limited change in dimensions should be allowed. Bigger boards can result in less mechanical stability while smaller boards can result in more (critical) joints. Range of allowed fixations (different from these used for the test supporting construction) have to be described. A reaction class E is not Always less fire-safe than a class B, C or D(if the SBI test is not performed on a potential class B product). Increase in number of joints when open joints are used?		TBA
315		Theoretical RR	Assessment method – DIAP	What about size of boards. Only limited change in dimensions should be allowed. Bigger boards can result in less mechanical stability while smaller boards can result in more (critical) joints. Range of allowed fixations (different from these used for the test supporting		TBA

				construction) have to be described. A reaction class E is not always fire-safer than a class B, C or D (if the SBI test is not performed on a potential class B product). No DIAP rules for façade-floor junction available.		
316		Theoretical RR	Assessment method – Classification	unclear what conclusion should be written in case when no classification is possible, in what form		TBA
317		Theoretical RR	Assessment method – Classification	It should mention that EN 13501-2 supersedes this section when it has been updated. The classification should not be in the test standard in the later versions but is of course needed for now.		TBA
318		Theoretical RR	Assessment method – Classification	When floor joint is tested, what sort of classification should be assigned to the tested joint? Also, if the floor joint fail, how would that affect the overall test?		TBA
319		Theoretical RR	Assessment method – Classification	Both a puddle with a diameter of 50 mm and the fall of the entire façade are rated equally. Therefore a grading for low/medium/many falling parts would be better, e.g. LS1-d0/d1/d2 and LS2-d0/d1/d2.		TBA
320		Theoretical RR	Assessment method – Classification	Which classification is obtained if the façade-to-floor junction succeed? EI 30 or EI 60? There is only 30 minutes fire exposure. What if the façade-to-floor junction test fails on integrity? Is further testing for		TBA

				fire spread classification possible? The criteria for falling parts are very severe.		
321		Theoretical RR	Assessment method – Classification	Which classification is obtained if the façade-to-floor junction succeed? EI 30 or EI 60? There is only 30 minutes fire exposure. What if the façade-to-floor junction test fails on integrity? Is further testing for fire spread classification possible? The criteria for falling parts are very severe.		TBA
322		Theoretical RR	Assessment method – Classification	Has to give more detail and be more defined. Maybe more classes have to be made.		
323		Theoretical RR	Assessment method – Classification	Should not the order be like LS1 not falling parts that cover all the classes. The same with LS3 not falling parts, should cover LS 4 falling parts. LS1 not falling parts (best class), LS2 not falling parts, LS3 not falling parts, LS4 falling parts (worst class)?		TBA
324		Theoretical RR	Assessment method – Falling parts	This section mentions that in case of other kind of falling parts (3D falling parts) an expert evaluation is necessary. It is not clearly defined by the test methodology how the falling parts are to be measured and evaluated. An expert evaluation cannot be part of the test protocol and therefore any reference to expert evaluations shall excluded from the tested methodology.		TBA

325		Theoretical RR	Assessment method – Falling parts	More clarity required. Will be easier if it shows a sample calculation.		TBA
326		Theoretical RR	Assessment method – Falling parts	This method may be imprecise. It also implies that area of a falling part is dangerous and not area of a falling part linked to a mass. Would a falling piece of 100 mm × 1000 mm tape be dangerous?		TBA
327		Theoretical RR	Assessment method – Falling parts	The procedure is not practicable. How should plaster and molten EPS be separated in ETICS? What should be the procedure at ventilated façade systems with molten aluminium substructure and facade panels?		TBA
328		Theoretical RR	Assessment method – Falling parts	Too complicated and not practible		TBA
329		Theoretical RR	Assessment method – Calibration of heat exposure	A good idea to insure more consistent in the test results. But it will also make testing more expensive for the client, so it has to be done only if it makes sense.		TBA
330		Theoretical RR	Assessment method – Calibration of heat exposure	- Which is the idea for such calibration? Monthly, yearly?		TBA
331		Theoretical RR	Assessment method – Calibration of heat exposure	It needs further clarification in the document.		TBA
332		Theoretical RR	Assessment method – Secondary opening	We are not convinced that testing without the window frame is worst case for all cases. If the frame is burnable, it could increase the fire load at the window and continue after the combustion chamber is put out. And if it eg. is made of		TBA

				steel it could damage the construction during expansion and create a crack or opening in the protection system. However, we agree that test without a window frame would make it a lot easier and allow for different types of window frames to be used afterwards.		
333		Theoretical RR	Assessment method – Secondary opening	Need to include more detailed explanation.		TBA
334		Theoretical RR	Assessment method – Secondary opening	It is not easy to understand.		TBA
335		Theoretical RR	Assessment method – Secondary opening	The provide description can potentially lead to different interpretation compare to the system which is on site. As such this Annex while it is informative, it would need further clarification.		TBA
336		Theoretical RR	Assessment method – Secondary opening	Too complex.		TBA
337		Theoretical RR	Assessment method –Façade to floor junction	Remove this "A mobile extinguishing system shall be prepared before the test in case where the fire would develop at the junction." Or rephrase it to eg. "Care should be taken in the possible failure of the junction during the test" It should be up to the labs themselves how they deal with this challenge, this is a test standard not a course in safety ;)		TBA
338		Theoretical RR	Assessment method –Façade to floor junction	When floor joint is tested, what sort of classification should be assigned to the tested joint? Also, if the floor joint fail, how		TBA

				would that affect the overall test?		
339		Theoretical RR	Assessment method –Façade to floor junction	Too complex.		TBA