

COST Action C17 WG2

Note by C Hood: Proposed Heritage Accredited Fire Test - relative to Water Mist

Reflecting upon the COST meeting of the last few days I would like to make a point which I believe WG2 must address in respect to water mist in heritage applications.

Irrespective of whether we talk about high or low pressure there is a fundamental issue which if not addressed could result in an inappropriate system design criteria being applied by water mist suppliers which may be attractive to the user but may not work to the satisfaction of the heritage "industry"!

Comment was made that TC191 WG5 and the new water mist document does not address Heritage. At present it does not, but it is constructed in such a way that I believe it could very easily. It already deals with fire risk scenarios such as offices, point of sale fryers, etc. as separate annexes. The annexes recognise that that the standard is a prescriptive standard and not a pre-engineering one, this in view of the fact that all water mist system designs must be risk specific and that system performance will be dependant on individual manufacturer's nozzle performance, geometry, etc. which are not interchangeable.

With the Heritage situation as it currently stands I believe that it is potentially possible for a speculative design criteria, which has no real accredited fire test basis, to be converted into an installed system simply because the supplier has "tickled the ears" of the user respecting a reduced water volume which looks good but which in reality either by virtue of the water volume itself and/or by the format of the mist generated could be inadequate for a heritage fuel load.

I believe when WG2 meets in Vienna it should focus on determining just what a typical heritage fire load ought to be, and in a form that could be replicated in any test house and that would be accepted as a typical representation of a heritage situation. An indication as to what should also be a measurable degree of acceptable fire damage needs to be established. This could then be submitted to TC191 WG5 as the basis of an annex relating to heritage applications.

The nearest fire test data generally accepted by the industry and which has third party experience is that of offices, but arguably the heritage fire load is different. For example, tapestries on cavity timber walls add another dimension. Also, the form of acceptable fire detection will have a direct bearing upon the water mist system performance and water flux density required, as it often relates to the point in fire development when it is deemed that the system should operate, i.e. early or later, and in response to what fire evidence such as smoke, heat, flame etc. Issues such as whether individual glass bulb nozzles should be the design basis with a certain water flow per nozzle, or, deluge type operation where the flow per nozzle may in fact be less but the overall system flow could be greater.

One might ask what is understood to be a typical heritage fire risk scenario?

Decisions in respect to the size of the test room, its height, construction, what simulations of valuables should incorporated, etc. would need to be agreed and part of the set-up.

This matter may almost certainly involve finance to cover full scale fire testing in order to set the bench markers, as has already been the case for a number of other industrial and commercial applications of water mist. Fire protection of road tunnels is an ongoing case in point.

The result of this exercise although highly complex will be performance criteria which all manufacturers' systems can be measured against and if necessary demonstrated. Surely, in view of the value of the property to be protected the exercise becomes a necessity.

I hope that my comments are constructive and offer some form of direction, which I firmly believe is now necessary.

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