EASA	COMMENT RESPONSE DOCUMENT
	Hawker 4000 - SC C-24 – Issue 1 **[Published on 27 January 2010 and officially closed for comments on 19 February 2010]**

Commenter 1 : CAA UK

Comment # 1 – General

This special condition (SC) is supposed to address 'Loads' as noted in its title. However the text of the SC refers to a reduction in safety, toxicity, fibre release -none of which have any direct relation with aircraft loads. The title even refers to 'post crash', and this also has no relation to loads. It is unclear as to what exactly is being asked for from the applicant, other than to point out that material property changes (presumably in the event of a fire) will be dealt with under CS25.571.
The SC should be re-written identifying exactly what the structural issue is that needs to be addressed; being sure to distinguish between this and what is being asked for in SC D-08.

EASA response:

This SC was written in a generic form to address the high level regulatory intent associated with the use of composite materials in place of metallic structure, i.e. it must not reduce the existing level of safety, as stated in the SC and also in recently harmonised AC20-107B/AMC 20-29 (AMC 20-29 to be released soon). It also recognises that the new, and rapidly expanding, applications for composite materials in many types of designs and configurations has not yet allowed development of a mature and standardised Means of Compliance, that would justify publication of more detailed content at this time, or clarified boundaries and responsibilities between technical disciplines. This is typical of the evolution of Rulemaking and Guidance material content associated with the introduction of new technologies and/or extension of existing technologies into new applications, e.g. other examples include Systems/Structures interaction.

Regarding the more specific issues in the question:

The reference to 'Loads' evolved from the B787 SC, which addressed loads associated with Post-Crash Fire, e.g. fuel weight etc. Although, not referring to 'in-flight' loads typically addressed under the Structures discipline, they do represent potential load related safety threats arising from the structure not being able to maintain them when subject to fire.

Furthermore, the reference to 'Loads', and a structures potential to be able to support them when subjected to fire, is integral to the Residual Strength and Damage Tolerance process.

Regarding reference to toxicity, fibre release, etc, this text was also raised by Structures to ensure that a safety overlap existed between the various technical disciplines in the current rapidly evolving composite related projects. Overlap is obviously preferable to omission.

The reference to 'in-flight' fire was added for brevity and to ensure that the fire threat was explicitly identified as one of the inputs when satisfying Residual Strength and Damage Tolerance requirements.

In conclusion, although some overlap between technical issues and disciplines exist in the text of the SC, for this project, regarding subjects of potential concern, this situation is considered to be preferable to the omission of subjects across the project. Such overlap is typical in the evolution of Regulatory and Guidance material. Therefore, EASA considers there to be little value in rewriting the SC for the purposes of this project. Subsequent Rulemaking activity should address the concerns raised in the question.

Comment # 2 - General

Is there a similar issue being raised on the Boeing 787 or Airbus A380, both of which use composite material extensively in the fuselage design?

EASA response:

In addition to the response to comment #1:
This SC was developed from the B787 SCs, which were introduced to account for the far more extensive application of non-metallic structure into fuselage and wing PSE structures, significantly beyond that of the earlier A380 design (note that an SC of similar intent has also been applied to A350). This SC also recognises the differences in aircraft configuration, material applications etc, that exist between the B787 and HBC 4000, e.g. the HBC 4000 has a metallic wing etc.

Comment # 3 – Paragraph 6

Can we be assured that the information on the behaviour of the composite materials in fire is freely available and informs industry and regulators in order that a suitable emergency response is act Can we be assured that the information on the behaviour of the composite materials in fire is freely available and informs industry and regulators in order that a suitable emergency response is actioned?

The information on the behaviour of composite materials in fire is welcome, but it must be available to industry and emergency responders in order for an appropriate response to be planned.

EASA response:

In addition to the response to comment #1 :
From a Structures perspective, the subject has been raised, although not typically considered a flight safety issue, to ensure that a visible safety overlap exists with other technical disciplines and responsibilities.