

# NAFLIC

*National Association For Leisure Industry Certification*

## Standards & Related Documents Committee

### TECHNICAL BULLETIN - MARCH 2004

#### 270. Design Review of Modifications

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The Committee have been requested to issue a reminder of one or two matters relating to Design Review of modifications. This follows from the fact that inspection bodies occasionally find that safety-critical modifications to amusement devices have been carried out without following the process required by *Fairgrounds and Amusement Parks - Guidance on Safe Practice (HSG 175; HSE Books; ISBN 0 7176 1174 4)*. This sometimes means that, although modification work has been carried out over the winter, a ride isn't ready to open at the start of the new season.

There is sometimes confusion over whether or not a modification is safety-critical (if it is, it has to undergo Design Review). One of the most common situations in which confusion occurs relates to welding work. We draw attention to the definition of "Repair" on page 107 of HSG175. This is :-

"To restore a piece of equipment to its design specification . **Restoration work involving processes such as welding**, where the quality of workmanship can have an affect on safety, **should be considered as a safety-critical modification.**" (Our emphasis).

Controllers may also refer to paragraph 182 :-

"It is possible that by doing welding, you may be making a modification. The inspection body might require a design review, an assessment of the conformity of the welding to design and / or a new functional test before confirming that the device is safe."

Grinding out of cracks, and / or replacing weld, may cause new stress raisers that were not present in the original component.

Another common occurrence is that Design Review gets forgotten when, as a result of defects, a foreign manufacturer recommends a modification. In such circumstances, the controller becomes the person who imports the design specification for the modification. This means that he inherits duties under Section 6 of the Health and Safety at Work etc. Act 1974 for the safety of the design modification. HSG 175 expects him to have a Report of Design Review before he puts the ride back into service. Nor should it be forgotten that a Report of Design Review is also required even when a modification has been recommended by, or agreed with, the Health and Safety Executive.

Committee Members :- Dr Garry Fawcett (Chairman), Mr Richard Barnes, Mr Peter Smith, Mr Ian Grant,  
Mr Steve Parker, Mr Eddie Price, Mr Mike Preston & Mr Dave Inman

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PO BOX 752, SUNDERLAND, SR3 1XX  
TEL: (0191) 5239498 FAX: (0191) 5239498

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An extensive definition of "safety-critical modification" is given on pages 107 and 108 of HSG 175, as follows :-

"Any alteration to the hardware/software of a piece of equipment including the introduction of a component which departs from the original design specification. It includes any change to:

- (a) loading (eg changing seating arrangements, fitting heavier passenger units);
- (b) speed or operating cycle;
- (c) range (eg height of lift);
- (d) safety envelope;
- (e) safety-critical components, devices or systems;
- (f) structural and mechanical components;
- (g) drive mechanisms;
- (h) control mechanisms (eg brakes, shock absorbers, speed limiters);
- (i) software;
- (j) passenger containment (including fencing and barriers);
- (k) passenger height restrictions;
- (l) reinstallation of a fixed device in a different location.

This list is not exhaustive. If in doubt, it should be assumed that every modification is safety-critical and the advice of a competent person sought."

The final sentence of the definition emphasises the need to err on the safe side if there is any uncertainty about whether or not a modification is safety-critical.