

AD 361

Mono pitched portal frames in fire boundary conditions

In SCI publication P313, *Single Storey Steel Framed Buildings in Fire Boundary Conditions*, Section 2.5.4 gives guidance on the calculation of overturning moments for mono pitched frames. However, it has come to SCI's attention that the expressions in that Section can give negative values of overturning moment for certain configurations of mono pitched frames.

The purpose of this AD Note is to provide clarification on the use of Section 2.5.4.

The problem of negative values of overturning moment given by expressions in Section 2.5.4 occurs when the frame being checked has short rafter spans or lightly loaded rafters, as this tends to cause low rafter utilisation. In such cases, the value of the horizontal force associated with the plastic collapse mechanism, H , has a small or even negative value, according to the expression on page 14 of P313. With a negative value of H , the values of OTM_1 and OTM_2 given by the expressions on page 13 can also become negative.

A negative value of H has no physical significance as far as the fire performance of the frame is concerned; it simply means that at the rafter temperature considered (890°C) the frame will not develop a mechanism under the applied loading.

So, as a first step, H should not be taken as less than zero. However, with $H = 0$ and light loading on the rafter, the values of OTM_1 and OTM_2 may be small. Noting that the design model for duo pitched rafters includes a minimum value of overturning moment, it would be prudent to adopt a similar approach for mono pitched frames. The column base should be designed to resist a minimum value of overturning moment equal to 10% of the column moment resistance.

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New and revised codes & standards

From BSI Updates July & August 2011

BS IMPLEMENTATIONS

BS ISO 20805:2011

Hot-rolled steel sheet in coils of higher yield strength with improved formability and heavy thickness for cold forming.

Supersedes BS ISO 20805:2005

PUBLISHED DOCUMENTS

PD 6694-1:2011

Recommendations for the design of structures subject to traffic loading to BS EN 1997-1:2004

No current standard is superseded

PD ISO/TR 10809-2:2011

Cast irons. Welding

No current standard is superseded

PD 6688-1-1:2011

Recommendations for the design of structures to BS EN 1991-1-1

No current standard is superseded

NEW WORK STARTED

EN 1337-1

Structural bearings. General design rules

Will supersede BS EN 1337-1:2000

DRAFT BRITISH STANDARDS FOR PUBLIC COMMENT

11/30215307 DC

BS ISO 630-3 Structural steels. Technical delivery conditions for fine grain structural steels

11/30215310 DC

BS ISO 630-4 Structural steels. Technical delivery conditions for high yield strength quenched and tempered structural steel plates

11/30227247 DC

BS ISO 7452 Hot rolled steel plates. Tolerances on dimensions and shape

CORRIGENDA TO BRITISH STANDARDS

BS EN 1090-1:2009

Execution of steel structures and aluminium structures. Requirements for conformity assessment of structural components

CORRIGENDUM 1

BRITISH STANDARDS PROPOSED FOR CONFIRMATION

BS 4 -1:2005

Structural steel sections. Specification for hot-rolled sections

BS 5395-2:1984

Stairs, ladders and walkways. Code of practice for the design of helical and spiral stairs

BS 5606:1990

Guide to accuracy in building