lightest possible steel section might demand a high DFT, they can evaluate whether a marginal increase in flange or web thickness reduces the coating thickness enough to provide a lower overall cost. This trade-off between steel tonnage and fire protection is only apparent because the party performing the structural design is also specifying and pricing the fire protection.

For the wider steel frame industry, this demonstrates the efficiencies possible when parties pull together. When the structural engineer, steelwork contractor and fire protection specialist operate in isolation and fail to communicate basic utilisation data, the resulting specification will rarely be optimal – and in certain cases may even be unconservative. The design processes are fully documented and well within the capabilities of any structural engineer. What is needed now is a willingness from engineers to include critical temperatures as a standard deliverable, and an understanding from clients and main contractors that the additional fee for this input will be recouped (and likely many times over) through more efficient fire protection specifications. ■

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AD 562:
Snow load on roofs of multi-span portal frame buildings

SCI has recently received queries about the snow loading arrangements to be considered for multi-span portal frame buildings. The purpose of this AD Note is to clarify the snow loading arrangements for multi-span portal frame buildings.

The relevant provisions in BS EN 1991-1-3:2003 are Clause 5.3.4, which gives guidance on snow loads for multi-span roofs, and the UK National Annex, which specifies the design situations to be considered in the UK.

Clause NA.2.2 of the UK National Annex states that the design situations to be considered in the UK are those given in Case B2 of Table A.1. For the drifted persistent/transient design situation [2] in Case B2 of Table A.1, it notes that this applies except to roof shapes covered by Annex B.

Clause NA.2.20 of the UK National Annex states that Annex B is to be used in place of the drift load arrangement given in Clause 5.3.4(3) of BS EN 1991-1-3:2003.

Clause NA.2.5 further states that drift loads determined using the guidance given in Annex B are to be treated as accidental actions.

For multi-span portal frame roofs, only the persistent/transient undrifted snow load in accordance with Clause 5.3.4 and the accidental drifted snow load in accordance with Annex B should be considered. The drifted persistent/transient design situation identified in Case B2 of Table A.1 should not be considered. These design situations and load arrangements are shown in Figure 1.

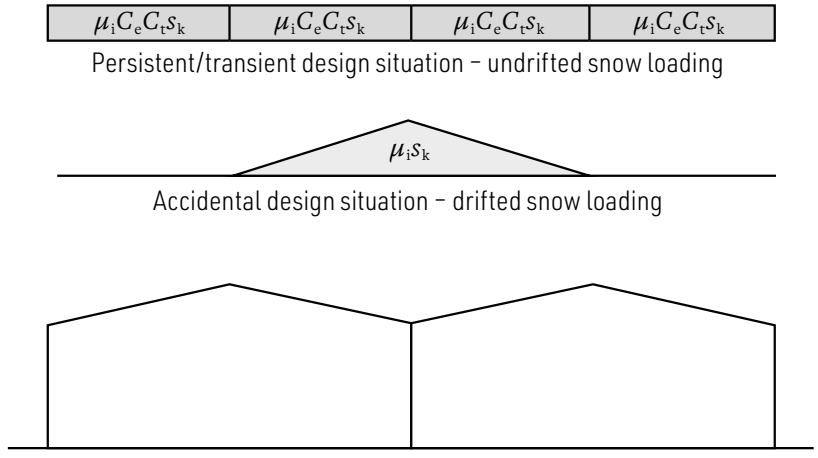


Figure 1: Design situations and load arrangements for a multi-span portal frame roof

The treatment of snow loading changes considerably in the second-generation Eurocode, BS EN 1991-1-3:2025. In particular, the redistributed snow load arrangements, referred to as unbalanced snow loads in the second-generation Eurocode, differ from those currently considered as accidental drifted snow loads and become normal persistent design situations.

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