

Introduction

With the building industry it is common for structures to be single storey portal frames. The query then arises as to how to proceed with fire protection.

Statement

The extent of the fire protection provided to the portal column could be varied depending on the specific reason for providing fire protection.

Often, single storey portal frames do not require fire protection as discussed within the building regulations approved document B. However, if near a relevant boundary, the structural steel near the boundary may require fire protection.

If the columns are being protected due to providing support to an external boundary wall, the fire protection should be provided over the full height of the column using the appropriate critical temperature and certified coating film thickness to achieve the specified fire rating.

However, if the columns are supporting the first floor of a two-storey section only, it is considered reasonable to protect the column up to the level of the first floor only,

Where fire protection is required to portal frame rafters however, the approach is different and 4-sided beam thickness's with a 4-sided section factor should be applied. The fire protection should be applied to all four sides of the rafter taking into account the appropriate critical failing temperature.

However, it is common that a portal frame rafter cannot be coated on the top flange if the roofing materials are in place. If portal frame rafters are protected in this way, it is assumed that the rafter protection is provided to slow the rate of collapse, i.e. it may not provide the full resistance period. In these cases, a structural engineer and/or fire engineer should be consulted, as further action may be required.

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Technical Service

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