

Introduction

During the refurbishment of old buildings, it is common that the structure is made of cast iron. There is some deliberation within the industry as to how intumescent coating perform over cast iron in a fire scenario. Please see the below statement.

Statement

All of our intumescent coatings are tested in accordance with BS476 part 20 and 21 and independently assessed. Our intumescent base-coats are assessed in line with the ASFP guidance, see details below.

Whilst we have not tested our base-coats on cast iron, we are confident that they can be used to provide the fire protection required. Cast iron has a failure temperature which is generally considered to be higher than that of modern steel. All of our loading data for members in compression is calculated at a failure temperature of 550°C. This is lower than failure temperature of cast iron, and therefore is a conservative calculation, allowing for a margin of error.

In addition, cast iron columns were usually designed to carry very heavy loads- such as machinery used in turn to the century industry. In most cases these buildings are then converted into offices, apartments etc. Which will mean that the loads carried by the columns are now much reduced.

In the majority of cases, cast iron columns have extremely thick walls, thus giving and a very low heat up rate (HP/A).

Please see below comments from the ASFP for clarification:

ASFP are of the opinion that data obtained from mild steel fire tests can be used to provide protection thickness's for cast iron and wrought iron using the same limiting temperatures, subject to the conditions referenced in the following reports (a) and/or (b)

(A) BCIRA report "cast iron in building structures- revived interest in a proven case" by E.R.Evans dated November 1984. Further information can be obtained from; Castings Technology International, Advanced Manufacturing Park, Brunel Way, Rotherham, S60 5WG. Telephone: +44 (0) 114 254 1144 Email: info@castingstechnology.com

(B) "Historic buildings and fire performance of cast iron structural elements" by J R Barnfield and A M Porter.

Note that the structural engineer must establish the section factors and be satisfied with the integrity of the iron work before specifying fire protection.

Technical Service

Nullifire has a team of experienced Technical Sales Representatives who provide assistance in the selection and specification of products. For more detailed information, service and advice, please call Technical Services on 01942 251400.