



"Heated carpets are great for learning to read on," says Tom, aged 6.

## Carpet and underfloor heating systems

The issue of the suitability of carpet over underfloor heating systems has increasingly become a concern of both retailers and manufacturers as the popularity of underfloor systems has grown. Conventional wisdom has been that a tog rating greater than 1.5 would impede the performance of an underfloor heating system – and seeing as most UK carpets had been tested to have thermal resistance values of 1.6 tog upwards, it was a problem for the industry.

What is all too often forgotten, however, is that the previous requirement (which was, in fact, based on a little known German standard) did not specify whether the tog rating applied to just the carpet or the carpet and underlay.

**New research, however, by the Carpet Foundation in conjunction with the Underfloor Heating Manufacturers Association (UHMA) has proved conclusively that most carpets can be used over underfloor heating systems without impairing the performance of the system. Carpet is much more suitable than previously thought.**

The work, which used a room sized test chamber as opposed to the traditional laboratory double plate test, showed that the 'real life' thermal resistance

of most carpet styles is less than 1 tog and that carpet and underlay with a combined thermal resistance of less than approximately 2.5 tog (on the single plate test) allows the underfloor heating system to operate efficiently. **The findings show that the former maximum 1.6 tog is invalid.**

The jointly funded project used the extensive testing facilities of BSRIA in Bracknell. Five different carpet types (a wool rich Axminster; wool rich cut pile Tufted; synthetic cut pile Tufted; all wool loop pile Tufted; synthetic loop pile Tufted) and two different underlays (waffle sponge rubber and crumb rubber) were tested over an underfloor heating system in a 4m square by 3m high test chamber. The results showed that:

❶ **None of the carpet/underlay**

**combinations interfered with the efficient warming of the airspace in the room above**

- ❷ **The tested tog values of the carpets (using the test chamber as a life size 'tog' meter) were significantly lower than the previous laboratory test values**
- ❸ **The traditional double plate test was of no value when it came to underfloor heating**
- ❹ **A single plate test gives a more accurate and reliable result for use with underfloor heating but the double plate test is valid when conventional heating, such as radiators, are used**

The results showed that even a high quality Axminster carpet on a sponge rubber underlay formerly deemed to have a combined thermal resistance of 3.47 tog had an actual combined thermal resistance of only 2.2 tog, so enabling the underfloor heating system to perform perfectly well.

**These findings should be well received by the industry at large and you can now reliably and confidently reassure your customers that carpet and underfloor heating systems can operate effectively and efficiently together.**