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The Blackjack Squarestair Spiral

A problem solving product for safe easy loft access

Introduction

The Blackjack is a compact spiral on a square, rather than round plan. Its design enables its use in the most difficult of loft conversions (or other small locations) without the necessity of using the less desirable solutions in the Building Regulations (eg. the spacesaver stair or loft ladder). Fitting in to a 1200mm x 1200mm square opening, it can be started or finished at any of its 16 tread positions. The black or white powder coated tread support brackets slide up or down the centre post to give an infinite adjustment to the tread rises. A typical arrangement of 13 treads may give a total height variation between 2210mm and 2860mm depending on its adjustment.

As most stairs are located against a wall or corner, the square plan of the Blackjack is a far more space efficient solution than a conventional round spiral. The Blackjack may also be housed within fire resistant studwork, and as the landing tread is within the stair profile the door located directly against the stairwell rather than 600mm away as per usual practice. This gives obvious advantages to the habitable space available. If the stair is to be situated below a roof slope additional headroom may also be gained by positioning the large landing tread one rise below the upper floor level, rather than flush. This enables the user to walk horizontally away from the roof slope before stepping up to the full floor height. (It also reduces the cost by one tread).

Factors Re. the Design of the Blackjack Squarestair

The actual legal requirement of the Building Regulations is not held within the complex dimensional data of the approved documents but in the following simple statement: Stairs, ladders and ramps shall offer safety to users moving between levels of the building. The intention of the guidance in the document is to give some ways of meeting the above requirement but it clearly states that there is no obligation

to adopt any particular solution contained in it. Indeed, there are many situations where following the guidance produces a situation of less rather than greater safety. The Blackjack is therefore designed not necessarily to match the basic guidance but to comply with this requirement of safety. Data is drawn from different aspects of both the guidance of Part K and from BS5395 code of practice for spirals. Where a mismatch occurs it is done on the basis of being safer than the actual guidance.

The following shows the aspects of both Part K and BS5395 which are used as the basis of design for the Blackjack, and also as evidence that the actual requirement of the regulation has been complied with. It also shows that the Blackjack is safer than some of the options available from Building Regulations.

Explanatory Data

1. *Approved Document Part K 1.11*

No recommendations are now given for minimum stair widths. The previous minimum clear stair width of 600mm on a typical round spiral usually required a stairwell size of 1500mm. Obviously this was far too large to fit into the space commonly available for a loft conversion in the average dwelling. Reducing the stairwell to 1200mm square, as on the Blackjack Squarestair has revolutionised the application of spirals for loft conversions. Round spirals are invariably fitted into a corner or alcove situation on domestic use resulting in a considerable waste of space. The Blackjack corner treads are over 40% wider than all the treads on a round spiral fitted in to the same space. This efficient use of available space considerably increases safety and makes passing and manoeuvring of large objects much easier.

2. *Approved Document Part K 1.21/BS 5395 (Code of practice for Spirals etc)*

Domestic Spirals are often supplied with 16 treads to the rotation giving a tread angle of 22.5°. On smaller stairs it is common to reduce this to 15 treads to the rotation on a 24° tread angle to maintain the tread goings. As the square plan of the Blackjack requires 16 treads whatever the size, the 1200mm square size means that the goings will be reduced. BS 5395 indicates a minimum going of 145mm in the centre of the tread, the Blackjack has **115mm** measured in accordance with Part K. This reduced going should however be considered in the light of the following paragraph (Part K 1.21): Stairs with goings less than this standard may be considered in conversion work when space is limited and the stair does not serve more than one habitable room.

3. *Approved Document Part K diag. 8*

The minimum 50mm tread width at the narrow end of tapered treads is not to be confused as applying to spiral stairs. (This would require in reality a centre newel post of over 250mm diameter!). BS 5395 permits treads to reduce to a point.

4. Approved Document Part K 1.9

The requirement of riser infills to reduce gaps under treads to less than 100mm is not included in BS 5395 although this option is available with the Blackjack.

5. Conclusion: Safer Than

The 1992 Building Regulations Part K also introduced two newly detailed products:

- a) Alternating Tread (Spacesaver stairs)
- b) Loft Ladders

Loft Centre Products supplies the widest range of the above items in the UK. We are also at the forefront of presenting these products to the public and have spent much painstaking time and money on publications and exhibitions to keep in touch with customer needs and responses. The company regularly deals with Builders, Architects and Building Control departments from the Shetlands to the Channel Islands. As part of our drive to offer the best and most appropriate solutions we have consulted with both the Building Research Establishment and the Department of the Environment. It is from this basis that we have seen that the gap is far too great between conventional stairs and the above two categories (Spacesavers and Ladders). Although they satisfy many a need, not everyone would choose them. The Blackjack, fitting in the design gap between these products, now presents the alternative. If ladders and spacesaver stairs are deemed safe by Part K then the Blackjack, having a more traditional tread shape, is undoubtedly safe.