



# Design & Display GRP Structures

## case study: Chill Factor e



### No chill out time for creators of UK's first ever elevated ice luge

To build the UK's only permanently iced elevated toboggan run, cutting edge GRP design techniques were tested to their limits by Design & Display Structures.

The company broke the mould of innovative design to complete the ambitious project, taking its collection of unique installations to a whole new level.

Completed in time for the grand opening in November 2007, the lightning paced toboggan ride was an instant success with thrill seekers of all ages. The Luge is now a key attraction at Chill Factor e in Manchester – the UK's longest and world's widest indoor ski slope.

#### Brief

The company was challenged by architects FaulknerBrowns to produce a permanently iced, elevated toboggan run for Manchester's new Chill Factor e winter sports centre.

After carrying out a thorough risk assessment on the concept viability, Design & Display Structures was employed by main contractor Sir Robert McAlpine. Appointed at a very late stage, all the company's concepts and plans had to twist around existing building work – such as immovable primary steel support pillars and a sloping traveller.

#### Solution

MD Allan Curtis jetted off to Ski Dubai to study the dynamics of various sledges on ice paths carved into the rock. From this, he was able to work out the physics needed to design an exciting but operationally safe toboggan ride.

Steel supports and sturdy, yet lightweight, modular GRP sections were manufactured to create the dramatic twists, turns and drops needed to give riders a true white knuckle experience.

To the base structure were fitted innovative, modified freezer pipes to ensure the run would remain frozen and ready for action at all times. Countless man hours were then spent packing ice particles tightly between the pipes.

#### Benefits

Installation of the toboggan run – now named The Luge – took place in the summer. A quick turnaround on site gave the owners of Chill Factor e plenty of time to drop the temperature and produce the 10,000 square metres of snow (totalling 2,000 tonnes) needed for the opening and busy winter months ahead.

As with all clients, Design & Display Structures offered architect FaulknerBrowns and main contractor Sir Robert McAlpine a one stop, ultra efficient design and build GRP solution.

The company's bespoke system, now fully tried and tested, is configured to give flexibility in layout. This means The Luge can be adapted to fit into future client sites.



#### Client/Main Contractor:

Sir Robert McAlpine

#### Architect:

FaulknerBrowns

#### Project:

Chill Factor e, Manchester

#### Products:

Bespoke permanently iced, elevated toboggan run

#### Project Duration:

11 months

*"While the whole project required huge leaps of faith, the operators were thrilled with the finished result. For Design & Display Structures, this was a risk that was well worth taking and I'm glad all the visitors to Chill Factor e are clamouring for one more go on our ride."*

*Managing Director, Allan Curtis*