BFI's new £12m film storage facility to preserve Britain's reel history

'Thank you, taxpayer,' says BFI as British film heritage preserved on ice in state-of-the-art Master Film Store in Warwickshire

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Frozen assets ... the BFI's new sub-zero storage vault offers an alternative to the costly restoration of acetate film reels, pictured here at the BFI archive in Hertfordshire. Photograph: Leon Neal/AFP/Getty Images

It could make a good movie. A mysterious building on the site of a former nuclear bunker for which there are no signs or even opportunities to see it from the road. Inside will be state-owned artefacts as precious as they are dangerous.

But this is no pitch. This is the nation's new £12m Master Film Store and is considered one of the most important buildings for the preservation of British film ever built.

The store has been built on a nuclear bunker site deep in the Warwickshire countryside and will be capable of holding more than 450,000 cans of the nation's film – everything from Hitchcock to Ealing to Carry On.

Robin Baker, head curator of the BFI national archive, said it was an important moment for Britain's film heritage. "I can think of nothing – in
fact there is nothing – as transformative for the safety of the national collection as this."

He said it felt as though he would be able to do his job as well as he should for the first time. "However much you might be an advocate for the films, love them and try to make them accessible, you knew you couldn't do the best for them in terms of their long-term survival."

The problem with so much early film is that it is on nitrate, which is fragile and unstable, and in the wrong conditions will deteriorate. Nitrate is also highly flammable and when it does go up there is no chance of extinguishing it.

That has led to a facility for which refrigeration engineers have been as important as architects, with the film cans kept at a stable temperature of -5C (23F) at 35% relative humidity.

For years it was thought that copying the film was the only way to deal with the problems of nitrate and the acetate that replaced it, but there is just too much of it to do that. Digitisation is also extremely expensive.

"Digitisation is not a panacea," said Baker. "We have no idea what state the digital files we look after are going to be in in 100 years' time. I don't know how many times we'll have to copy digital files over the next couple of centuries and what information we may lose.

"There was years and years of archival practice of endlessly copying to different formats. Just think of the sheer cost. You don't need to do a massively sophisticated cost analysis to realise just how much cheaper it is to build a vault."

Heather Stewart, the BFI's creative director, said there was a eureka moment about five years ago, helped by new research in the US and Denmark. "The most cost-effective solution was to have this store, because once it is safe and secure you can go in and take out what you want," she said.

For the BFI, the project is all about looking after the nation's film the same way the National Gallery looks after art or the V&A preserves decorative arts.

The store will hold a rich and varied collection of British film – everything from the original nitrate camera negatives of Captain Scott's first Antarctic expedition to the early film works of Mitchell and Kenyon and classic films such as Kind Hearts and Coronets, Brighton Rock and The Red Shoes.

Stewart hopes it will raise awareness. "If you asked anyone in France
who the first French film-makers were, they would say the Lumière brothers. Who in Britain could tell you Robert Paul was this country’s first fiction film-maker?

"So we have a task to do. Britain does have something to shout about: it was one of the first places where film was developed. We have a rich and fantastic collection."

The store has been designed by Edward Cullinan Architects, who also had to factor in the relocation and accommodation of newts, badgers and bats.

As well as British film, the collection will contain Russian and Chinese material and the largest number of US silent films outside America.

The store is part of a £25m strategy for Screen Heritage UK (SHUK) agreed by the then culture secretary James Purnell in 2007, the biggest-ever award for an archival project. "Thank you, British taxpayer," said Stewart. "But I do feel the taxpayer should feel the money is well spent and [has] been extremely carefully spent. Nothing has been over budget or late."

SHUK launches on 5 September 2011 and will allow people, for the first time, to search online through national and regional archives, with a small number of films available to watch online.

Other projects include one led by Yorkshire film archive Memory Bank, which uses film to help care for dementia patients. The BFI and BBC will collaborate on a series of 20 programmes, presented by Melvyn Bragg, called Reel History of Britain.