Building design guide

- re-use of a redundant building
- sensitive landscape setting for Grade II listed building
- bespoke drainage system
- new income opportunity

Micro-brewery
Conversion of a disused farm building into a micro-brewery
August 2008
Background

In 2005 National Trust was approached by a brewer about suitable buildings for a micro-brewery business, and was put in touch with Brockhampton Estate, which had a large redundant building, the Oast House Barn. At one time, the barn housed cattle, however, since the foot and mouth outbreak in 2001, the building had remained empty.

Project brief

The brief was to bring the Oast House Barn to a standard where it could be used to house a micro-brewery. This would increase the asset value of the building, as well as providing a rental income. A micro-brewery would complement the farming activities on the estate and could have the potential to be opened to visitors as an additional attraction.

To achieve its brief, the construction project would need to:
- prevent vermin from entering the numerous ventilation holes in the external walls
- make the building frost-proof
- install services, including water, telecoms and a power supply
- install a drainage system suitable for the disposal of liquor effluent
- incorporate a new floor and wash-down apron
- alter the internal layout to accommodate two storage areas
- create office and staff facilities
- create a viewing gantry for visitors to view the brewing process
- take account of and make future provision for bats and their roosts

Key factors
- The bats and bat roosts could not be disturbed or damaged.
- Because of the building’s listed status, any alterations would have to be reversible.
- The external appearance of the building could not be changed.
- All repairs to the building had to be honest.
Site issues

- The main entrance of the brewery had to face away from the adjacent holiday cottages.
- Boundaries around the site had to be altered to allow a turning circle for vehicles visiting the brewery.
- Space had to be found on site for soak-aways to accommodate the drainage of liquor effluent.
- Provision had to be made during and after construction to avoid disturbing bats which are a European protected species.

Nature conservation

More than one species of bat was known to be using the Oast House Barn and provision had to be made for their welfare. A bat survey was carried out, a bat licence obtained and bats were accommodated within the building, without compromising the bats or brewing activities.
Design approach

- The project followed the principles of minimum intervention, leaving the building largely unaltered.
- Alterations that were carried out were designed to be low impact and easily reversible.
- The external appearance was not changed. This fulfilled the requirements of the planning authority and the neighbouring holiday cottages.
- The external skin of the barn was in good condition so very little repair work had to be carried out to make the building weather-tight.
- The prospective tenant played a central role in the project, being consulted at many stages to ensure the designs met his requirements.
- Neighbouring farmers were consulted on the alteration of the boundary line to accommodate a turning circle.
- The most difficult task was to fill the ventilation holes in the main wall, without changing the appearance of the building. This was done by cutting individual sections of glass for each hole, and securing them with an epoxy resin. This gave a very good result.
- A specialist contractor was brought in to design the drainage system used to dispose of the liquor effluent. This consisted of a parallel system of shallow soak-aways.
- An enclosed bat area was constructed in the roof of the building to avoid disruption to their habitat.

Project team

The project team comprised people and companies providing internal and external expertise including:

- **Area manager**
- **Project administration**
- **Curator**
- **Main contractors, including landscaping:** E.W. Haywood & Sons
- **Architect:** B3 Burgess
- **Ecologist**
- **Structural engineers:** R.V.W. Consulting
Construction

External skin
The structure and skin of the building were generally left unaltered, apart from minor repairs such as securing slipped tiles. Chicken wire was installed at the eaves to prevent birds entering the building. The timber planks covering openings at the gable end were removed and replaced with timber louvres, which had an internal layer of Perspex sheeting. This improved the flow of natural light into the building, while preventing external glare caused by the escape of artificial light during the evenings.

A new timber front door was installed. This was constructed from timber harvested from the estate woodland.

The open end of the threshing corridor was blocked up using oak weatherboards, supported by a softwood studding installed in the opening.

The ventilation holes in the external walls were blocked by individually cut glass panes secured with an epoxy resin. This gave a vermin-proof and weather-tight solution, without altering the external appearance of the building.

A sealed bat box was installed in the roof of the building to allow space for bats to roost.

Internal space
An internal concrete floor was laid with a fall to a central drainage gulley. A wash-down apron was fitted around the base of the walls to protect them from water when barrels and equipment were being washed.

Two storage rooms were constructed inside the brewing hall, using a softwood framework. These were internally lined with plywood and externally clad using oak weatherboards. One of these rooms was fitted with a split-system refrigeration unit, to allow for cooling in the summer months.

A timber partition was erected between the threshing corridor and the brewing hall. This was constructed using oak planks mounted to a softwood studding. A doorway was created to allow access between the two areas.

A portakabin was installed in the threshing corridor to provide office and mess facilities. The portakabin was already present on the estate but was disused due to the progress of other construction projects. A raised timber walkway was constructed around the portakabin to allow easy access from the brewing hall.
Services
A single-phase power supply was brought into the building to supply power for lighting and equipment. Low metal uprights were set into the new concrete floor, metal trunking containing wiring was mounted onto the uprights. This allowed the distribution of wiring throughout the building, without damaging the walls. Wiring for overhead lighting was run along the roof beams.

A bespoke drainage system had to be designed for the building to allow for the disposal of waste liquor effluent and washings from brewing equipment. The system consisted of a two-chamber septic tank, which acted as a settlement tank. A sinking pipe dosing device connected to a settlement tank, to allow even distribution between three shallow soak-away trenches. A Zabel filter was fitted to the settlement tank to prevent small particles from blocking the holes of the distribution pipe.

Funding
- National Trust Investment Panel (75%)
- Brockhampton Estate Farm Building Repairs Budget (25%)

Procurement
- Architect negotiated the costs with a single contractor
- Form of contract: JCT Minor Works 2005

Project duration
- Commenced on site: January 2008
- Project completion: August 2008

The brewing room and dry store in foreground, viewing platform and storerooms
Post project review

The project achieved its main objectives. The tenant moved into the building in August 2008 and is now producing his own beer, which is supplied to local pubs. The project successfully found a new use for a redundant rural building, increased the value of one of its assets and created a flow of rental income for the estate.

Best practices

A number of the construction methods were shown to have worked well during this project. The glass panes, cut individually for each external ventilation hole, gave a very good result.

The metal uprights and trunking used to run the electrical supply throughout the building also worked well. This was easy to install, did not damage the external walls and is fully demountable, should the building be put to a different use.

The timber louvres installed in the openings on the gable end of the building efficiently fulfilled their function in allowing light into the building, while minimising night-time glare. They also have an attractive appearance which is in keeping with the rest of the building.

The installation of a portakabin to provide office and mess facilities proved to be a very cost-effective alternative to constructing a purpose-built pod. The portakabin cannot be seen from outside the building, or from inside the brewing room, thus, does not detract from the building’s appearance. It is also fully removable, should the building’s use be changed.

Lessons learnt

The pre-construction consultation took longer than is ideal, for a project of this scale. This process has now been simplified to avoid such delays in the future.
End user feedback
The tenant is, on the whole, very happy with the building. He appreciates its historic character and is proud to be part of the Brockhampton estate. He is delighted with the spacious nature of the brewing room, which is large enough to house additional brewing equipment, should he wish to increase his beer production.

Because the barn roof lacks underfelt, it creates dust which settles on the brewing equipment. Although this causes no interference with the brewing process, it is not helpful. Birds also entered the building through the eaves. These problems have now been rectified and all gaps filled.

Further information

Location information
Oast House Barn, The Farm, Brockhampton Estate, Nr. Whitbourne, Herefordshire WR6 5SH

If you require this information in alternative formats, please telephone 01793 817791 or email buildingdesignguide@nationaltrust.org.uk