Depot, Pinwell Rd, Lewes, BN7 2JS

Type: Community cinema and restaurant adapted from brewery warehouse
Age: Adaptation and expansion of 1930s building
Walls: solid brickwork lined with insulation
Features
Internal wall insulation
Ground Source heat pump
Green Roof
Solar PV
High efficiency double glazing with solar screening
Underfloor heating

Introduction and approach
The Depot is a community cinema being developed on the site of what used to be a depot for Harveys Brewery, hence the name. This inspired project is being made possible by the support of film enthusiast Robert Senior and the management and direction of Carmen Slijpen.
The attractive old frontage is familair to townsfolk and it was decided to retain this shell, although ground levels have had to be raised 800mm as defence against flooding. Whilst keeping the appearance, the walls and roof will be highly insulated and the building will have underfloor heating, driven by a 110 kW ground sourced heat pump which extracts heat from 12 deep boreholes, whilst also being able to provide cooling.
A garden courtyard will also be created, with a new restaurant and coffee shop facing onto it, together with education facilities and an editing suite for fimmakers. The new extension will have a green roof and dramatic floor to ceiling double glazed windows, reducing heat loss in winter with solar reflective coating to minimise overheating in summer.
This exciting build is primarily a community resource and will provide three screens in the new auditorium to show not only current releases, but also having the flexibility to show classics and other films of interest. The opening date is expected to be spring/summer 2017.

Energy efficiency measures
Heating and hot water
Hot water and space heating and cooling will be delivered by an Aermec ground source heat pump, extracting heat from 12 x 200m deep boreholes. This can deliver 110 kW max of heating and 80 kW of cooling and is an extremely efficient and sustainable system.
Heat is delivered via underfloor pipework set into the floor, whilst cooling is via the air handling system. This heat pump is unusual in that it can simultaneously deliver both heating and cooling. For cinema installations, cooling is essential due to the heat given off by the audience in an enclosed space. However, the system is designed to recover heat from outgoing air for other purposes, such as water heating.
The cooling potential of the ground also minimises energy used for chilling. Ultimately any heat dumped in the boreholes will remain localised and will be available to warm incoming water to the unit when heat is needed later.
Insulation
Because the shell of the old 1930s building has been retained, a lot of extra insulation has been needed to internally line the walls and roof, to satisfy minimum Building Regulations standards. This has been further complicated by the need for extensive sound insulation, both to prevent noise leakage to the outside and also keep the auditoriums acoustically separated.
Walls - Most of the existing stucture and outbuildings are being retained, but all elements are

being insulated up to current building regulations of <0.35 for exisiting walls and 0.28 for new walls. Typically, existing walls are solid and have been internally insulated with 50mm of PIR or PUR rigid board insualtion, whilst new timber framed walling is insulated with 60mm PUR between studs and 50mm over.
In addition, there is glassfibre insulation within all walls for sound insulation, which will incidentally increase thermal insulation levels.
Windows - The new cafe and restaurant areas have dramatic curtain wall glazing which has been designed to provide excellent thermal insulation, yet also has a coating to reflect heat and help minimise overheating in summer. The units comprise three layers, with 6mm toughened glass front and back with a wide internal space divided in two by an inner separating film. This is a novel system for the UK and is krypton gas filled, resulting in an extraordinarily low centre u value of 0.4 W/m2K (several times better than building regs.). It has similar performance to triple glazing but is lighter and more compact.
Existing timber sash windows on the facade have had to be retained as single glazed in accordance with the conservation officer's conditions. This is a shame, as purpose built timber double glazed sash windows would have been ideal and ironically this type of window is used on the planning department's similar 1930s building nearby. However, secondary glazing is being investigated, which will also improve draughtproofing.
Roof - Existing roofs have been reinsulated to achieve <0.16W/m2K. Pitched roofs have been insulated with 80mm phenolic board insulation between rafters and 60mm between ceiling joists, whilst new flat roofs are of a warm roof design, with around 120mm of PIR insulation laid above the deck.
The new flat roof over the cinema has been designed as a green roof, which will help to improve soundproofing and insulation. This has a waterproof membrane and soil overlay to enable the cultivation of an attractive green finish to encourage and sustain biodiversity in an urban setting. The system used is Bauder total green roof, with plug planting of UK native and chalkland species.
Floor- The floor level across the site has had to be raised by 800mm for flood protection. The ground floor is concrete, with PUR foam insulation over and underfloor heating pipes set into the screed above.

Renewables and Low carbon technology
Solar PV – There is only a limited portion of the roof that can accommodate solar panels, but 3.7 kWp of solar PV is due to be fitted. This is expected to utilise High efficiency(18%) Sanyo HIT modules.
Heat pump - Aermec 110 kW GSHP installed by RHI Energies.
Electricity
Low energy lighting is used throughout, being mainly LED with some fluorescent. Outdoor lighting is controlled by a photocell, so that it only comes on when natural lighting falls. Public areas have lighting controlled by PIR sensors which switch off when unoccupied.
Carbon emissions
As the building is not open yet, it has no historic consumption, but energy use is expected to be far less than a conventional building of this size.
Other sustainable Measures/ Lifestyle decisions
Water conservation – Low water use sanitaryware has been chosen and flushing in toilet areas is controlled by PIR sensors so that it only occurs when the areas are in use.

Professionals
Architect – Burrell Foley Fischer LLP, London.

Building and Environmental consulting - SGA Consulting, London.
Heat pump installation - RHI Energies, London.