

# Damp room to wet room

**Mike Wye & Associates are specialists in the repair of, and the supply of materials for, traditional buildings. Paul Watts from the company writes about one room of a 17c property that received a make-over whilst avoiding some of the common pitfalls.**

When it comes to improvements in buildings constructed before 1919, when just about all were made without a cavity, extra special thought needs to be put into planning the materials and what affect any changes may have.

Perhaps around a quarter of all UK dwellings need this special consideration due to the lack of a cavity and the need for 'breathability'. The construction industry in the UK is almost totally geared up for modern methods of construction and supplying the materials used in creating them. Generally, these huge businesses have little interest in offering the correct advice for the owner of a period property as their products rarely provide an appropriate and sympathetic option.

Trying to decide on what materials to use and who's advice to heed when upgrading or renovating is not easy. Life can be a little more straight forward if the building is listed, in a conservation area or a scheduled ancient monument as you are likely to get a lot of guidance from professionals, whether you want it or not. For those buildings not protected by one of these statutes, the owner is free to make their own decisions and mistakes with little more than Building Regulation legislation, based on modern construction methods and materials, to guide them. Currently, there is a get out clause that allows for certain regulations to be ignored if they can cause damage to the building. Of course, as the builder, architect or owner you need to understand what damage may occur and then argue the case with the building control officer.

When the owners of Tyrella House, a mid to late 17c Devon cob and stone dwelling, needed to refurbish one room into a wet room, they chose to take a sympathetic approach to the needs of the building as well as the inhabitants. This article tells of the materials used and how they created a warm, modern condensation free facility that is in perfect harmony with the building.

The room in question already had services such as drainage due to the many uses it had seen over the years. It had last been used as a store when the building was the village shop and had cement, gypsum and modern paints applied to the internal walls. The



*Graham and Bob preparing the room by removing the cement plaster and flooring – the lintel over the window can now be seen to be failing*

result was a cold, dank and uninviting environment that needed to be made dryer and warmer for use as a wet room.

The first job was to hack off all the inappropriate materials to get it back to the bare walls and allow them to dry out. Exposed holes were then filled using lime putty mortars and a couple of wooden lintels replaced.

As it was going to be a wet room, it was clearly necessary to create a non-breathable floor. Before committing to this an assessment was made as to whether it would create problems. The existing floor was a cement screed that had limited breathability and would also push moisture into the walls. Once the cement was removed from the walls, they were left for a couple of weeks to allow them to dry out. As the work was being carried out during winter months the water table was fairly high, so when the walls were perfectly dry after a few days it was clear that a wet room floor would not create any problems. If excessive amounts of moisture were still in evidence then the plans may well have had to be altered to have a limecrete floor and a shower tray instead as this would not push so much moisture into the walls.

Xtratherm, a modern petrol-chemical based insulation, was laid in the dug out floor as, due to its good thermal performance, less thickness is required and there is less chance of undermining the structure's limited foundations.

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## Lime

The window was really beyond repair but the style was recreated in oak by a local specialist joiner, Woodpecker Joinery. A lovely job was made of the window and cylinder glass was sourced to give it a hint of age. This glass is difficult to obtain but has blemishes from manufacture that create a shimmer not present in modern glass. Consideration to this type of detail should always be given if character is to be retained in an old building.

There was some damage to the lath and plaster ceiling but it was never an option to replace this with plasterboard. The void between the ceiling and the room above was filled with Warmcell Cellulose Fibre loose lay insulation. This is recycled newspaper that is ideal for placing in hard to get to places being spread by a small rake. A small part of the ceiling then had new hand riven laths fitted before a haired lime putty mortar applied and then lime putty plaster skim to finish it off.

The room's two outer walls were insulated on the inside of the room. Xtratherm or similar was never an option for these areas as they need to be vapour permeable. Not only do the walls need to allow rising moisture to escape but, as this is an area of very high humidity, the ability for the room to absorb moisture vapour cuts down considerably on condensation and resultant health and building problems. Breathable insulation, lime plasters and breathable paints play an important role in the success or failure of this improvement.

Pavadentro, a special wood fibre insulation board made by Pavatex, was used on the flattest wall. Pavadentro has an excellent natural humidity control but also has a vapour control built in as a layer so as to reduce



*New lintel and bespoke window fitted – reed insulation being fitted with lime mortar backing*

*Shower complete with marble tiles and splash panel*



*The shower area studwork fitted away from the stone wall with modern insulation between the studs*

the amount of moisture vapour passing through. The benefit of this is that the chances of interstitial condensation (water droplets forming within the wall) are much reduced which is better for the building as this can lead to premature rot in timbers and poorer insulation. Pavadentro offers a thermal conductivity K value of 0.045W/mk and can provide good thermal performance. The wall was first levelled by applying a mix of hydraulic lime, sand, horse hair and perlite. The Pavadentro was then mechanically fixed, the joints scrimmed and a backing coat of Kreidezeit Lime Wall Finish fine applied before a couple to coats of Mike Wye Regency lime putty plaster provided an extra smooth finish.

Although it is not ideal to cut into the insulation, a wall light was needed and so a wooden base was cut, routed and then stained by the owner so that the wall light could be fixed.

The other outside wall was not as level as the first and Reedboard was used instead. This is a little less thermally efficient with a K value of 0.054W/mk but it can follow the contours of the wall better and thus retains more of the original character. All too often a make over of this kind can totally lose the character of the room and an important part of the philosophy of this renovation was that it would not look like just any other modern wet room. Hence not all choices were based on maximising the insulation properties of the room. The labour involved in fitting reedboard can be greater than the wood fibre board and, as there is less suction, the initial plaster backing needs to be left longer before the lime skim coats are applied.

With the outside walls dealt with, the internal partition walls were next to receive the make-over treatment. Much of the remaining wall space was to be used for the shower area. Insulation is still a good idea around the shower but a natural, breathable insulation is not required or necessarily desirable. The wall however, is still without a damp proof course and has the potential to draw dampness up from the ground and build up problems behind the insulation and tiles. In this instance, a stud partition was erected a few inches away from the wall. This allowed services to be run behind and moisture vapour to vent away up the wall and be removed via the mechanical extraction system. ▷

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Washstand with marble tile to match shower area

Xtratherm was used between the studs and a cementitious, insulating Wedi board fixed to the front of the studs before the marble tiles were fixed with adhesive and sealed.

The remaining walls were pretty much treated the same as the outer walls with an amount of reedboard being used on the return of the wall. If insulation isn't used on the return, condensation may develop in the corners where the walls may get cold spots.

The ceiling was decorated with Earthborn breathable claypaint after lime putty filler was used on minor historic cracking. The walls were decorated with good old traditional, breathable and inexpensive limewash. The colour chosen was magnolia, a subtle and warm colour.

A heated towel rail was added to the central heating system and electrical underfloor heating



Completed room showing Victorian copy cistern cover and magnolia limewashed walls

added to ensure a cosy warm shower during those long winter months.

The owners wanted to add a little more individuality to the room, so once more Woodpecker Joinery made a bespoke oak wash stand and a pine cistern box was made to house a rubber cistern picked from the local recycle centre for £10. All the wood was finished with Kreidezeit Base Oil and then Hard Oil.

The result is that Tyrella House now has an individual and characterful wet room that works well with the needs of the building, the owners and the various organisations encouraging us all to reduce our carbon use.

Some Government quangos and green lobbyists have been known to urge the use of insulation inappropriate for a traditional property in an effort to meet UK targets for reducing our carbon footprint. Some extremists have even called on our historic housing stock to be bulldozed and replaced with modern homes that are more thermally efficient. Hopefully, this project shows a way that can please all views as well as the planet. □

• Mike Wye & Associates is a specialist supplier of natural building and decorating products and one of the UK's leading lime specialists. They have been training people in the techniques needed to maintain and conserve traditional buildings for many years. For more information visit their website at [www.mikewye.co.uk](http://www.mikewye.co.uk) or call 01409 281644 during office hours.