Key Challenges of Retrofitting in Cabra

Heat loss In Your home

The average Irish home loses 30% of heat through the roof and another 30% of heat through the walls. The speed at which a roof or wall loses heat is called the U value of the wall/roof. If a material has a low U Value, it is a good insulator. Therefore the higher the U value, the faster your house loses heat. We add insulation to walls and roof in order to lower the U value as much as possible to keep heat loss as small as we can.

If your walls and roof are not insulated, they have high U values, so they lose heat quickly. By adding modern insulation to your walls and roof, we can greatly improve their ability to keep heat. This insulation lowers their U values by over 80%, which means the loss of heat through the walls and roof is also reduced by 80%.

Continuous Insulation

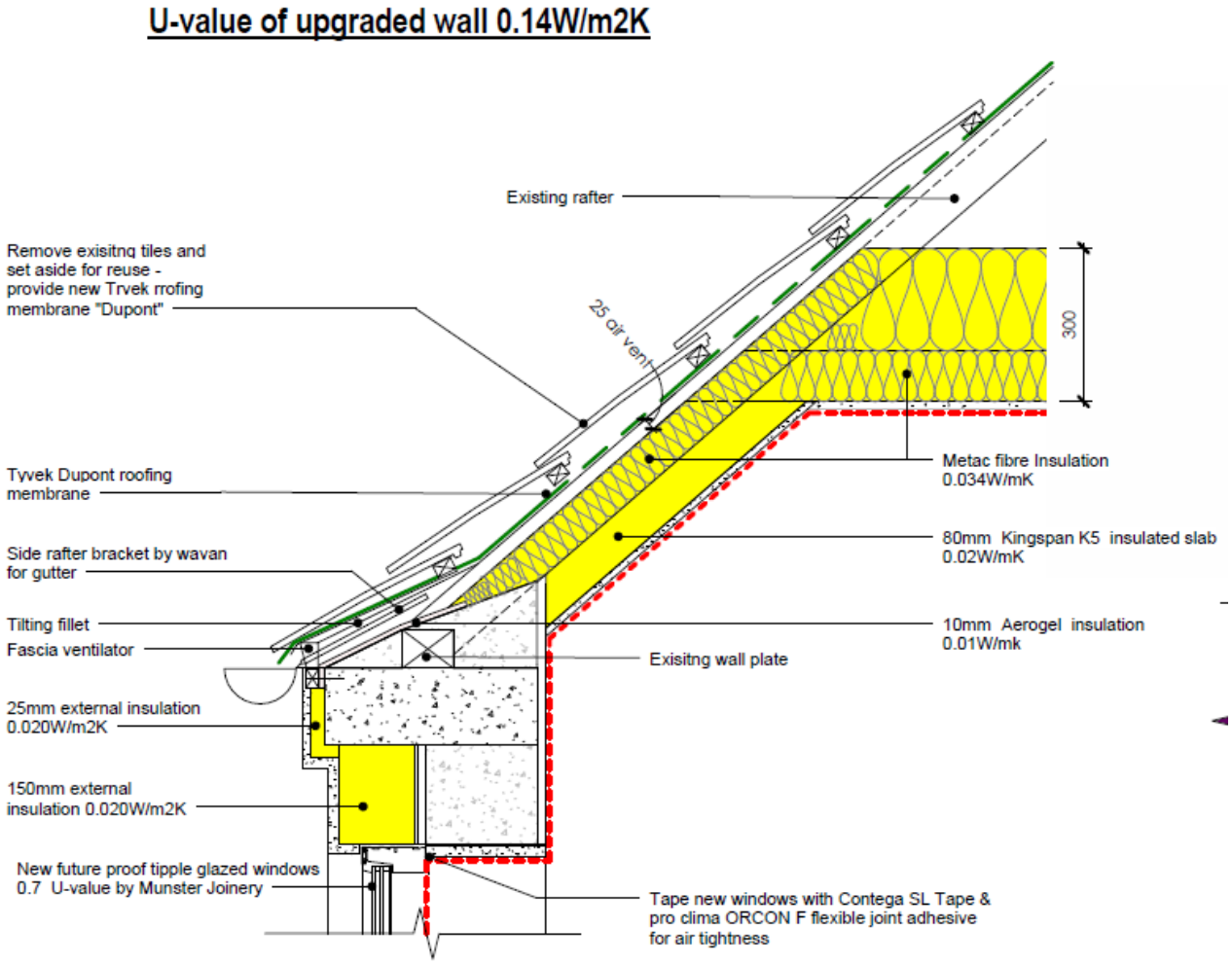

Figure 1 Example of ensuring wall insulation is connected with attic insulation. Figure obtained from Keith Ludlow, DT774 Project 4 Crumlin Retrofit, URL: https://www.tudublin.ie/media/website/explore/schools/architecture-building-environment/study/student-work/building-performance/documents/2014-15-nZEB-Crumlin-Cottage-Keith-Ludlow.pdf

Why It Matters:

Continuous insulation helps stop “thermal bridges.” These are areas where heat gets around the insulation (Figure 2). This leads to heat loss and potential mould problems. This is caused by the moisture in the warm air inside the house turns to damp when it meets the cold surfaces of a thermal bridge.

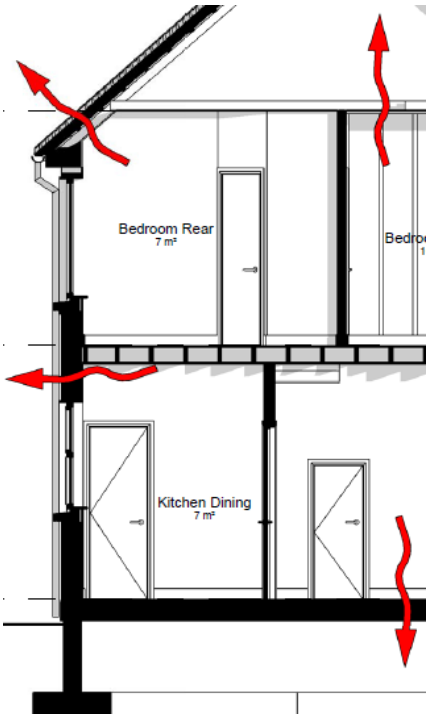

Figure 2 Red arrows show where thermal bridging can occur. Figure from Keith Ludlow, DT774 Project 4 Crumlin Retrofit, URL: https://www.tudublin.ie/media/website/explore/schools/architecture-building-environment/study/student-work/building-performance/documents/2014-15-nZEB-Crumlin-Cottage-Keith-Ludlow.pdf

Breathable Insulation Materials

Why It Matters: Traditional red/yellow brick houses built before 1940 were made to allow moisture to move slowly in and out through the bricks. Modern homes are made to stop moisture moving in or out through the walls.

Therefore insulating older homes with modern, non breathable materials can stop the moisture moving through traditional brick built homes. This can damager the mortar between the bricks, along with causing damp and mould growth which can be a health hazard. Therefore it is important to use breathable insulation when retrofitting these homes.

Potential Examples:

- Breathable (Also called “Vapour Permeable” or “Vapour Open”) materials such as Wood Fibre, Expanded Cork, Rock Wool.

Ventilation & Improved Air Quality

Why It Matters: Proper ventilation is crucial for maintaining good indoor air quality, reducing humidity levels, and preventing the buildup of pollutants.

Potential Examples:

- Mechanical Heat Recovery Ventilation (recovers heat whilst refreshing the air in your house)
- Demand Control Ventilation (only ventilates when you need fresh air)

Additional Resources

- **Dr Joseph Little:** https://www.researchgate.net/profile/Joseph-Little
- **Bristolian guide to retrofitting:** https://sdfoundation.org.uk/wp-content/uploads/2018/01/2015_bristolsolidwallinsulationguidance.pdf