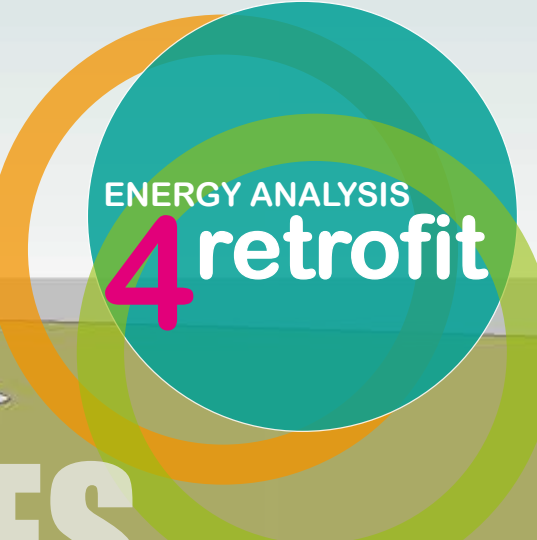


RETROFIT PROCESSES | STAGES

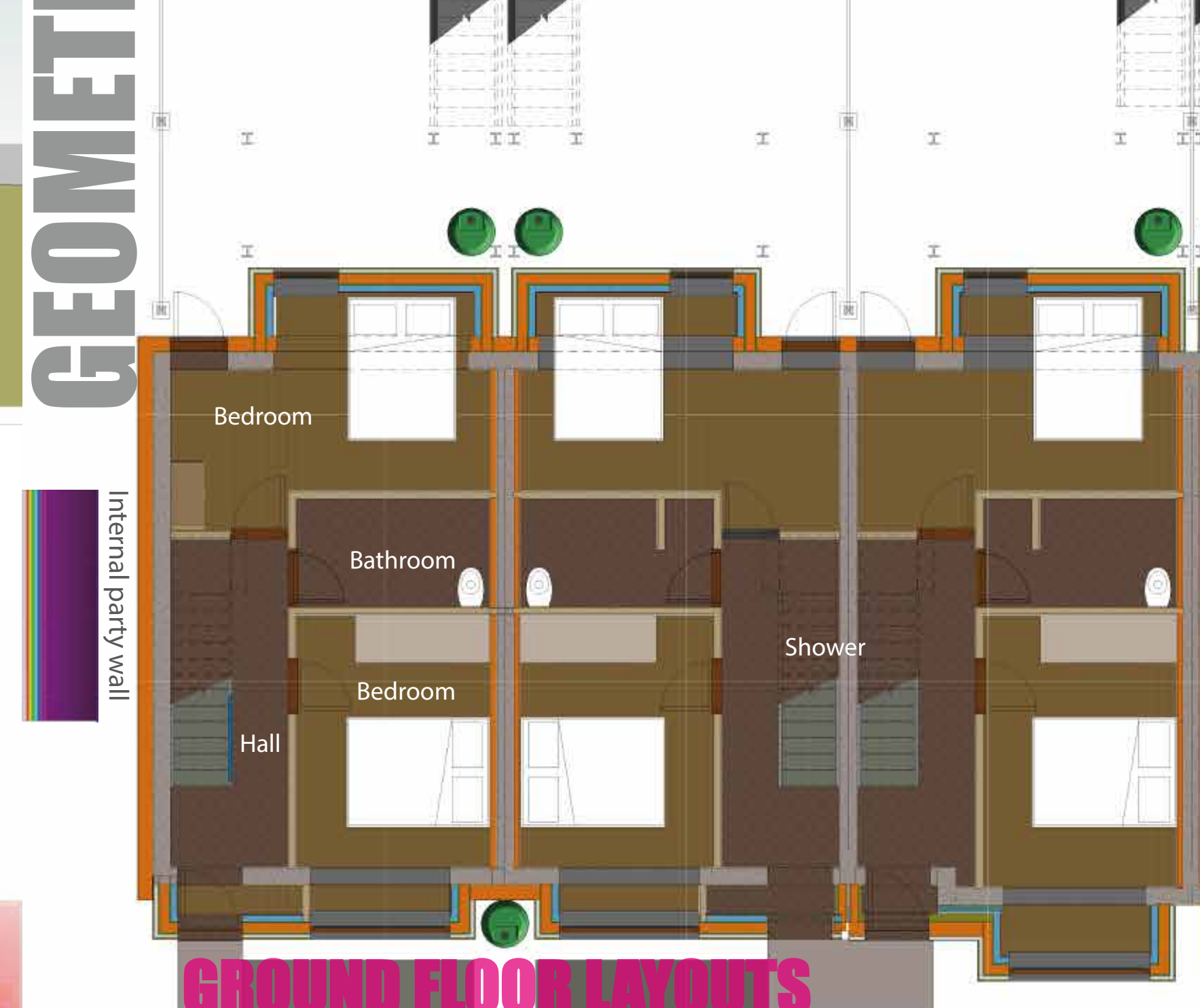


ANALYSIS TOOLS & CALCULATIONS

BUILD DESK | THERM | GLASER

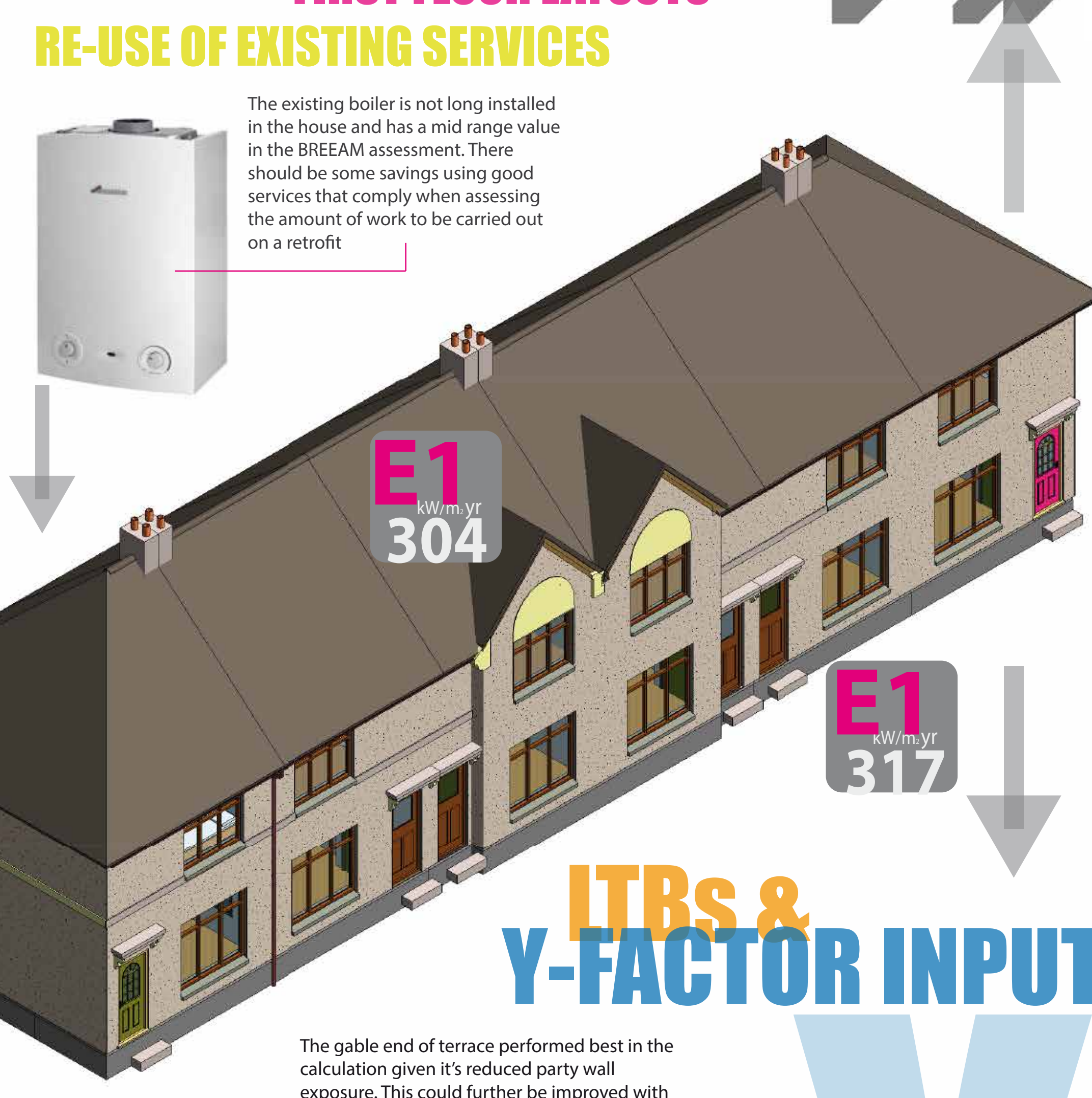
Each element was modelled in BuildDesk and a hygrothermal appraisal carried out. Any building made air-tight is at high risk of condensation and mould if moisture cannot be released. In the opposite way of stopping air escaping, moisture from the internal environment must also get to evaporate.

Employing air tight elements (Kingspan TEK panels for the structure) have an internal insulation vapour check plasterboard (KOOLTHERM). The Glaser report sample below refers to highest risk of moisture and oscillating damp in a building - winter months.



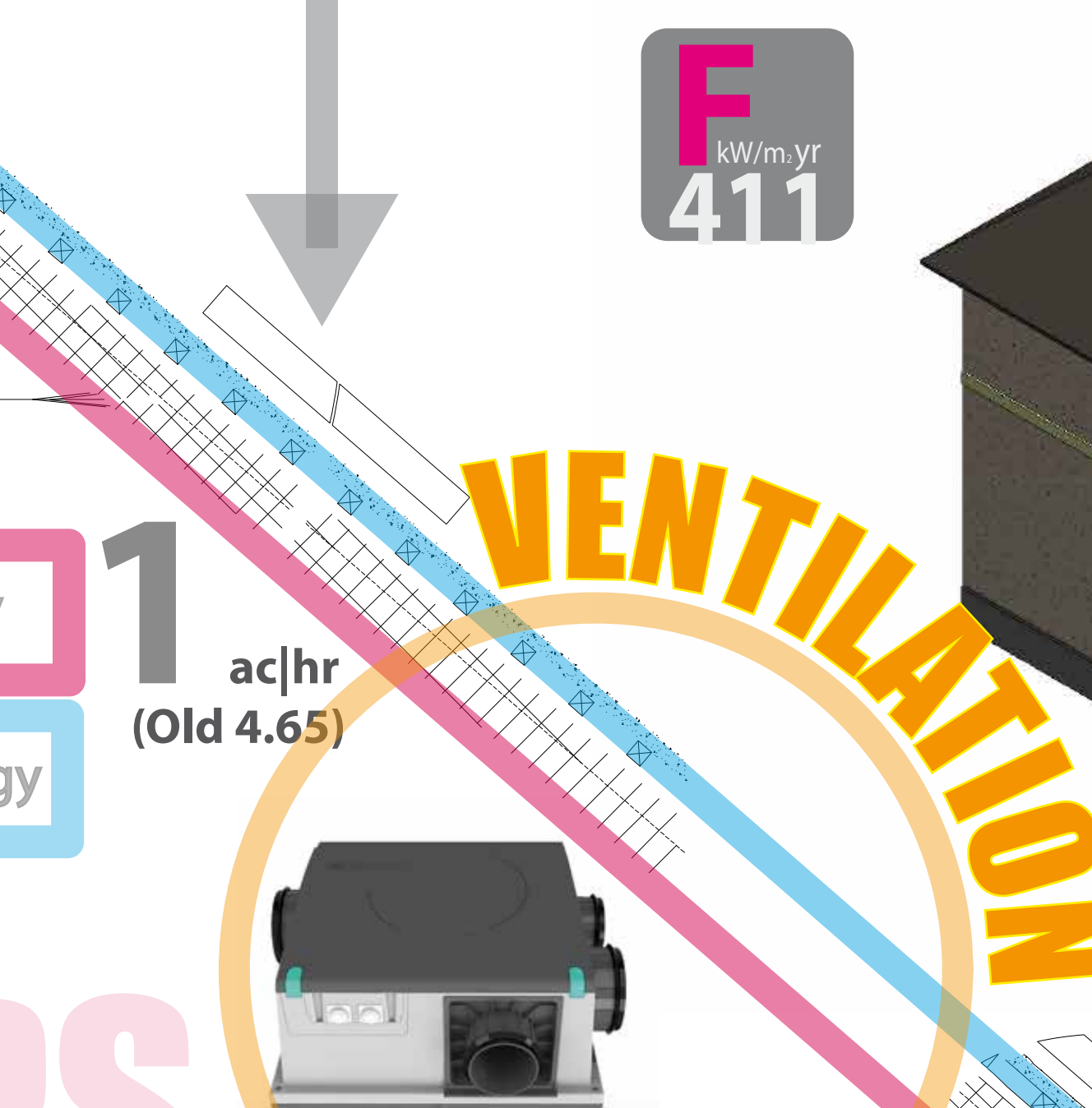
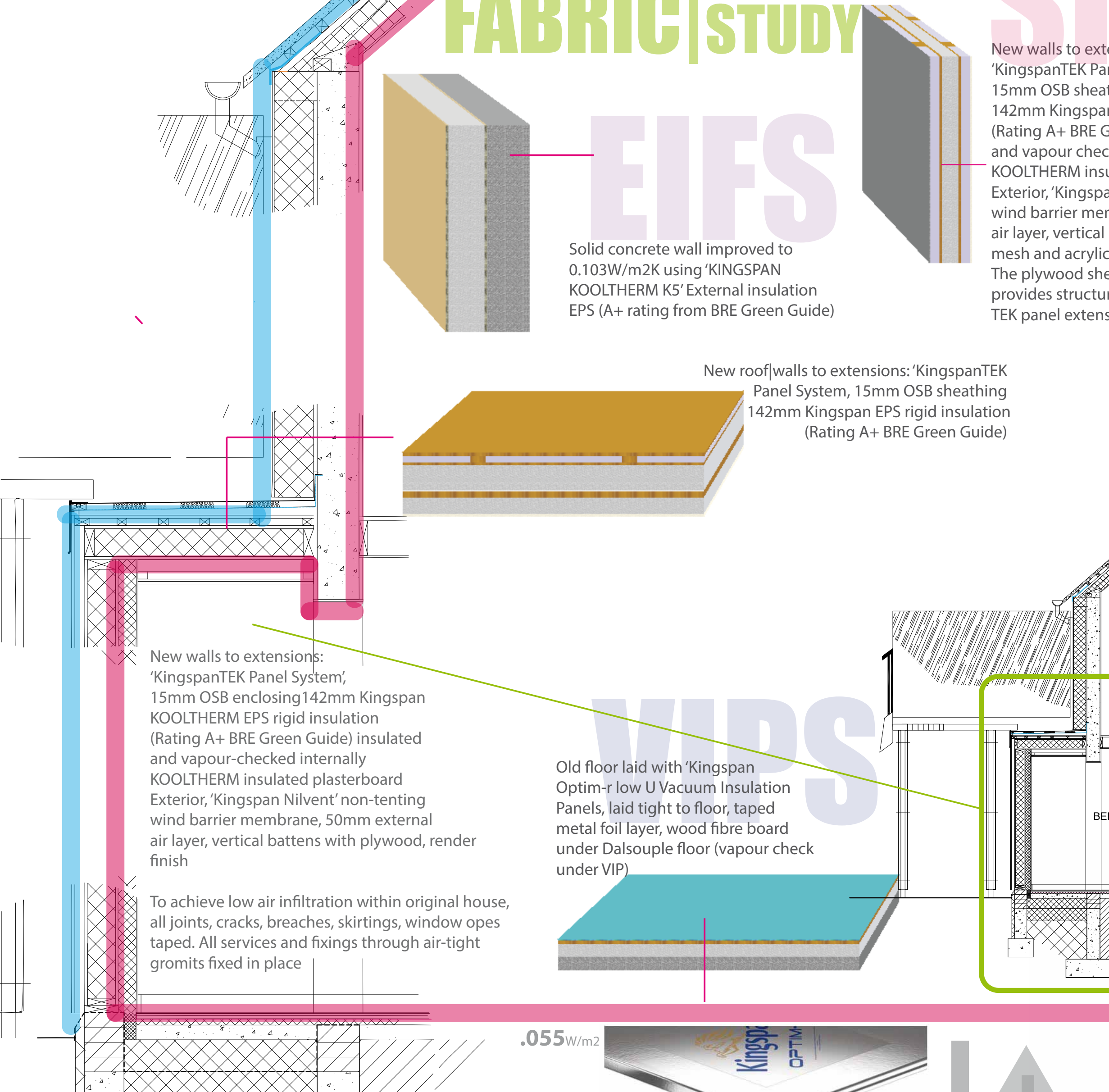
Design Strategies:

- Maintain existing floor and insulate by installing Vacuum Insulation Panels on original slab
- Additional protection and living space is provided by new extensions to front and rear
- The external facade is insulated to U beyond regulation
- The roof space is insulated to U beyond regulation
- Additional living space is provided within the existing building envelope to add to the residents' spatial enjoyment



FABRIC | STUDY

EIFS



ITBs & Y-FACTOR INPUT

The gable end of terrace performed best in the calculation given it's reduced party wall exposure. This could further be improved with greater insulation on the adjoining properties' attic spaces.

Upon completion of Psi calculations across each house, the average heat loss factor over the entire exposed area of the house equals the **Y factor....**

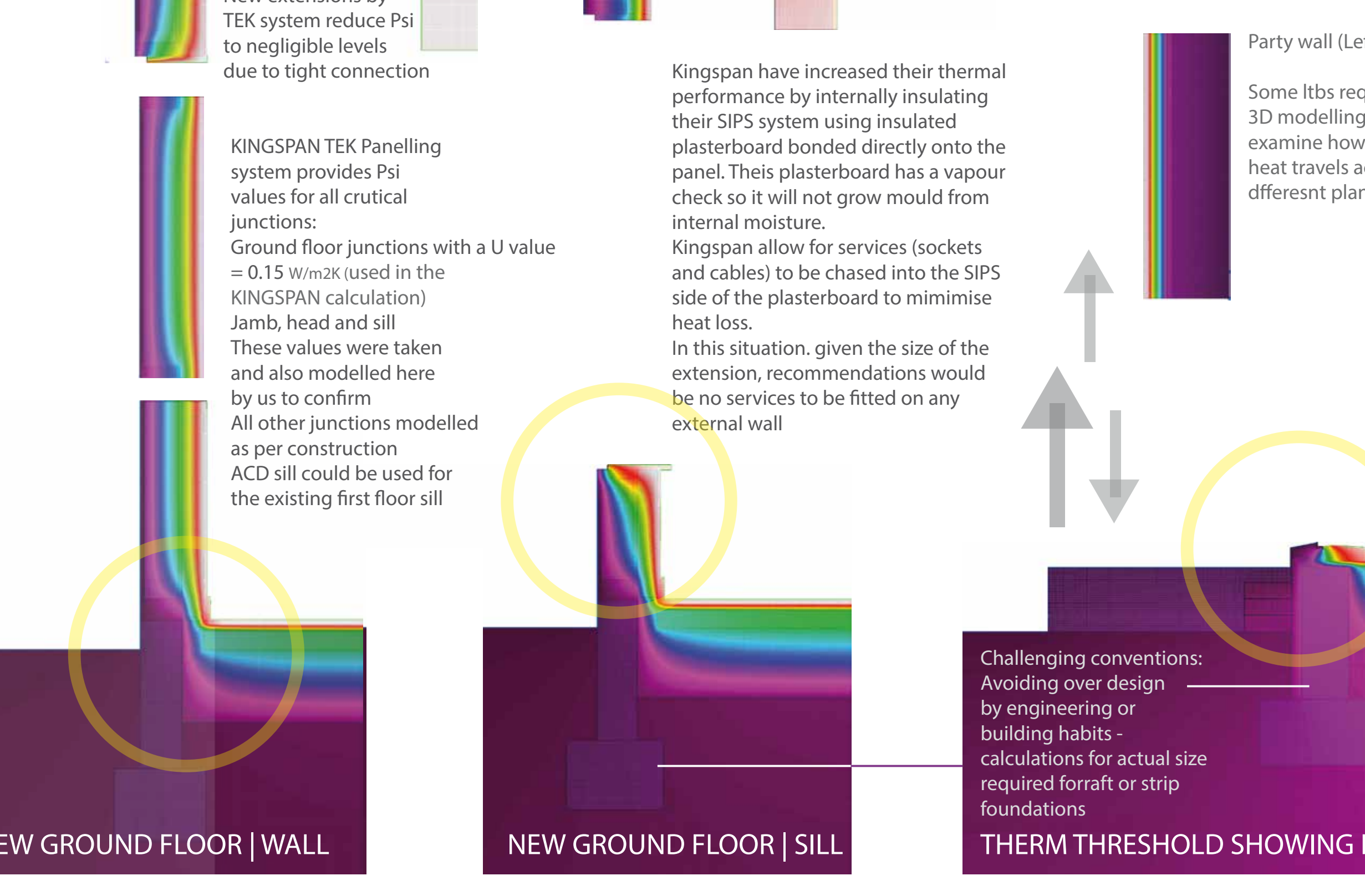
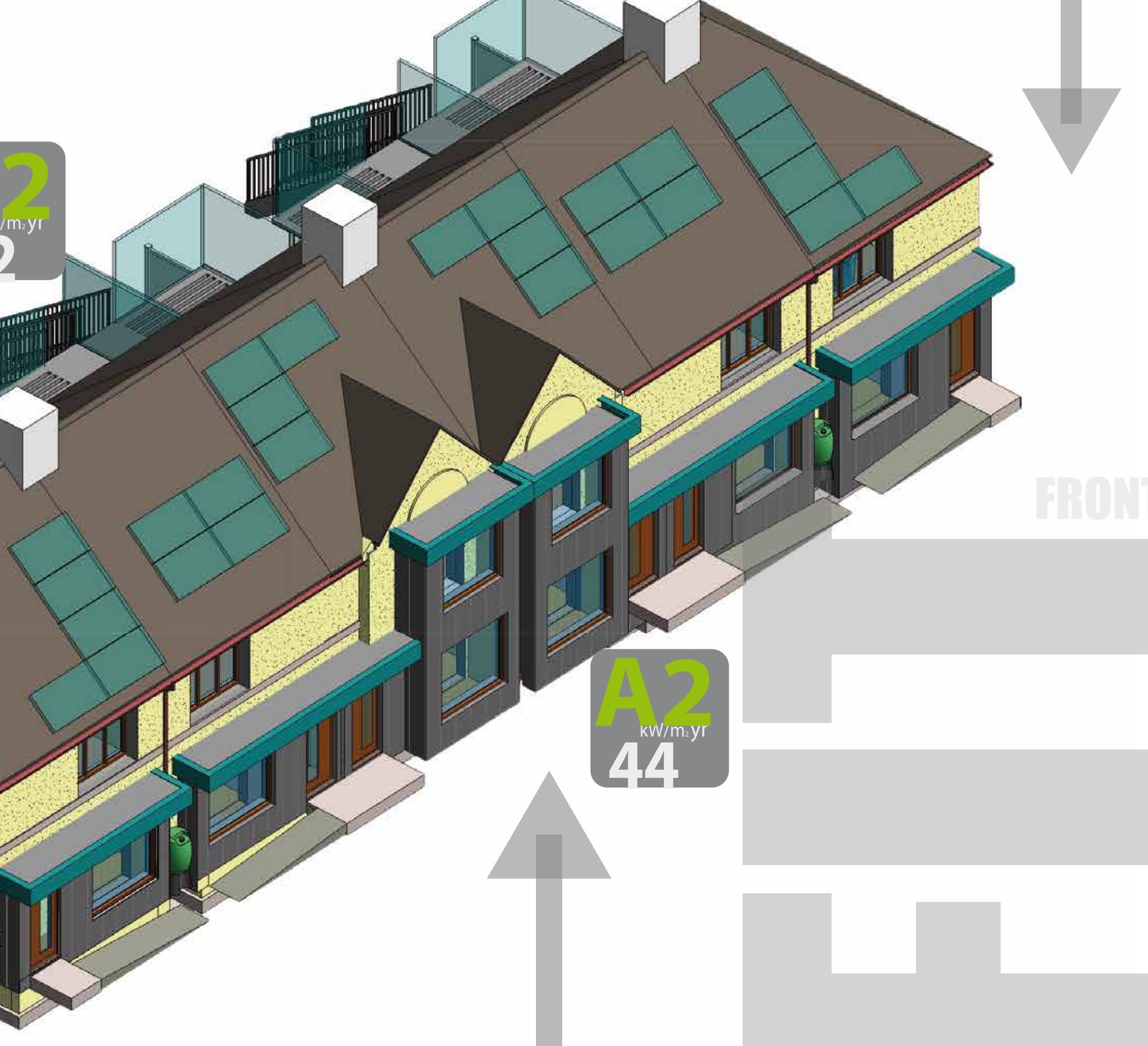
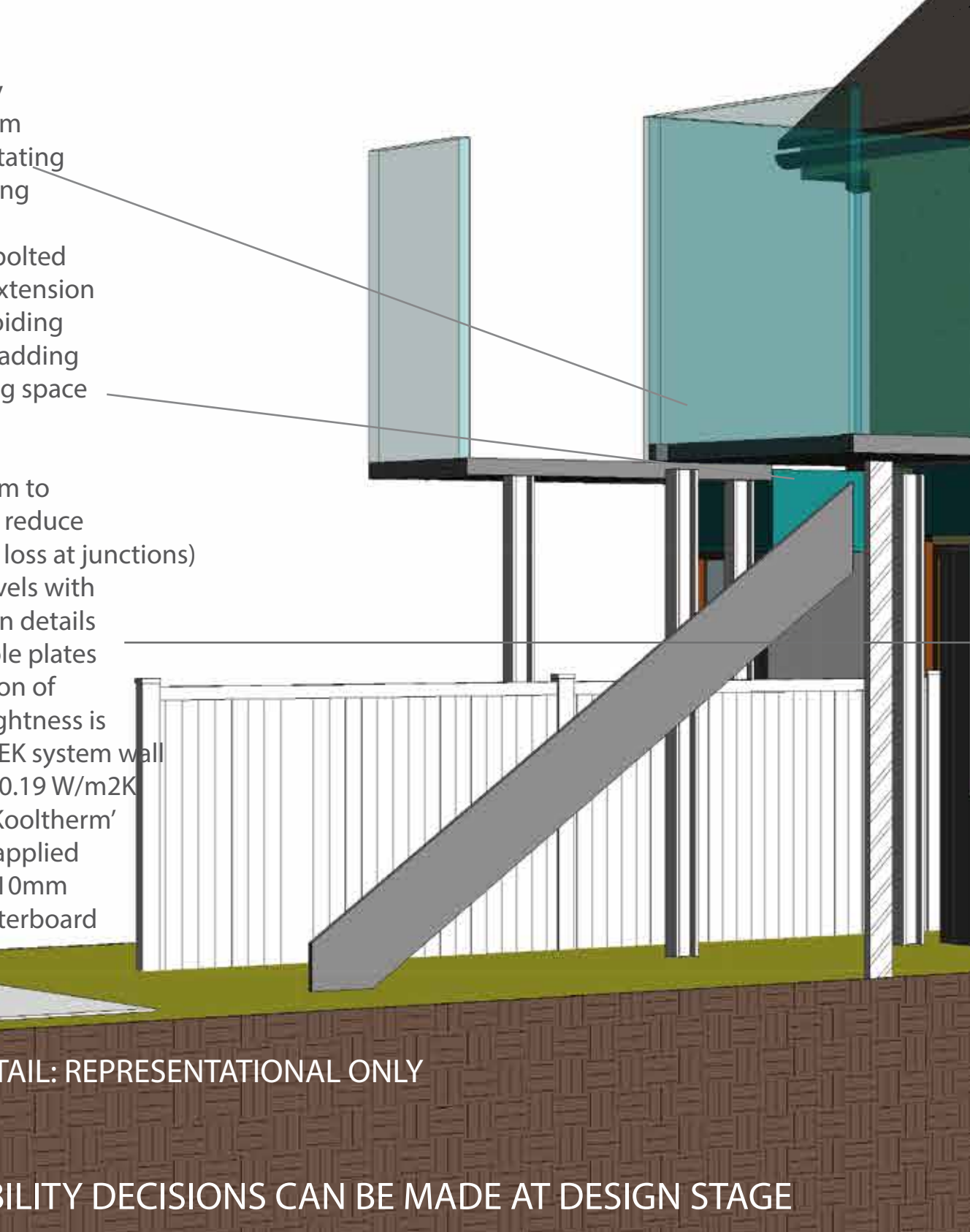
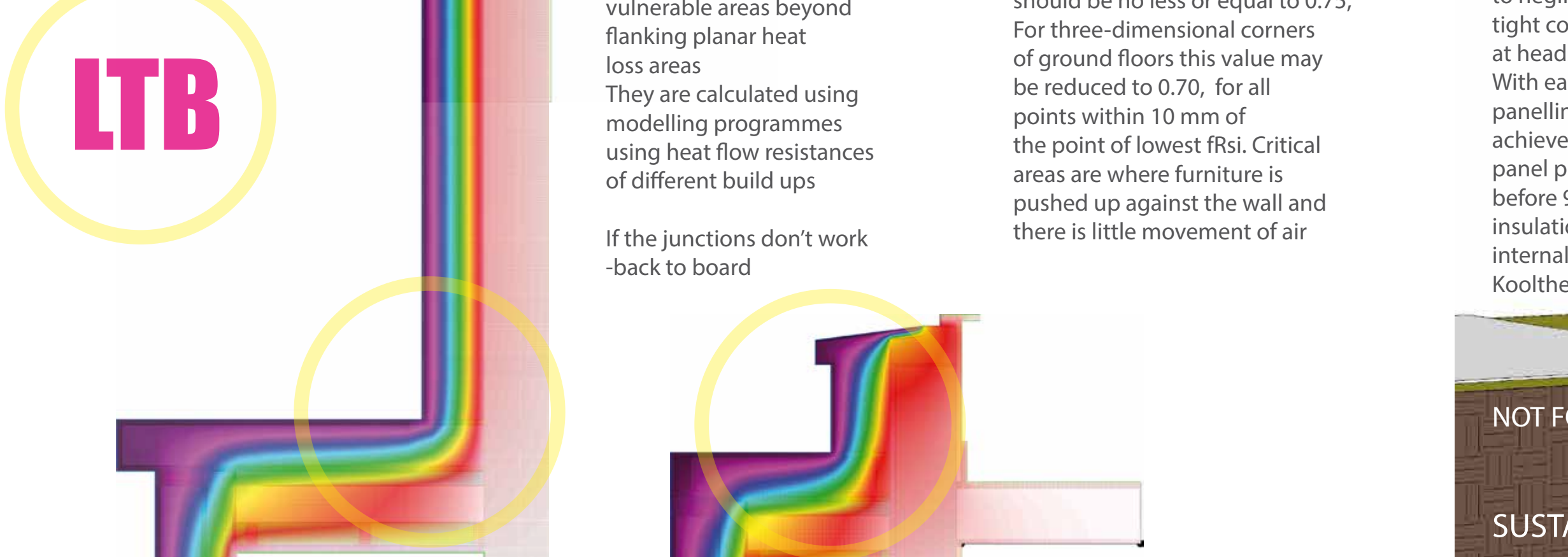
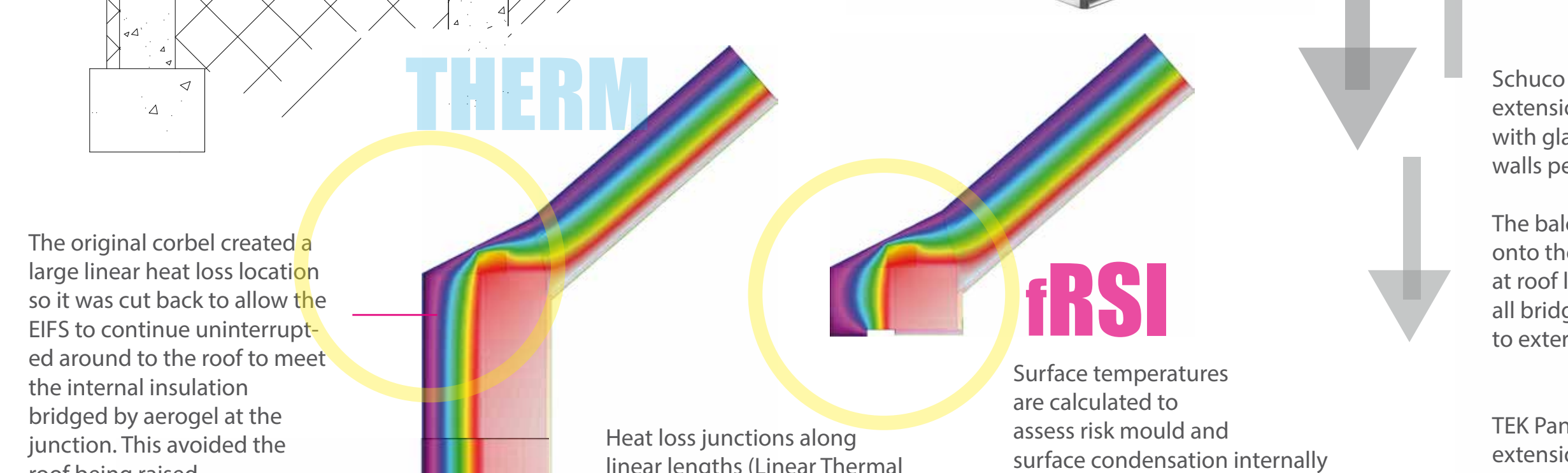
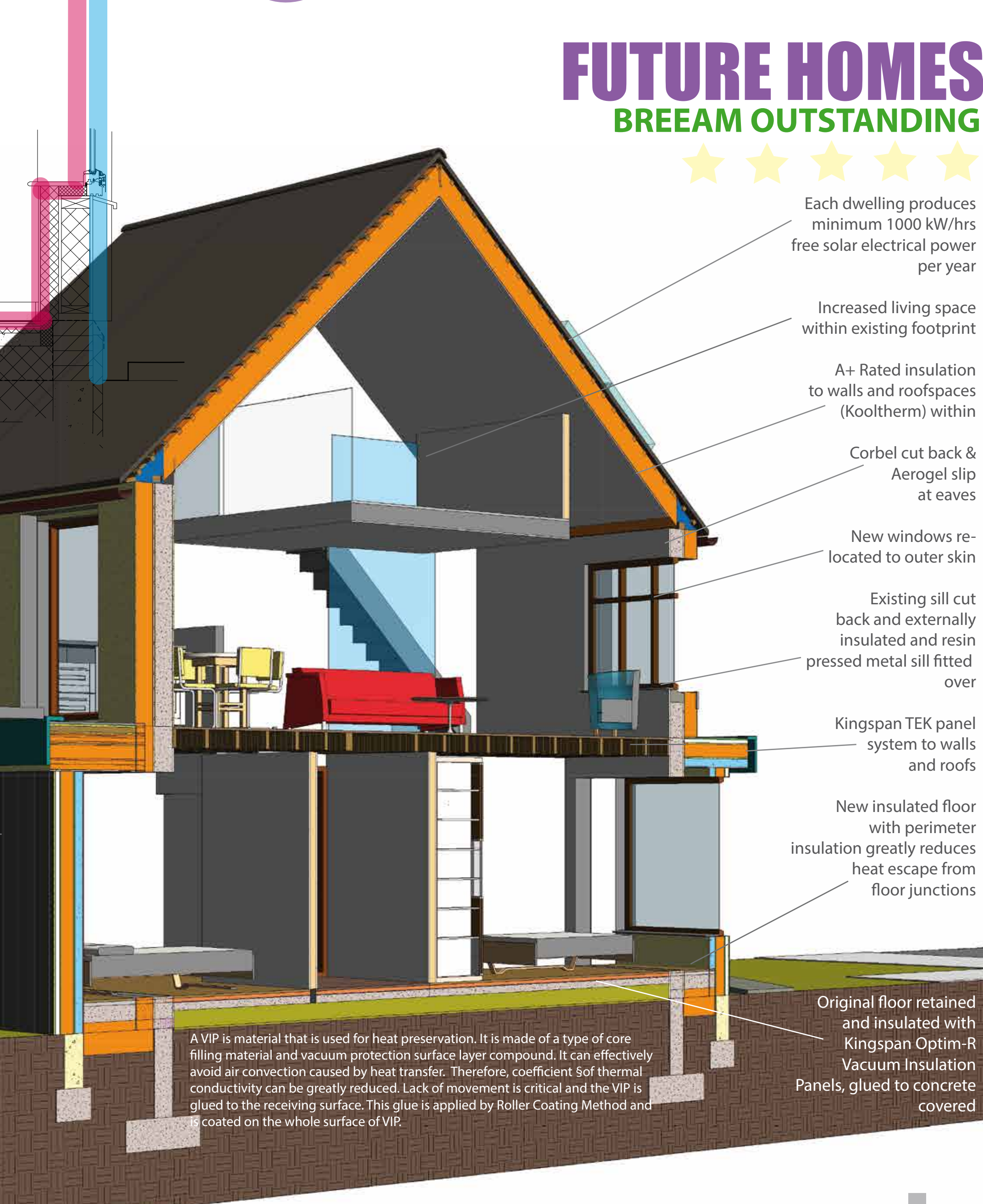
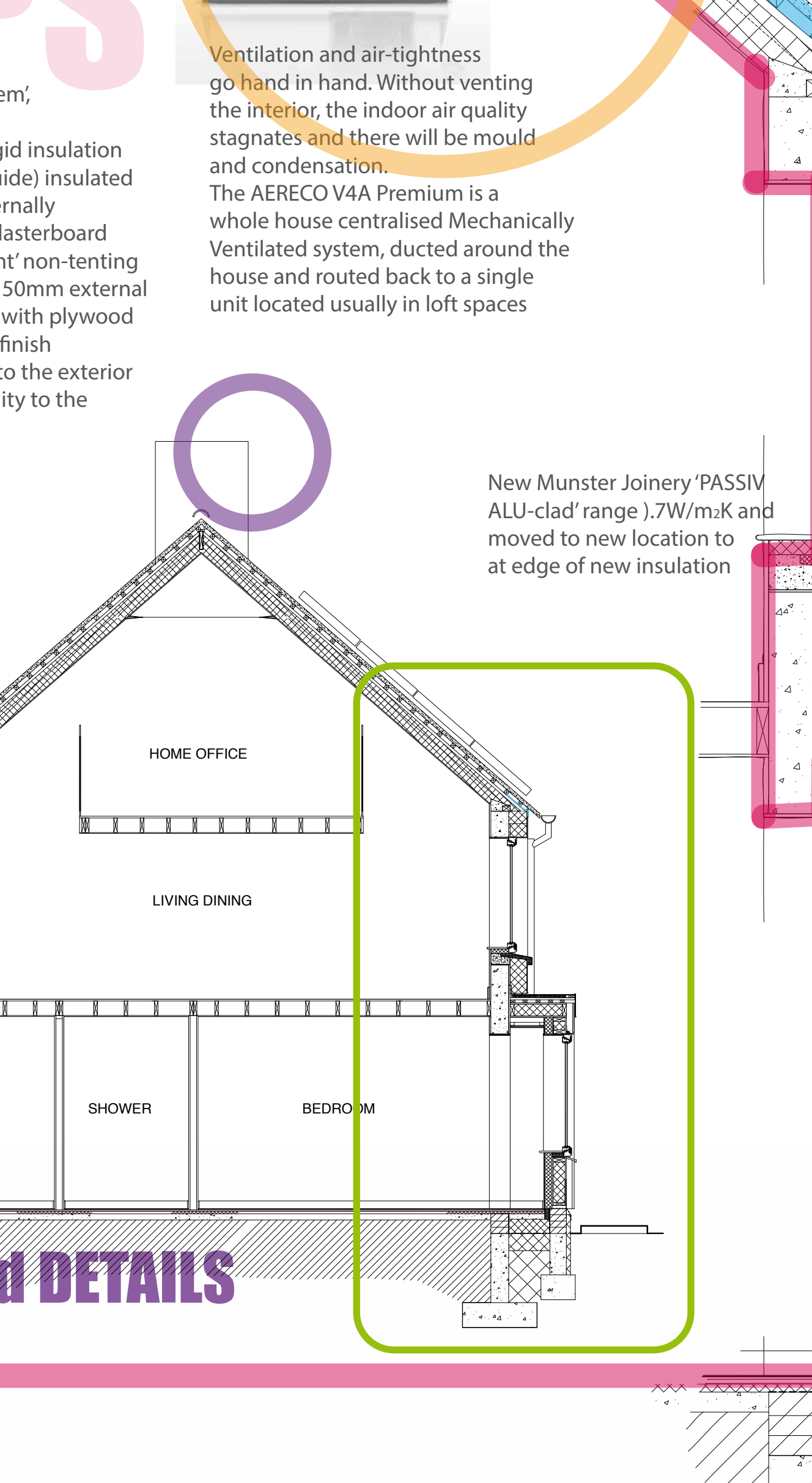
Gable: **.063 W/mK**
Mid Terrace: **.094 W/mK**
Mid Terrace Bay: **.067 W/mK**

U-VALUE

The cottages comprise solid concrete walls which provide low air infiltration rates (4.65achjr) but high conductivity and so require high levels heat for spatial comfort. The roof was insulated with 100mm rockwool. The floor was 75mm solid concrete

Baseline Change: **NewW/m2K**

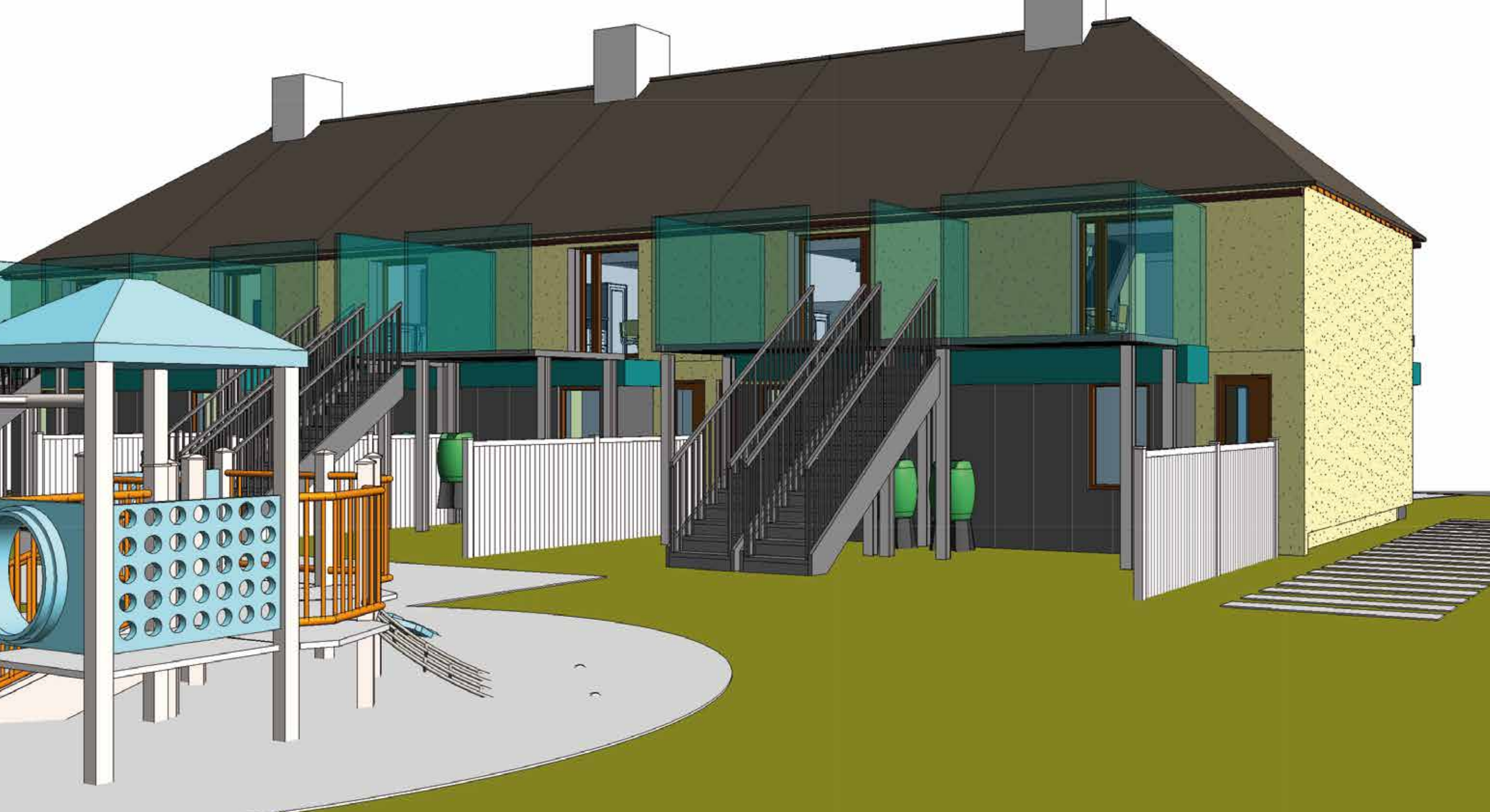
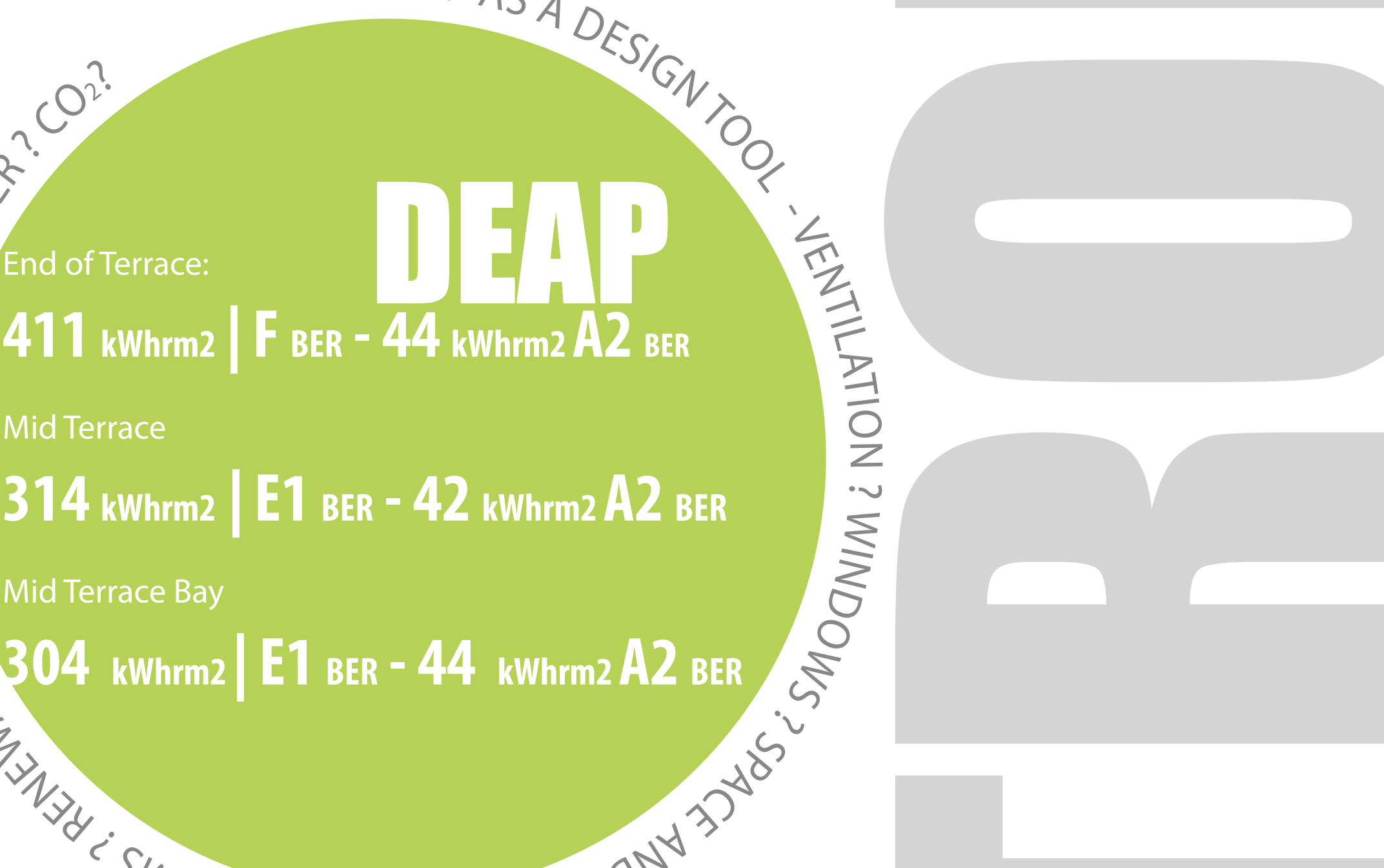
Walls Solid concrete 251mm OldW/m2K **.103**
Floors **.75**
Roof **3.91**
.134
.084



PART M

Accessibility is examined in each unit and future living needs are catered for with level access, wider corridors, accessible shower / bathrooms at ground floor

Increased floor area provides for greater spatial allocation mindful of Part M



Primary Energy Bills are reduced from 411 kWh/m2 to 44 kWh/m2 which is a reduction of almost **90%** savings to each home

DEVOLUTION