

Fragen an BRANZ/ Antworten 19.01.2023

- Is there a floor plan or even further dimensional drawings of the building you can send?

Yes definitely, will follow up on Friday

- How many square metres of floor space does the house have? What is the roof area? How many windows, doors, other openings are there?

Of the order of 90m² floor area (will confirm when I have found the dimensioned drawings), with 1 sliding door, one ordinary door, and 9 windows total. Roof area is likely around 120m², but again will confirm on Friday.

- According to BRANZ, but also and especially for later commercial projects, which technologies are currently the preferred ones for a typical energetic refurbishment from view of cost-effectiveness?

There would be a strong preference by industry to stick with double glazing in many parts of NZ, but the southern areas would likely benefit from triple. Thermal broken or efficient frames are a must. From the BRANZ perspective (and realizing that dropping to double glazing likely has a cost increase in Germany) triple would be preferable. In terms of roof and wall construction, external insulation systems would be preferable to minimise condensation related durability risk. Warm roof construction is an especially interesting area, particularly as the industry is only beginning to understand these systems, it is a good time to leverage of supply from Europe (given the R6.6 requirement for roof/ceiling insulation now in force). A challenge here is in the realm of embodied carbon, where rigid foams have a distinct disadvantage.

- What would be the typical budgets for the such refurbishment, please if possible component by component?

Likely budgets would be in the \$100-200k range at present, there are a number of banks offering low interest finance to support upgrades like this, but the market is still growing. Current schemes are in the \$100k ballpark, but this is at the lower end of what will be needed for many homes. KO are spending ~\$300k per house for their retrofit programme, however there are likely efficiencies to be gained..

- How realistic is a change to a water-based heating system?

For suspended floor dwellings, it could be possible, if paired with an air-water heat pump or similar efficient means to heat the water. Gas power heating would present some challenges (especially considering carbon caps etc on their way). For slab on grade may prove a more difficult sell. Many older homes are suspended floor.

- Should the consortia aim for a passive house standard or just for a low energy design?

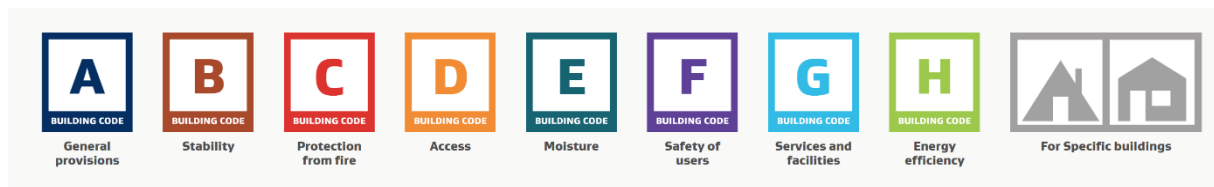
Given the signals sent by govt, aiming for similar heating/cooling demand to PH would be useful. Our work with the Fraunhofer institute for building physics (FIBP) is looking to refine some of the targets, with the work FIBP has done in the US with PHIUS being a good example of how to bring better buildings to a wider audience. The current cost premiums for PH in NZ have proven difficult for industry (and govt departments like KO) to accept, these cost premiums will only reduce when better components etc become more mainstream.

- Should the one show house include all possible technologies, even if they are normally either/or, e.g. a house with a heat pump heating system with radiators AND ventilation system with air heating features; or a house with different types of insulation in different walls?

The preference is for one solution, though if we could manage the space constraints the building gives, it is certainly possible to cover a couple of possible options.

- German companies have many questions about existing building standards. Can you please send us some links where one can read or download the current building standards?

Definitely: the requirements are broken up according to the following diagram, with various means to achieve them detailed in the supporting documents



These will be a useful starting point:

H1: <https://www.building.govt.nz/building-code-compliance/h-energy-efficiency/h1-energy-efficiency/>

E2: <https://www.building.govt.nz/building-code-compliance/e-moisture/e2-external-moisture/>

E3: <https://www.building.govt.nz/building-code-compliance/e-moisture/e3-internal-moisture/>

B2: <https://www.building.govt.nz/building-code-compliance/b-stability/b2-durability/>

G4: <https://www.building.govt.nz/building-code-compliance/g-services-and-facilities/g4-ventilation/>

G5: <https://www.building.govt.nz/building-code-compliance/g-services-and-facilities/g5-interior-environment/>

Thank you