Analysis of condensation and damp, following planning observation on EWI ECO Phase 2

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Having looked through the objections, there seems to be some confusion or misunderstanding in some of the objections, with words used interchangeably regarding 'damp', 'condensation', 'breathability', 'ventilation' etc. and are misleading/confusing, I therefore thought it would be useful to clarify these to the Planning Officer:

Condensation (Surface)

- the process of condensation occurs when warm moist air cools down quickly by touching a cold surface such as a window or wall, water droplets then form as the air reaches a stage known as its dewpoint (when the air can no longer hold the water vapour), at this juncture we refer to this physical change from a gas to a liquid as condensation. In layman's terms, condensation is caused when warm moist air comes in contact with a cold surface. It may be on the surface, sometimes obvious such as droplets on windows, sometimes absorbed into the plaster. If condensation keeps on occurring in the same place, it can sometimes cause black mould growth
- The installation of external insulation alleviates this issue by increasing the internal surface temperature above the dew point.

Interstitial Condensation

- Porous walls will allow internal water vapour to slowly. If the internal surface temperature is above dew point but the interior temperature of the wall is below, then there is a risk interstitial condensation can occur, i.e. the water vapour therefore condenses inside the wall rather than on its surface which can create issues.
- When external wall insulation is used the temperature of the external wall remains fairly close to the internal surface temperature. The condensation risk analysis is attached and there is no interstitial condensation predicted.

Ventilation

- Ideally, airflow should be provided through background ventilation i.e. airbricks and trickle vents in windows, these are used to provide a continuous background air exchange between the inside and outside of a dwelling.
- In the absence of trickle vents to windows, the existing airbricks will be retained and extended through the new EWI. These again help alleviate/prevent condensation issue

'Breathability'

- 'Breathability', when used in the context of construction and solid walls, means that the structure is porous, or vapour permeable, allowing for wetting and drying of the wall. i.e. Water vapour can enter the wall but dry out again, meaning that that any potential

damp can dry out with before creating issue. However, during periods of prolonged rainfall, damp is likely to occur internally particular around window reveals.

- The installation of the EWI will be carried out when the walls are dry – after the installation, this wetting/ drying process of 'breathing' is no longer required, as it will prevent the ingress of water into the structure.
- Irrespective, the Wetherby System specified has been confirmed by their technical department that it is a breathable system, which will let any possible trapped moisture out.

<u>Damp</u>

- Penetrating damp – not relevant
- Rising Damp – not relevant
- Services Leaks – Not relevant
- Rainwater good leaks - Not relevant
- Condensation – Discussed above

Note we were not commissioned to carry full building surveys of these blocks, so are unable to give block specific advice, but I hope the above will be of assistance to the Planning officer.

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