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Ruth Fisher

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Dear Ruth

Re: Site Visit to Fisher House, Tunbeck Close, Wortwell, Norfolk IP20 OHS

I visited this house on 7th June 2021 to assess its structural elements regarding the installation of the straw. Numbers in brackets refer to photo numbers.

This is a modern 2 storey steel frame construction with straw infill to 3 sides (1). The front face appears to be constructed of concrete block, covered with a membrane, then an airgap and Perspex type panels (2). It has an attached garage on the west of blockwork with a first floor above, and an attached single storey room and shed on the east side ground floor, also of blockwork.

The straw walls externally extend to the ground floor at the rear (3) but begin on the first floor on the east (4) and west (5). They are clad with a light timber frame and a Heraklith board with a render stop and plastered with lime (6). The garage housed empty lime and silicate paint (7) that suggests the correct breathable materials have been used for plaster and decoration.

I note that Mrs Fisher has said that a couple of years ago she had the rear strawbale wall renovated, the original builders had not dealt with strawbale before and it was untidy. Mrs Fisher found an expert in lime plastering, one Keith Southey from Bramfield, who does a lot of work on churches and listed buildings. He took the plaster off, inspected the straw (which was apparently in good condition), put up a frame and breathable board, then fibre-lime plastered. It was finished with breathable paint. Unfortunately the paint which was supplied by the specialist Joe Orsi then failed and so she once again had the whole lot repainted with the "well respected" paint, Keim. Mrs Fisher says that "at long last and at great expense the job is now sound and in very good condition"

From my inspection I would say that the above is the case.

The internal finish appears to be of plasterboard on a steel (possibly timber) frame in front of the straw. The upper floor is chipboard and the upper corridor narrows for some reason at one end (8). Windows are uPVC. Staircase is with natural timber (not regular) treads (9).

The house is heated with a Panasonic air source heat pump. There is underfloor heating to the ground floor, radiators upstairs.

It appears to be at least in parts a self-build, evidenced by poor execution of several elements such as:

- Cracked light switch (10)
- No skirting boards to the rear wall (11)
- Various holes (12)
- Unfinished areas (13)
- No splashback tiling in bathrooms (14)
- Vinyl flooring instead of tiles (15)
- Poorly painted (16)
- Taps not fixed tight
- Windows poorly sealed (17)
- Taping over joints on roof (18)

Possible water ingress

There was no suspicious smell on entering the property that would suggest damp or mould developing. No smell of straw.

The roof appears to be watertight although there is plenty of evidence that the secondary taping of joints is failing, and the falls to outlets may not be working as efficiently as could be wished (video). Clearly water pools in the roof well, as evidenced by piles of leaves in some corners (19). The roof was creaking in places indicating movement in the roof joists.

There were signs of water ingress in the South East corner of the bedroom (20). This is at or near the junction between the masonry front wall and the straw infill side. There was no obvious means of ingress, and at the time of visiting all was dry.

Signs of Movement

There is some cracking in one of the bedrooms in the masonry partition wall (21) suggesting settlement, but this is likely to have stopped now. There is also evidence of cracking/movement in the rear wall internal plasterboard but this does not appear to be serious. No obvious signs of cracking/movement in external walls was observed.

Notes on fuel consumption and energy efficiency

I would expect a modern energy efficient house to have an air exchange rate of less than 5 air changes/hour. This house was tested at 7.5 – it is possible this will have improved since the work to the external rear wall. I am unable to make much comment on the energy bills as they include for charging an electric car, except that they do seem high.

Conclusions

The house appears to be structurally sound and the straw is not damp or mouldy as far as can be assessed. External finishes appear to be well done and to function well. As ever,

keeping water out of the building is dependent on good maintenance aided by design. The roof, designed as it is as a pool with outlets for rain, is not the best for doing this but certainly at present it appears to be working. Keeping this well maintained and gutters cleared will always be of paramount importance.

Overall the internal finishing and decorating is poorly executed and lower cost finishes have been used but this is cosmetic not structural. Signs of movement seem to be historical rather than current. As long as the steel frame was correctly erected any small movements in infill materials can be accommodated without causing structural issues.

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