

Matford Centre Roof Replacement and Associated Works

The Existing Roof

Roofs to the pennage areas are pitched and covered with profiled fibre-cement sheeting (non-asbestos) on galvanised steel purlins, complete with matching trims and flashings, and individual translucent profiled glass reinforced polyester (GRP) rooflights.

The concourse roof is generally as described above, except it has continuous bands of translucent GRP rooflight sheeting. There is also a fall arrest system present, and ten automatic smoke vents positioned close to the ridge.

The centre manager states:

" problems with the roof are increasing. Despite making patch repairs over the last few years, leaks continue to occur. It has proved impossible to make any sort of lasting repair because depending on weather conditions the leaks manifest themselves in constantly changing areas. The centre hosts a number of high profile events such as business to business shows and catering exhibitions but these events are increasingly at the mercy of the weather. To date, damage to hirers' equipment and stands has been limited but hirers are now increasingly complaining and not only does this lead to the likelihood of compensation claims but it also makes the Matford Centre a much less attractive option for event organisers as knowledge of this problem spreads."

The fibre cement roofing sheets are inherently weak and brittle and have had splits and leaks in various places for many years: the 2007 condition survey stated "depending upon how much importance the Council attaches to returning the roofs into a weathertight condition, the worst of the cracked fibre cement sheets and corroding hook bolts should be repaired or renewed." It gave a total life expectancy from installation of 30 years, which equates to a replacement due in 2017-2019.

The roof has been identified as needing replacement in the next 2 to 3 years, and the current condition confirms this is a correct assessment of need. However to undertake this task once the PV has been installed, would necessitate the complete removal of all PV panelling, cabling fixing support systems, lightning conductors and man safe systems, and clearly this would incur a significant downtime for the array, a resultant loss of income, and significant extra installation costs.



Extract from the Condition Survey by PH Warr plc carried out in 2007.

2.1 ROOFS

2.1.1 Description

1. The roofs to the pennage areas are pitched and covered with profiled fibre-cement sheeting (believed to be non-asbestos) on galvanised steel purlins, complete with matching trims and flashings, and individual translucent profiled glass reinforced polyester (GRP) rooflights.

2. The concourse roof is generally as described above, except it has continuous bands of translucent GRP rooflight sheeting. There is also a fall arrest system present, and ten automatic smoke vents positioned close to the ridge.

3. The lean-to roofs over the kitchen, restaurant, tenanted units and small plant room on the east elevation, are covered with colour-coated profiled steel sheeting on a timber trussed rafter structure, complete with matching trims and flashings, and stained softwood fascia and soffit boards.

4. We have assumed that the lightning protection installation present on the roofs will be covered under the M&E survey to be undertaken by the Council's engineers, therefore it has not been included in this report.

2.1.2 Findings: Calves and Dairy Pennage

1. Approximately 31nr cracks were noted in the ridge sections, 4nr of which are visible at the northern end of the roof where it projects into the concourse.
2. No cracks were observed in the movement joints or main roof sheets.
3. The upper surface of the roof sheeting has a moderate covering of lichens and some moss, mainly in the troughs of the profiles, and the rooflights are stained.
4. Missing caps and corroding nuts were observed to many of the hook bolts.
5. In addition to the cracks mentioned above, numerous other hairline cracks, splits and crazing were noted, however these are generally not visible from ground level

2.1.3 Findings: Cattle Pennage

1. Approximately 22nr cracks were noted in the ridge sections.
2. No cracks were observed in the movement joints or main roof sheets.
3. The upper surface of the roof sheeting has a moderate covering of lichens and some moss, mainly in the troughs of the profiles, and the rooflights are stained.
4. Missing caps and corroding nuts were observed to many of the hook bolts.
5. In addition to the cracks mentioned above, numerous other hairline cracks, splits and crazing were noted, however these are generally not visible from ground level.

2.1.4 Findings: Pigs and Sheep Pennage

1. Approximately 10-11nr cracks were noted in the ridge sections.
2. Approximately 12nr cracks were noted in the movement joints.
3. Approximately 8nr splits were noted in the main roof sheets.
4. A small hole was noted in the sheeting adjacent to a downpipe on the south side of the roof.
5. A small hole was observed in the south-facing slope, situated close to the concourse eaves line where the pennage area 'projects' into the concourse.

Daylight was noted along much of the length of the northern gutter, caused by cracks in the curved eaves sheets.

7. The upper surface of the roof sheeting has a moderate covering of lichens and some moss, mainly in the troughs of the profiles, and the rooflights are stained.
8. Missing caps and corroding nuts were observed on many of the hook bolts.
9. In addition to the cracks mentioned above, numerous other hairline cracks, splits and crazing were noted, however these are generally not visible from ground level.

2.1.5 Findings: Concourse

1. Approximately 9nr cracks were noted in the ridge sections, 8nr of which have been patch repaired.
2. Approximately 17nr splits were noted in the main roof sheets on the south-facing roof slope, 7nr of which have been patch repaired.
3. Approximately 9nr splits were noted in the main roof sheets on the north-facing roof slope, 2nr of which have been patch repaired.
4. The upper surface of the roof sheeting has a moderate covering of lichens and some moss, mainly in the troughs of the profiles, and the rooflights are stained.
5. The sheeting on the south elevation appears to be slightly out of vertical alignment.
6. Missing caps and corroding nuts were observed on many of the hook bolts.
7. In addition to the cracks mentioned above, numerous other hairline cracks, splits and crazing were noted, however these are generally not visible from ground level.

8. Numerous patch repairs are evident at the abutment between the east-facing slope of the roof over the dairy penna and the verge of the south-facing roof directly above the auctioneers' offices, close to the main entrance. The Centre Manager has confirmed that this part of the building has experienced significant leaks in the past, however we understand that the leaks are not ongoing.

9. We understand that the fall arrest system has not been maintained, therefore it must not be used without first being tested and certified as safe for use.

10. The roof is clearly leaking as a result of the abovementioned defects, and the staff have used yellow marking paint on the concourse floor to indicate the position of the leaks.

2.1.7 Conclusions

1. In overall terms, we consider the fibre-cement roofs to the concourse and pigs and sheep penna to be in poor condition, and the number of defects is surprising given that they are only around 18 years old. (in 2007).

2. Save for the cracked ridge sections, we consider the fibre-cement roofs to the cattle and calves and dairy penna areas to be in slightly better condition than the abovementioned roofs, however we would still describe them as being in fair-poor condition overall.

3. The defects in the fibre-cement roofs probably have several causes, including problems with the quality and durability of the sheets themselves, workmanship problems relating to the fixings, and differential thermal and moisture-induced movement.

4. In terms of life expectancy, Eternit is currently quoting a life expectancy of at least 50 years and guaranteeing its sheeting for 30 years, albeit the durability of fibre-cement sheeting has almost certainly improved since the Livestock Centre was built. Present evidence, however, would seem to indicate that the roofs may reach the end of their serviceable lives sooner than the manufacturer's current literature is suggesting, and for this reason we consider a total life expectancy of 30 years to be more realistic at this stage, which equates to a remaining life expectancy of around 10-12 years.

5. In overall terms, we consider the profiled steel lean-to roofs to the kitchen, restaurant and offices on the east elevation to be in fair condition. Manufacturers typically quote a life expectancy of 40 years and offer guarantees for 30 years on colour-coated profiled metal sheeting, with first maintenance recommended after 10-25 years, which we consider to be realistic on this occasion.

2.1.8 Recommendations

1. Catch-up Maintenance: Depending upon how much importance the Council attaches to returning the roofs into a weathertight condition, the worst of the cracked fibrecement sheets and corroding hook bolts should be repaired or renewed. The Council may find the cost of providing safe access to the exterior of the fibre-cement roofs to be prohibitive, hence it may wish to carry out as many repairs as practicable from within the building. The grease stains on and around the ventilation cowls of the profiled steel roof over the kitchen should be removed. The loose lead flashing to the small profiled steel lean-to roof adjacent to the conservatory should be made good.

2. Responsive Maintenance: A contingency sum should be set aside to cover ad-hoc repairs.

3. Cyclical Maintenance: The staining around the cowls should be cleaned every 1-2 years.

4. Periodic inspection: The roofs should be inspected annually in order to assess the need for any further repairs, monitor the rate of deterioration and generally inform the timing of their eventual replacement.

5. Planned Maintenance: The fibre-cement roof coverings should be scheduled for renewal (or overcladding) in 10-12 years' time. (2017).