



Colin Chapman
Plym Roofing

SEMERDON MANOR EX22 6RL

Chimney Issues

Wednesday, 28 October 2020

Prepared For Mrs Longhurst

39 Issues Identified



ISSUE 1

There is a fireplace at ground level served by the chimney which is no longer in use for open fires.



ISSUE 2

The the rear of the fireplace in a utility room. There is a boiler with a flue, which utilises one of the chimney chambers for extraction from the boiler.



ISSUE 3

There is another fireplace served by the chimney in an upper bedroom. This fireplace shows obvious signs of water ingress.



ISSUE 4

There is also a large damp patch on the chimney breast plaster, where paint has flaked off the wall. I noticed the plaster used beneath the paintwork was gypsum. This plaster does not breath. I was lead to believe a listed building officer advised on the works and would have thought at the very least lime plaster which does breath would have been used in this instance as it complies with listed building consent and it the appropriate material to be used on this property.



ISSUE 5

The chimney is heavily saturated with water and it can be seen running into the joints of the stonework internally.



ISSUE 6

Paint and plaster has dropped off the wall due to the ingress and a fur deposit has formed around defects on the plastered walls.



ISSUE 7

When I began my inspection outside the first thing I noticed was a crack in the external gable end wall plaster. I carried out a tap test to the plaster and parts of the render are hollow indicating it is blown and has detached itself from the wall.



ISSUE 8

The crack continues up the wall at the abutment with the chimney stack to the underside of the slate verge detail.



ISSUE 9

The first observation I made when on the roof was two cracked ridge tiles which someone has attempted to make watertight by applying silicone to the defects. These ridges will need to be replaced in order to protect the integrity of the roof.



ISSUE 10

There is a small roof on the rear elevation with two lead valleys. There are also some broken ridges at the apex of the valley which need to be replaced.



ISSUE 11

Another broken ridge on the rear elevation.



ISSUE 12

When I inspected the chimney above the area of ingress the first thing I noticed was the large deposits of calcium carbonate running out of the chimney. Stalactites have formed where calcite has run out of the chimney due to water mixing with minerals in the mortar.

There is a lead saddle at the apex of the ridge which has been welded correctly to form a watertight seal.



ISSUE 13

The chimney had a series of copper pipes installed to it acting as weep holes to discharge water out of the stack. There are 3 pipes on two faces of the chimney and 1 pipe on the opposite two faces. All pipes were dripping with water while I was present.



ISSUE 14

Looking at the granite stone and mortar joints on the chimney, they appeared to be absorbing a great deal of moisture. It was not raining during my survey nor has it been raining since the early hours and yet at 11.00am the stone and joints were still showing a lot of moisture content.



ISSUE 15

Stones and joints still very damp.



ISSUE 16

There was a new flaunch installed when the chimney was rebuilt. The flaunch already shows signs of cracks in the render and is very damp in places. I am unsure if an additive was allowed to be used in the mortar mix to protect the flaunch during harsh cold weather.



ISSUE 17

Looking at a different face of the chimney and flaunch, a visible crack can be seen running through the flaunch leaving the surrounding mortar damp. The granite stone below this defect is very wet.



ISSUE 18

There are two lead trays installed to the chimney. The trays should be a continuous piece of lead which spans the full width of the chimney. They should incorporate an upstand where it meets the flue. The upstand should be a minimum of 50mm high to keep moisture which collects on the tray from seeping over the top of the upstand, down onto the stones below. The problem with this chimney is there is only one flue serving the boiler leaving the the other chamber to serve what was an open fire place in the bedroom, this is now redundant. The burning question is; was an upstand created for this chamber or was lead simply cut to shape of the chamber leaving the chimney exposed to water ingress. Is the upstand high enough.



ISSUE 19

I peeled back the lead flashings to gain a better understanding of the installation process. As a general rule of thumb lead sheet association guidelines stipulate the lead tray should be positioned 150mm above the lowest point of the front chimney flashing where possible. The lead should then be dressed down over the front flashing and turned up to form a tray on the remaining three sides thus forming a catchment trays which drains off one side. The lead tray is no-where near the required measurement here.



ISSUE 20

All copper pipe weep holes were discharging water during my survey so the chimney must has a considerable amount of water build-up across the trays.



ISSUE 21

As mentioned above 2 sides of the chimney are served by three copper pipe weep holes. Two pipes are installed above the lower tray and one pipe is installed above the upper tray. Water and damp can was seen coming from each pipe with calcite build-up forming stains on the roof.



ISSUE 22

The opposite side of the chimney showing the other three pipes.



ISSUE 23

One of the concern I have with the lead trays is the selection of the code of lead for the task.

The recommended lead to use for chimneys is either Code 4 or 5 lead. Selection is determined by the weight of the chimney above the lead trays. Too much weight and the tray will become punctured. Code 4 lead is more often used for small brickwork chimney which do not have much load bearing weight. Code 5 trays are for more substantial chimneys, which have a lot of weight and mass. The code of lead used for the trays on this chimney are Code 4 this is indicated by the blue tape still left on the lead.



ISSUE 24

I would expect the lead trays on this chimney to be Code 5 to cope with the heavy weight of the granite stone. The lead trays should also be painted on both surfaces with bitumen paint to prevent corrosion from mortar. I could see no traces of bitumen used on these trays.

Blue tape indicates Code 4 lead used for trays. I would have expected Code 5 to be employed for a heavy chimney such as this.



ISSUE 25

Image of moisture build-up in top architectural stones of the chimney.



ISSUE 26

Moisture coming out at the base of the stones below the moulding in the image above.



ISSUE 27

I drilled a hole in one of the mortar joints to try and determine if this was a continuous lead tray or just a flashing which had been installed. To be fair the lead did appear to go right through the chimney as far as my drill bit would go. When I removed my drill bit water ran out of the hole and down the wall indicating a build-up of moisture sat on the tray. The worry has the moisture risen above the upstand of the tray around the flue and is there an upstand on the other chamber or has it been cut flush allowing water to penetrate through the cut lead and onto the stones below.



ISSUE 28

Image showing the water dripping out of copper pipes.



ISSUE 29

This image shows the lead DPC tray above the lowest front lead flashing. The tray should be positioned 150mm above the lowest flashing.



ISSUE 30

The front flashing is chased into the wall to a depth of 25mm. The tray above should protect the lower flashing and I would have expected the lead tray to have been extended down over the lower flashing here preventing any water penetration of the stone directly above the lower flashing.

lead installation should have been continued down to here



ISSUE 31

The side flashing where it lapps around the front of the chimney is also chased into the wall. This again sits below the lead tray and has had lead mastic applied in an attempt to make the corner watertight. This could have been avoided if lead tray had been dressed down over the flashing as mentioned in the previous issue.



ISSUE 32

Image showing the side cover flashing barely chased into the wall.



ISSUE 33

Water running out off the lower tray onto stones above the lower lead flashing. These stones sit above the lower lead flashing which is only chased 25mm into the wall so any water penetration of the stones leaves the lower flashing susceptible to ingress.



ISSUE 34

The lead at the side of the chimney above the ingress is installed correctly. Calcite deposits can be seen where water is seeping out off the lead tray. The problem is I am unable to determine the detail in the centre of the tray around the flue and chimney chamber, which is hidden by the stonework installed on top of it. I am also unable to determine if the stone work is too heavy for the Code 4 lead and has punctured it. Has bitumen been used to prevent corrosion from mortar to the tray.



ISSUE 35

Another image showing defect in the flaunch with damp around the crack in the render. This problem will manifest in the winter when water trapped beneath the flaunch turns to ice during freeze thaw. The ice expands causing further issues in the future as problems with crack gets worse and more water enters the crack.



ISSUE 36

The ingress appears to be at the front left hand corner of the chimney looking at the property from the driveway. With trays being installed I would not expect to find damp penetrating the stoneworks and causing ingress below. However, when I do come across issues such as this and I suspect a defect with the lead trays, it is always a good indicator to see why the water is running to one side of the chimney only. I placed a spirit level on the stonework at the base of the chimney and the stoneworks runs out by about 20mm to the corner where the ingress is occurring. The mortar bed above this stone has then been adjusted to make level. Water finding its way down to the base stone will naturally run across the top of the stone if it is out of level so I suspect this is why only this corner of the chimney has an issue with ingress.

Bubble



ISSUE 37

Tape shows the lower tray is 260mm above the lowest front flashing, recommended height is 150mm. This would be fine if the lead had been carried down over the lower lead flashing to form a block flashing, eliminating any possibility the stone it covers suffering from water penetration.



ISSUE 38

The secondary tray sits 390mm above the lower tray. This cannot be avoided when using large granite stones, however if the code of lead, the upstand around the flue, the upstand around the other chimney chamber and bitumen paint on lead to avoid corrosion have not been installed in the correct fashion, all of these elements can have an effect on the integrity of the chimney and can see the previous works carried out become compromised due to ingress.



ISSUE 39

This image is not the best. Looking inside the loft space it was clear to see water running out of the stonework which forms the chimney. There has been a large amount of cement applied to the chimney just below the ridge line which I am not sure if it is Vandex. Vandex is a tanking solution which prevents water penetrating through cement work. There is a small stain on the cement work through a crack with the majority of the ingress below this. If Vandex has been used it is simply driving the water downwards. Again With a listed building officer overseeing these works I am surprised this product was allowed to be applied to the walls I would have expected to see lime plaster which is breathable. Either way this confirmed my suspicions there is something wrong with the lead trays as water is running into the property below the trays which indicates they have not been installed correctly.

Damp below cement applied to the stonework of the chimney.

Cement possibly Vandex