VICTORIAN CIVIL AND ADMINISTRATIVE TRIBUNAL

CIVIL DIVISION

BUILDING AND PROPERTY LIST VCAT REFERENCE NO BP752/2017

CATCHWORDS

DOMESTIC BUILDING DISPUTE – whether brick cleaning of brickwork led to staining of mortar; Conflicting expert opinion evidence – whether Applicant discharged its burden of proof.

APPLICANT	Phillips Constructions Pty Ltd (ACN 088 339 842)
RESPONDENT	Salvatore Nicosia
WHERE HELD	Melbourne
BEFORE	Senior Member E. Riegler
HEARING TYPE	Hearing
DATE OF HEARING	7 September 2017
DATE OF ORDER	11 September 2017
CITATION	Phillips Constructions Pty Ltd v Nicosia (Building and Property) [2017] VCAT 1445

ORDERS

1. Liberty is given to the Respondent to be represented by a professional advocate, pursuant to s 62 of the *Victorian Civil and Administrative Tribunal Act 1998*.
2. The Applicant's application is dismissed.
3. Liberty to apply on the question of costs, provided such liberty is exercised by 22 September 2017.

E. RIEGLER
SENIOR MEMBER

APPEARANCES:

For the Applicant:	Mr M Phillips, director.
For the Respondent:	Mr P S Noonan, of counsel.

REASONS

INTRODUCTION

1. The Applicant is a registered builder. In 2016 it entered into a domestic building contract under which it constructed three double story townhouses in Highett. The townhouses comprised feature brickwork on the ground floor with lightweight cladding above. As part of that building process, the Applicant subcontracted with the Respondent to clean brickwork laid by the Applicant's bricklayer.

2. The Applicant alleges that the process adopted by the Respondent to clean the brickwork caused staining to the brickwork mortar, which necessitated remedial work at a cost of $8,415. In addition, the Applicant alleges that it has incurred further expenses associated with the rectification of the brickwork mortar, which includes the cost of expert reports and administrative costs. It claims a total of $12,578 from the Respondent.

3. The Respondent denies liability. It contends that any discolouration in the mortar is caused by a number of factors which are linked to the work performed by the bricklayer, rather than through any fault on his part.

BACKGROUND

4. As already noted, the Applicant constructed three double story townhouses, which comprised feature brickwork on the ground floor. The bricks and all sundry materials used in the construction of the brickwork was supplied by the Applicant to its subcontracting bricklayer. The bricks were purchased from *Austral Bricks*, from its *Indulgence Series*. The actual brick colour was *Praline*, which is best described as a light stone or cream coloured brick. The colour of the mortar was grey.

5. Pursuant to a *Purchase Order* dated 9 August 2016, the Applicant subcontracted the Respondent to clean the brickwork after the bricklayer had completed his work. The *Purchase Order* sets out the scope of work and the terms and conditions of the Respondent's retainer. The *Purchase Order* also attaches and incorporates a CSIRO technical sheet entitled *Cleaning brickwork*. Relevantly, the Purchase Order states:

> ACTIVITY
>
> Please perform the following works:-
>
> …
>
> ** Please refer to the attached CSIRO Building Technology File 05 - Cleaning Brickwork for technical information**
>
> …
>
> Terms and Conditions
>
> …

> 2) All work is to be performed in accordance with the standard required by the Building Code of Australia 2008, Building Act (Vic) 1993, Building Regulations (Vic) 2006, Domestic Building Contracts Act 1995 (Vic) and the Building Commission (Vic) Guide to Standards & Tolerances 2007.

6. The CSRIO technical sheet states, in part:

> Using hydrochloric acid
>
> Hydrochloric acid (also known as muriatic acid, or spirits of salts) is generally used as a solution of one part acid to ten parts water but it's a good idea to try weaker solutions first. The acid acts by dissolving both the surface cement and lime from the mortar, allowing it to be washed away. The concentration should never be increased above 1:10 as this might cause excessive attack on mortar joints, and risk staining or acid-burning of bricks.

7. On 9, 10 and 11 September 2016, the Respondent undertook cleaning of the brickwork. By all accounts, the task was made significantly more difficult because the mortar was *hard*. This meant that the mortar was much more difficult to remove from the face brickwork than would otherwise be the case. Further, according to the Respondent, the brickwork was *dirty*, in the sense that there was an excessive amount of excess mortar to be cleaned from the face brickwork. In particular, the Respondent said that it normally takes two applications of acid and water solution to clean brickwork, but in the present case, four applications were required in order to achieve that outcome.

8. The Respondent said that at the conclusion of the brick cleaning, he spoke to the site foreman and asked whether the Applicant also wanted the brickwork to be *neutralised*. This entails washing down the face brickwork with an alkaline solution in order to neutralise the effect of the hydrochloric acid solution used to clean the brickwork. He recounted that the site foreman, who he referred to Nathan, said that he understood that neutralising was part of the original scope of work, to which the Respondent responded that it was not and that it would constitute a variation. The Respondent recalled that Nathan told him that he would get back to him whether the Applicant wanted the works to be neutralised. That did not occur.

9. Sometime after the brick cleaning work had been completed, complaints were raised by the building owner to the Applicant regarding the finish of the brickwork. In particular, there were patches within the brickwork mortar which displayed colour variation. The colour differences varied from light grey to yellow, against the original mortar colour of dark grey.

10. The Applicant then engaged Salvatori Mamome, an architect from *Inspect Direct Pty Ltd*, to inspect the face brickwork and provide an opinion as to the cause of the mortar staining. Although Mr Mamome was not called to give evidence in the hearing, his original report was tendered. In that report, he concluded that the variations in the mortar

colour were the result of both the bricklaying process and the brick cleaning process. Insofar as he opined that the stains were caused by the brick cleaning process, he suggested that there had been an over application of hydrochloric acid across the brick surface which had adversely affected the mortar. He also suggested that the brickwork had not been adequately pre-wetted prior to the application of hydrochloric acid and that residual hydrochloric acid had been left on the brickwork for too long a period. Finally, he suggested that the brickwork had not been stabilised following high concentrations of hydrochloric acid by use of a neutralising agent.

11. Not entirely satisfied with that report, the Applicant then engaged *Sharp and Howells Pty Ltd*, chemical laboratories, to undertake a chemical analysis of the composition of the mortar. This was undertaken by sampling both the unstained grey coloured mortar compared to the stained yellow coloured mortar. Surprisingly, the analysis revealed that the composition of both samples was approximately the same.

12. Nevertheless, according to that report, there was evidence of poor brick cleaning practices, which included excessive use of hydrochloric acid, coupled with a lack of neutralisation. It was thought that these factors were the more likely cause of variations in the colour of the mortar. This conclusion was based on a finding that the samples of mortar contained excessive levels of residual chloride. The report concluded that this indicated that either an excessive amount of hydrochloric acid had been used or there had been a failure to adequately wash the brickwork after the acid solution had been applied; or alternatively, neutralise the brickwork.

13. With that report in hand, the Applicant forwarded a letter of demand to the Respondent requesting him to compensate the Applicant for losses incurred. Those losses included the cost of having the brickwork mortar infused with a *Nawkaw* colouring process, in order to make the mortar colour consistent.

14. Ultimately, no resolution could be reached between the parties, which then led to the Applicant initiating this proceeding.

THE EVIDENCE

15. Three experts appeared and gave opinion evidence during the hearing of the proceeding. Mr John Franceschini, a director of *Sharp and Howells Pty Ltd*, the industrial chemist who jointly prepared the report relied upon by the Applicant, gave evidence on its behalf. Mr Sibrand Ubels, an industrial chemist and the principal of *Acid-Free Cement & Brick Cleaning Company Pty Ltd*, prepared a report and gave evidence on behalf of the Respondent. Mr Andrew Morrison of *Building and Stone Matters*, and a contractor with more than 20 years experience in the brick cleaning business, also prepared a report and gave evidence on behalf the Respondent. Each of the experts adopted their reports as their

evidence in the proceeding and supplemented those reports with further oral evidence. What follows is a summary of the relevant aspects of each expert's opinion evidence.

Mr Franceschini

16. Mr Franceschini opined that his chemical analysis of the two categories of mortar samples revealed excessively high residual chloride levels. In his supplementary report dated 6 September 2017, he stated:

> 2) We report residual brick cleaning acid residues as 910 ppm and 850 ppm.
>
> The normal range for efficient brick cleaning practice has been found to be in the 100-500 ppm range.
>
> Anything above this and heading towards to 1000 ppm is considered "high" and is often associated with deterioration of the mortar joints.
>
> In some cases this has also been found to lead to discolouration of the mortar and staining of the bricks.
>
> 3) Our test results confirm that colour variation in the mortar were NOT due to batch variations.
>
> …

17. During his oral evidence, Mr Franceschini conceded that he was not absolutely certain why some of the mortar joints were affected by yellow staining while others were not, having regard to the fact that whole sections of wall had been acid washed at the one time. He suspected that the yellow staining was indicative of iron chloride staining. He said that this is produced when iron oxide is exposed to hydrochloric acid. When asked why the yellow staining was *patchy*, he opined that this may have been because the iron oxide particles, which naturally occur in the mortar mixture, may have been at different rates of oxidation, so that some of the iron oxide particles react to the acid producing the yellow stain while other particles are more tolerant and resist staining.

18. However, Mr Franceschini conceded that no laboratory testing was undertaken to establish what the yellow staining actually was. His opinion was based upon an educated deduction.

19. Mr Franceschini concluded that the high levels of chloride residue were indicative of either too much acid being used or alternatively, leaving the acid solution on the face brickwork for too long a period before washing it off.

Mr Ubels

20. Mr Ubels concluded that it was unlikely that excessive acid would have caused the yellow staining of the mortar. At worst, excessive acid would have caused acid burning, which he opined was easily removed with a chemical treatment at minimal cost. He also disagreed with Mr

Franceschini's opinion that the residual chloride levels were too high. He opined they were well within normal parameters of a project where the brickwork was *dirty* and the mortar *hard.*

21. He concluded that the discolouration was caused by efflorescence due to the bricks being exposed to excessive water during construction and that the acid wash may have revealed the staining that was not apparent prior to that process being undertaken. In his report, he stated that there was no scientific or clinical proof that light coats of hydrochloric acid could change the colour of mortar. He suggested that, at worst, acid-based cleaning might bleach mortar somewhat but it would not change the colour and texture of mortar, as shown in the various photographs tendered in evidence.

22. In Mr Ubels' opinion, the acid washing undertaken by the Respondent was not the cause of the mortar colour and texture changing and that in all likelihood, the variation was due to either variances in the batches of mortar mix prepared by the bricklayer, or allowing the brickwork to become over-wet during construction.

23. Mr Ubels further opined that the extra applications of acid solution required to clean the brickwork was not extraordinary, given the condition of the brickwork. He said that the use of a plasticiser in the mortar mix, in order to give the mortar more plasticity for ease of application, resulted in the mortar curing into a harder cement, with greater adhesive properties. This necessitated a more vigorous brick cleaning process, such as additional applications of acid solution, mechanical scrubbing and high-pressure water spraying.

Mr Morrison

24. Mr Morrison opined that the difference in mortar colour was due to batch differences in the mortar mix prepared by the bricklayer. He disagreed with the conclusions reached by Mr Franceschini, that the exposure to acid caused the yellow staining. In particular, he pointed to the results of Mr Franceschini's chemical analysis, which showed that the sample of mortar with yellow staining had less chloride residue than the unstained grey mortar sample. This, he said, disproved that excessive acid was the problem.

25. Mr Morrison believed that the brickwork had not been excessively cleaned as there was no damage visible to any of the brickwork face.

LAY EVIDENCE

The Respondent

26. Further evidence was given by the Respondent. Critically, the Respondent said that when he visited the site after being advised of the mortar staining, he observed that there was a section of wall belonging to Unit 1 at the boundary side of its garage. He said that section of wall

had not been cleaned by him. However, the first 10 to 15 courses of brickwork had significant yellow staining in the mortar, whereas the mortar above had retained its grey colour.

27. He also confirmed that the condition of the brickwork was *dirty* and that this required four applications of acid solution, as opposed to normally only requiring two. He said that he also used high-pressure water, applied via fan spraying, and some mechanical rubbing in order to clean the brickwork. He said that he washed the acid solution off the brickwork after 4 ½ minutes from application.[1] He contended that he was unaware of any yellow staining after he completed the work and first became aware of complaints many months afterwards.

Mr Phillips

28. Mr Phillips, the director of the Applicant also gave lay evidence. Although he was not directly involved in the project on a day by day basis, he gave observational evidence of the mortar staining.

29. Mr Phillips referred to a number photographs which were produced electronically. Those photographs depicted the staining of the brickwork on various walls. Although it is difficult to accurately discern the state of building works through photographic evidence, I note that the photographs showed both what I describe as yellow staining of the mortar and light grey or white staining of the mortar.

30. Mr Franceschini was asked about the white staining of the mortar. He concluded that, in all likelihood, it was efflorescence, caused by over wetting of the brickwork.

FINDINGS

31. It is difficult to form a definitive view, given the differing expert evidence. In particular, despite the experts giving their evidence concurrently and despite there being robust discussion between them during the course of the hearing, there was no consensus as to what caused the yellow staining of the mortar.

32. In my view, the experts' opinions are not conclusive. In particular, Mr Franceschini conceded that he did not chemically test the yellow stain and that his opinion was based upon an educated deduction that there was some chemical reaction occurring between the acid solution and the iron oxide within the mortar mix.

33. However, that fact alone does not persuade me that the yellow staining of the mortar was caused by the Respondent having breached its contractual obligations. In particular, the fact that the brickwork required two additional applications of acid solution does not adequately explain why some of the mortar was affected by yellow staining, while other

[1] Mr Phillips conceded that the recommended time after which the acid solution was to be rinsed off the brickwork was between three and six minutes after application.

parts within the same mortar bed and immediately adjacent, either had no staining or appeared to have light grey discolouration. Importantly, that light grey discolouration was not explicable by reference to Mr Franceschini's theory of differing rates of oxidation of iron oxide particles.

34. Further, Mr Ubels said that the benchmark for reasonable amounts of residue chloride advanced by Mr Franceschini may not be accurate. In particular, he suggested that Mr Franceschini's practice predominately involved testing *soft* mortar, in which case it would be more than likely the case that very little acid was used in order to clean that brickwork. However in the present case, there was no choice but to apply additional applications of acid solution in order to clean the brickwork, given its *dirty* and *hard* state. On that basis, he opined that the residual chloride levels were not extraordinary.

35. As already noted, a further complicating factor is the appearance of the light grey or, what the experts have referred to as, *white staining*. Indeed, the electronic photographs produced by Mr Phillips predominately showed white staining, as opposed to the yellow staining. According to Mr Ubels, this was symptomatic of the brickwork being allowed to become over-wet during construction. Indeed, reference was made to various photographs produced during the course of the hearing which showed brickwork partially completed but not capped, thus allowing water to enter the cavity of the brickwork. According to Mr Ubels, over-wetting the brickwork could lead to efflorescent staining.

36. I further note, that Mr Phillips acknowledged that some of the yellow staining was caused by differences in mortar batches, which he conceded was not the responsibility of the Respondent. How much of the yellow staining was attributed to mortar batches is unclear, although it would appear to be limited to very small sections of the brickwork. Nevertheless, I regard this as a further complicating factor.

37. Ultimately, I am influenced by the lay evidence given by the Respondent – that he visited the site after being informed of the yellow staining and noticed that yellow staining had also occurred to areas where he had not cleaned the brickwork. No evidence was led by the Applicant to rebut that evidence or to provide some explanation as to that anomaly.

38. Given the conflicting expert opinion evidence, coupled with the lay evidence of the Respondent, I am unable to find, on the balance of probabilities, that the yellow staining was caused by the brick cleaning process adopted by the Respondent. This is the case even if I accept that a slightly higher ratio of acid to water mixture was used than what is recommended by the CSIRO and that more applications of the acid and water mixture were required in order to achieve clean brickwork.

39. Further, according to Mr Franceschini, the fact that the brickwork was not neutralised after the cleaning process had been undertaken, may have

contributed to the yellow staining. Even if I accepted that to be the case, I do not find that the Respondent was contractually obligated to undertake that work. There is nothing in the *Purchase Order* which specifically states that the brickwork is to be neutralised after the cleaning process has been undertaken. Further, when this issue was raised by the Respondent, the Applicant did not respond but left the matter hanging. In those circumstances, I am of the view that the scope of work under the *Purchase Order* did not go so far as to require neutralisation of the brickwork. To the extent that this was a contributing factor, I find that the Respondent is not responsible.

40. Ultimately, I am not persuaded, on the balance of probabilities, that the work which the Respondent *was contracted* to perform can be said to have caused the staining of the mortar. As I have already observed, my view based on a number of factors.

41. First, the expert evidence suggests multiple causes, which, given the diverging and conflicting views expressed by the experts, makes it difficult to determine which of those causes are more probable than the other. Second, observational lay evidence indicates that areas which were not cleaned by the Respondent also suffered from mortar staining, which is inconsistent with the brick cleaning causing the staining. Third, I do not find that the Respondent was contractually obligated to 'neutralise' the hydrochloric acid used to clean the bricks. Although the expert opinion is equivocal as to whether this had any real effect, at least on one view, the failure to 'neutralise' may have also contributed to mortar staining.

42. Therefore, I find the Applicant's claim unproven.

E. RIEGLER
SENIOR MEMBER