VICTORIAN CIVIL AND ADMINISTRATIVE TRIBUNAL

CIVIL DIVISION

BUILDING AND PROPERTY LIST VCAT REFERENCE NO. BP1470/2016

CATCHWORDS

Domestic building: failure of timber floor and other minor defects alleged; allegation of edge bonding; owners had engaged builder and floorers separately; owners' case against builder in respect of floor fails: owners case against floorers in respect of floor fails; owners succeeds on minor claims regarding vents and squeaking floor.

FIRST APPLICANT	Mr Carmine Polzella
SECOND APPLICANT	Teresa Francesca Polzella
FIRST RESPONDENT	Govern Constructions Pty Ltd (ACN: 148 949 204)
SECOND RESPONDENT	Seong Ho Roh ABN 12 843 831 781 t/as ROH Floor
THIRD RESPONDENT	Mee-Hye Roh ABN: 12 843 831 781 t/as ROH Floor
WHERE HELD	Melbourne
BEFORE	Member C Edquist
HEARING TYPE	Hearing
DATE OF HEARING	2, 3 and 4 May, 7 and 8 June, and 18 July 2018
DATE OF ORDER	30 October 2018
CITATION	Polzella v Govern Constructions Pty Ltd (Building and Property) [2018] VCAT 1675

ORDER

1. The first respondent must pay to the applicants damages in the sum of $2,495.
2. Interest is reserved. The applicants are given leave to make an application for interest within 60 days. The application can be by way of written submissions, or at any costs' hearing.
3. Costs are reserved. Each party has leave to apply for costs against any other party within 60 days. The Principal Registrar is directed to refer any application for costs to Member Edquist for directions.

4. The issue of reimbursement of fees under s 115B of the *Victorian Civil and Administrative Tribunal Act 1998* is reserved. Each party has leave to apply for reimbursement of fees against any other party within 60 days. The Principal Registrar is directed to refer any application for reimbursement of fees to Member Edquist for directions.

C Edquist
Member

APPEARANCES:

For the applicants:	Mr N. Andreou of Counsel
For the first respondent:	Mr P. Leung, in person
For the second and third respondents	Mr J Silver of Counsel

REASONS

INTRODUCTION

1 Mr Carmine Polzella and Teresa Francesca Polzella own a house in Dorking Road Box Hill. In 2013 they renovated part of the house. As part of the project they replaced the floor in some existing rooms, and constructed a new floor in the extension. At the heart of this case is the fact that a number of boards in the new flooring have split. There are other defects in the house in respect of which claims are made, but by far the most significant question in financial terms is who, if anyone, is responsible for the failure of the new flooring.

2 The protagonists, apart from the owners, are Govern Constructions Pty Ltd ("**the builder**"), who undertook the extension project for the owners as builder under a major domestic building contract, and Seong Ho Roh and Mee-Hye Roh, who operate the floor sanding business that undertook the sanding and sealing of the floor ("**the floorers**"). The owners engaged the floorers directly.

3 The owners presented their case regarding the floor on the basis that liability for the failure of the floor was a foregone conclusion, and that the substantive issue to be determined was the extent of liability to be borne respectively by the builder and the floorers. The builder says that it did nothing wrong, and attempts to deflect liability to the floorers. The floorers dispute that they breached their contract with the owners.

The hearing

4 The hearing came on before me on 2, 3 and 4 May, 7 and 8 June and 18 July 2018. Before the hearing resumed on 7 June 2018, there was a site inspection at the house. On each day of the hearing the applicants were represented by Mr Andreou of Counsel, the builder was represented by its director Mr P Leung, and the floorers were represented by Mr J Silver of Counsel.

5 The owners called as their expert witness Mr John Hay. The builder relied on Mr Nick Barnes as its expert. The floorers called as their expert Mr Brett Scarpella.

Agreed facts

6 A feature of the case is the extent to which the underlying facts were agreed. It was common ground that the new flooring was installed in the rumpus room, the family room, the kitchen, bedroom 4 and bedroom 5.

7 The newly constructed floor was made of Tasmanian Oak "select grade" 85 mm x 19 mm boards. The floor area was 120 m². The method of construction was that the boards were glued to the underlying kiln dried hardwood joists using Bostik Ultraset Polyurethane adhesive, and then nailed using T-nails.

8 There is some agreement about the chronology, namely:

(a) the contract works, including the flooring, were completed in early November 2013;

(b) the floorers provided a quote in August 2013, but delayed commencement at the owners' request, and worked from 2 to 9 November.

(c) the Certificate of Final Inspection was issued on 18 November 2013 (TB 154);

(d) in or about October 2014 the owners began to notice signs of splitting damage to the flooring.

9 After the boards had been sanded, they were coated with a polyurethane protective coating. There is a dispute between the owners and Mr Roh as to the type of coating used. However, there is agreement that the first coat was mixed with tint to meet the owners' requirement that the new floor should match the existing floor, which was about 65 years old.

10 The owners' case is premised on the proposition that both the builder and the floorers were carrying out domestic building work within the meaning of the *Domestic Building Contracts Act 1995*, and accordingly the warranties implied by s 8 of that Act apply to their respective contracts. Neither the builder nor the floorers contested that their contract was subject to the *Domestic Building Contracts Act*.

Order in which the defects will be dealt with

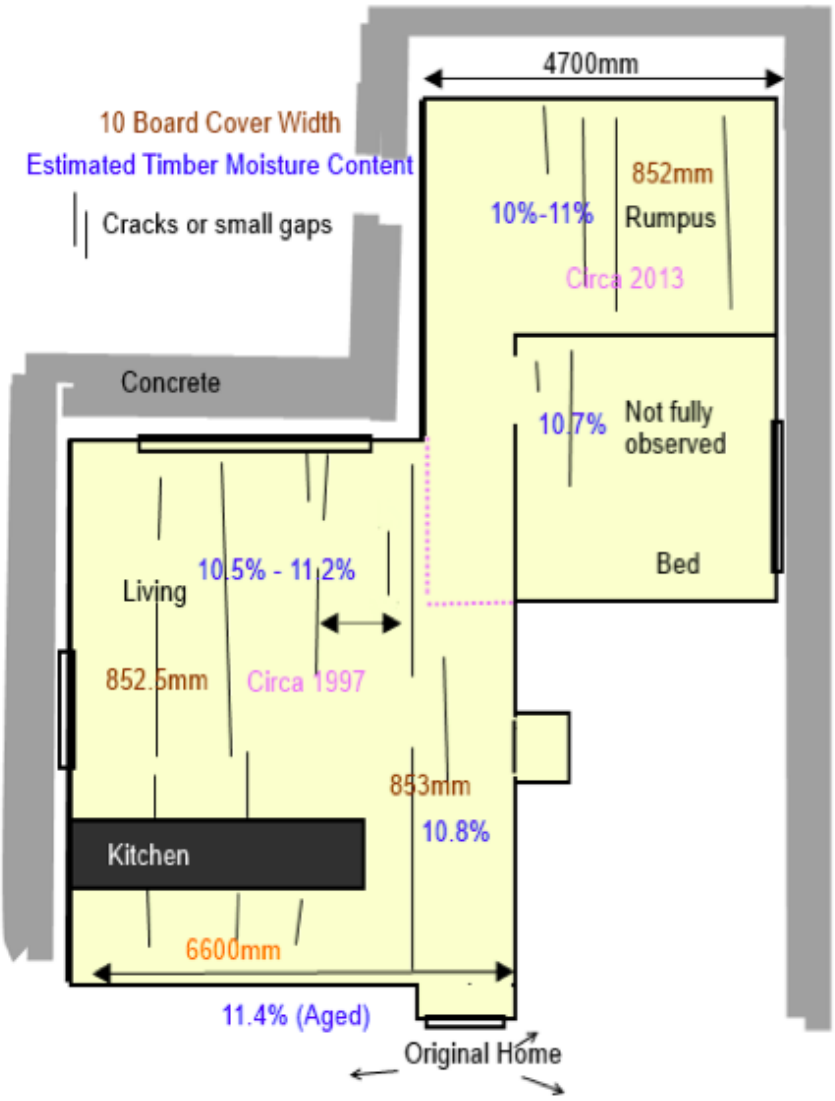
11 As noted, the failure of the floor is in economic terms by far and away the most important issue. For this reason, it will be dealt with first. The other defects complained of included allegations of a failure to properly ventilate the subfloor, floor creaking, nailing the floorboards with large "T" nails, a gap between the kitchen flooring and cupboards, a failure to install expansion joints in the floor in the rumpus room, and the use of compressible packers between some bearers and stumps, and the height of some packers.

THE FAILURE OF THE FLOOR

12 The owners describe the area of the failed floor in their opening submissions in the following terms:

> [22] Approximately 30 floorboards have split and cracked (TB 205), such splitting and cracking occurring randomly every 400mm-1000mm / every 5-11 boards (TB 229), observed throughout the entire house including the rumpus room, dining room, kitchen and bedrooms. (TB 156, 187, 242[10], 229,). A diagram of the observable splits and cracks can be seen at part 4.0 of the ATFA Inspection Report (TB 201).

13 The layout of the floor, showing where the cracking has occurred is set out in a sketch contained in the Australian Timber Flooring Association **("ATFA")** report prepared by Mr Scarpella. It is reproduced below.



14 After the site inspection Mr Hay used Mr Scarpella's sketch to mark the location of further cracks that he had identified. The marked up sketch was tendered. Mr Hay counted 46 splits, which is more than he had identified at an earlier inspection, and more than the 32 counted by Mr Scarpella. This suggests the process of board splitting is continuing.

15 As the extent of cracking is not in issue, it is not necessary to refer to the observations concerning the cracking made by Mr Salvatore Mammone in his Inspect Direct report dated 29 January 2015, or by Mr Bruce Grahame in his Victorian Building Authority report dated 24 March 2017. Both reports were tendered, even though neither Mr Mammone or Mr Graham were called.

16 The owners go on to describe the failure of the floor in their opening submissions in these terms:

> [23] The crack lines propagate along the length of the top shoulder of the groove side of floorboards (TB 242[10], 243[13], 216). The crack lines in each room run approximately the total width of the room in an east west direction. Cracks are greater than 2mm in width for more than 1m in length in many places (TB 187).

> [24] Splitting has also been observed along the bottom section of the groove profile. This has resulted in the total separation of connections between boards. This means there is no support within the span between joists and therefore deflection can occur with loss of structural integrity (TB 268).
>
> …
>
> [26] The splits present a very poor aesthetic appearance which would deteriorate further if a worsening of the effect was to occur (TB 209).

Is the floor defective?

17 The owners, relying on Mr Hay, contend the floor is defective because of the cracking in the family room, the rumpus room, the kitchen and bedrooms 4 and 5. They say the cracked floors need to be replaced.

18 Mr Barnes inspected the house on 18 September 2017. In his report, he refers to measurements he had taken to detail the splits and gaps throughout the floor. He states that the splits and gaps appear randomly throughout the floor surface, appearing from 400 mm -1 m centres. The gaps between boards ranged from 1.37 mm to 1.94 mm. He quotes the Victorian Building Authority Guide to Standards and Tolerances 2015 ("**the VBA Guide**") at paragraph 14.03 which states:

> Except when affected by exposure to sunlight, cooling, heating or other heat generating appliances, flooring is defective if it has gaps of more than 2 mm between adjacent boards that extend for more than 1 m, or more than 5 mm in total of three gaps between four consecutive boards.

19 Mr Barnes opines that the gaps fall within an acceptable tolerance, and the gaps alone are not considered a defect.

20 The splits in the boards range from 1.4 mm to 1.52 mm. Mr Barnes generally accepts that the split boards "are considered a defect and require replacement"[1] and that they ought to be removed and replaced. However, Mr Barnes opines that the splits surrounding the ducted heating vent are not considered defective, as they are a result of the drying out the floor by a heat source. He quotes paragraph 14.01 the VBA Guide in support of this view.

Edge bonding?

21 That edge bonding was the cause of the floor failure was suggested by Mr Hay in his report dated 22 September 2017. He had inspected the house on 3 February 2017.[2] Mr Hay summarised his findings in the conclusion of his report in these terms, at [20]:

> Findings of this inspection indicate the floor post installation was subjected to lateral movement (slight shrinkage) combined with the application of a polyurethane protective coating [that] has created the present appearance of the floorboard. This is due [to] the combination of the timber movement and the holding capacity of the protective coating restricting the natural

[1] Barnes report, tendered as Exhibit R 3, page 9.
[2] Hay first report, tendered as Exhibit 6.1.

> movement, resulting in timber fibre splitting along the top section of the groove profile and other areas on the face in a large percentage of floorboards throughout the renovated area of the dwelling. This has resulted in an unacceptable floor which is generally known as Edge Bonding.

22 Mr Barnes, in his report, confirms:

> It is noted that the gaps and splits appear randomly throughout the floor, the gaps are not even between each board but appear between sections of flooring, this is a result of what is called edge bonding.[3]

23 Only Mr Scarpella raises a question as to whether edge bonding had occurred. In his report dated 25 June 2017, he opines [4]:

> It is considered that the effects observed during the inspection of this floor are directly related to moisture variance post installation. It is also noted that the affects (sic) observed throughout the installation are similar in appearance to edge-bonding, however by definition *"edge-bonding is (or other synonyms) is said to occur when a strip timber floor undergoes a high degree of shrinkage and is restrained from uniform variance by the strong restraining action of certain types of coatings and/or adhesives that have entered the inter—board gaps with a strong adhesion or gluing action. The result is large, widespread and aesthetically displeasing intermittent gaps or occasionally split timbers".* However, during inspection there was no high level shrinkage observed, no significant gapping apparent, or any other evidence of the high level lateral pressure event that would be required to split or "edge bond" a 19mm floorboard. (Sic)

24 Mr Scarpella confirms this conclusion in the final section of his report when he says:

> Following visual inspection, measurement, and reported details… it was considered that the main concerns presented with the flooring installation at this site (cracking /splitting) were related to marginal moisture variation pre-and post installation. Observations also suggest that the current floor condition cannot be attributable solely to *an edge bonding failure* due to a lack of associated effects and contributing factors.[5]

Finding regarding existence of edge bonding

25 A description of edge bonding is given in AS4786.2-2005, Timber flooring, Part 2: Sanding finishing, where at [A2.4] the following statement appears:

> Timber flooring will expand and contract with seasonal changes in moisture content. Some floor finishes can create a very strong bond between timber surfaces. When such a finish (used to coat the floor) penetrates into the joints of adjacent boards, a bond is formed between the boards referred to as edge bonding. When shrinkage occurs in the timber, movement between otherwise dry-jointed timber is restricted, resulting in irregular movement between the boards.

[3] Barnes report, page 6.
[4] Scarpella report, tendered as Exhibit 2.1, at [6.0].
[5] Scarpella report at [8.0].

> Edge bonding usually presents as groups of four or five boards with no apparent gaps between them, and with a significant gap between each of the groups. This gap is the sum of the less noticeable gaps that would have occurred between each of the boards had the movement not been restricted. A uniform gap of 0.2 mm between each board in a floor not affected by edge bonding, presents as a 1.0 mm gap every five boards or so in an edge bonded floor. Effectively, the natural shrinkage is prevented from being spread over all the joints and a large gap appears at one spot to take up all the movement in the adjacent boards.
>
> In some cases, edge bonding can result in splitting of the boards when the strength of the bond exceeds the ability of the timber to resist splitting. Finishes that allow unrestricted natural movement of the timber flooring would therefore be preferable. Particular care should be taken in the choice of finish in situations where there is an expectation that a wide variation in environmental moisture will occur.

26 On the basis of the expert evidence of Mr Hay and Mr Barnes, and of my own observations at the inspection, I am satisfied that this definition of edge bonding has been satisfied. I note that the builder, in its written final submissions, accepts that this description of edge bonding "is 100% consistent with the appearance of the floor". [6]

27 The existence of edge bonding, however, is not determinative of liability.

Liability for the floor issues

The relevant contractual requirements

28 The owners tendered the contract, which was in the form of a MBA Home Improvement Contract, and was dated 15 April 2013. In their opening submissions, the owners summarised the contract in a manner that was not criticised by the builder. It is accordingly not controversial that the contract included (TB 388-408):

a) a specification ("**scope of works**");

b) Sheets 1- 4 by JK Building design dated 18 February 2013; and

c) drawings 1-14 by JK Building Design dated April 2010, subsequent revision F dated May 2013. ("**drawings"**)

29 It was also common ground that the scope of works included the laying of timber flooring, but not its sanding or coating.

30 The builder did not dispute that the drawings required timber to be stored and handled so as not to be detrimental to its performance.

The owners' case

31 The owners' case regarding the floor is centred on the related propositions that they are not experts, and that at all relevant times they relied on the expertise of

[6] Builder final submissions concerning owners' evidence, at [4].

the builder and the floorers. Mr Polzella, the only owner to give evidence, made these points repeatedly at the hearing.

32 The owners' primary argument is that the boards have split because of edge bonding "caused by lateral movement/shrinkage combined with the application of the polyurethane protective coating."[7] This argument is directly derived from Mr Hay's report.[8]

33 As to underlying causation, it is contended that "It is likely the floorboards were installed with a moisture content that was too high, and that the timber, after fixing, dried out and shrunk."[9] The owners say that the builder must take responsibility for fixing inadequately acclimatised floorboards as well as any issues with the manner of fixing the boards.

34 The builder's treatment of the timber prior to installation is criticised. The owners set the scene in their opening submissions by observing that timber flooring is normally supplied at an average moisture content of 10-12.5%. It is then highlighted that there are no records about the delivery date of the timber and its site storage prior to laying.[10]

35 The owners' submissions continued:

> The evidence of the Owner will be that the timber floorboards were delivered to site and stored in the garage, as a 'pack' that is, without space between the boards. Prior to being laid they were brought inside the house and exposed to the air for a period of approximately 1-2 days as they were being laid.[11]

36 The owners also rely, in pressing their claim against the builder, on the following statement extracted from Mr Scarpella's report:

> Boards were observed to demonstrate fairly consistent individual cover widths, predominantly marginally below the manufacturers specified cover width of 85mm, suggesting that marginal shrinkage is currently apparent. However collective 10 board cover widths observed between 852 mm and 853 mm suggest that the timber may likely have taken on moisture *prior to installation* which would have facilitated some "marginal expansion" in the boards.[12]

37 The owners go on to quote Mr Scarpella again:

> These collective 10 board measurements (inclusive of gaps) helps to predict the condition of the timber at the time of installation, which in this instance suggests that the boards at this site had likely experienced a marginal variation (expansion) in dimension from the manufacturer's specified width of 850mm (85mm per board) prior to the time of the timber flooring installation. In comparison the *individual board* measures …taken during

[7] Owners' opening submissions, paragraph 36.
[8] Hay first report, paragraph 20, page 7.
[9] Owners' opening submissions, paragraph 37.
[10] Owners' opening submissions at [25].
[11] Owners' Opening submissions at [15].
[12] Scarpella report, page 10, referred to by the owners in their submissions at paragraph 37.

> inspection were observed to demonstrate a marginal variation (shrinkage) in the majority of individual board cover widths…… When these observations are considered in combination with current estimated moisture contents, the data gathered supports a proposition that the subject flooring has likely increased marginally in timber moisture content and dimension *prior to install* and has re-adjusted (shrunk) to the present site/in-service condition *post installation*.[13]

38 The owners say the floorers are implicated because of the sealant they applied. As noted, they rely on Mr Hay in contending that the use of a polyurethane sealant contributed to the edge bonding. They also refer to Mr Barnes' report, where he states at [2B] "the coating is reported to be a two-pack polyurethane x 3 coats gloss finish". Mr Barnes later opines "Solvent based two pack polyurethane coating systems are considered more prone to edge bonding."[14]

The builder's defence

39 The builder's case, in a nutshell, is that it followed the contract regarding the creation of the floor.

Nailing

40 One aspect of the construction of the floor criticised by Mr Hay was the method of nailing. The builder dismisses this criticism. The issue is discussed below. For present purposes, the relevant point is that it is not contended by Mr Hay that the method of nailing the floor has contributed to the splitting.

Packing

41 Another aspect of the construction attacked by Mr Hay was the height of the packing inserted between the stumps and the bearers. It was conceded by the builder that in places the packing exceeded the 20 mm permitted by the VBA Guide. However, Mr Hay agreed that he could not say, without further testing, whether this issue had contributed to the splitting of the flooring.

42 The builder, at [8] of its final submissions, concedes that the packers are technically defective, but disputes that the packing has compromised the performance of the subfloor system or affected the splitting of the boards. In particular, the builder contends:

> If the packing has somehow compromised the structural integrity or performance of the subfloor system, then it would be clearly evident by bouncy floors or undulating levels or other issues, however none of these are present.

43 I accept the builder's argument, and find that the technical defect with the packing has not affected the structural integrity or performance of the subfloor system, and has not contributed to the splitting of the floorboards.

[13] Scarpella report, page 17 at [6.0], referred to by the owners in their opening submissions at paragraph 37.
[14] Barnes report, page 9 under "Conclusions to findings".

The builder's argument regarding edge bonding

44 The builder accepts Mr Hay's finding that the splitting and gapping in the timber floor is a result of edge bonding, and refers to Mr Barnes evidence in support of this view. The builder goes on to refer to the definition of edge bonding contained in AS 4786.2, referred to above at [25]. In doing so, the builder highlights that edge bonding occurs as a combination of timber shrinkage with the application of a finish capable of creating a very strong bond between timber surfaces if it penetrates into the joints between boards.

45 The builder seeks to divert attention away from its role in acclimatising and then fixing the boards, to the floorers' role in selecting and applying the sealant. The builder fleshes out its argument as follows:

> The conclusions provided my (sic) Mr Hay on page 246 TB make very conclusive statements that the present appearance of the flooring is a result of what is generally known as edge bonding. He specifically states that the coating has restricted the natural movement of the floorboards and as a result, splits in the timber fibre have occurred along the top section of the groove profile. The photos which follow in his report are all consistent with the description of edge bonding in the Australian standard. They are also consistent with the description and photos published in ATFA literature, again which highlights the defect of edge bonding as a coating related problem.[15]

46 The builder continues this attack as follows:

> It was established during the trial that the workmanship and finish to the floor that was completed by Mr Roh was satisfactory and done well. The issue is though, that he applied the solvent based polyurethane coating which has caused the edge bonding to occur. Accusations were initially made by Mr Rohs legal representation in their openings that the floor was installed with high moisture content, an accusation which was contradictory to their expert's report and proven by evidence to be nothing more than an attempt to deflect blame to me.[16] (Sic)

Mr Polzella's evidence

47 In the owners' summary of Mr Polzella's evidence in chief[17] it is unhelpfully said that the floorboards were delivered to the house in about "early August/September 2013." Mr Polzella's further evidence is that the floorboards were kept in the "open air" garage, in their sealed transport packs for approximately one week. They were moved into the house in or about late October 2013 when Mr Leung and a flooring subcontractor commenced laying them immediately. "That is, the floorboard (sic) were not left 'laying around' for any significant time before being laid." It took "approximately one week to lay all of the floorboards".[18]

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[15] Builder's final submissions concerning owners' evidence at [7].
[16] Builder's final submissions regarding floorers' evidence at [1].
[17] Contained in the owners' final submissions at [34-57].
[18] Owners' final submissions, paragraphs 36 - 38.

48 I consider this evidence to be internally inconsistent. If the floorboards were delivered to the site in early August or even in September 2013, they must have been kept in the garage for more than a week, or must have been taken into the house and left there for a number of weeks prior to being fixed in late October.

Mr Leung's evidence

49 The owners accurately recorded in their final submissions that Mr Leung, under cross-examination, had conceded that he had no records relating to the supply of the timber, and had no records of the moisture content of the timber when it was delivered.[19]

50 However, the absence of records is not to be equated with the absence of evidence. Although he had no record regarding the delivery of the floorboards of the site, Mr Leung gave evidence that they were delivered by Hazel & Hill on a flooring truck. The packs of boards were individually unloaded by hand. They were placed on the ground first, then in the garage. This process took a day.

51 Mr Leung conceded that he had not checked the moisture of the boards himself, but said that every pack of boards came with a certificate of moisture. The certificates said the moisture content was 12%. Mr Leung agreed he had not retained any of the certificates.

52 Mr Leung's evidence was that the boards were stored in the garage for only a day before they were taken into the house. In this respect his evidence is markedly different to that of Mr Polzella, who said the boards were left in the garage in their packs for about a week.

53 Mr Leung said that when the boards were taken into the house, they were laid loose over the joists. They were left there for four or five days before being fixed to the joists.

54 Mr Leung's evidence was that after this period he used a moisture meter to test the moisture content of seven or eight sample boards. From this testing process, he ascertained that the average moisture content was 12%. He conceded that he kept no records of the testing process. He also accepted that he had not kept a site diary.

Discussion

55 There is a clear conflict between Mr Polzella's evidence and Mr Leung's regarding the period the timber was stored in the garage, and later laid out in the house to acclimatise. I resolve the conflict by preferring Mr Leung's evidence to that of Mr Polzella.

56 I do this for the following reasons. Firstly, I have already remarked that Mr Polzella's evidence regarding the time of the delivery of the timber "in or about early August/September 2013", and then being left in the garage for approximately a week before being moved inside the house in late October 2013, is inconsistent.

[19] Owners' final submissions, paragraph 82.

57 Secondly, I note that in relation to another important matter, namely, the question of whether the floorboards had been laid when Mr Roh came to the house in order to prepare his quotation, Mr Polzella said that he was not sure whether the boards had been laid, as the event was "four years ago". On its face, this remark is understandable. Although I find it surprising that, once Mr Polzella realised that neither the builder nor the floorers were going to accept responsibility for the splitting of the floor, that he did not immediately create a detailed chronology of events, I accept that Mr Polzella at a hearing in 2018, in the absence of such a chronology, has difficulty in recalling critical facts and events in the second half of 2013.

58 On the other hand, Mr Leung did not suggest that his recollection was affected by the passing of time. His recollection did not appear to be hazy. Finally, Mr Leung was on the site every day and accordingly, in the normal run of things, would have had a better appreciation of what was occurring each day than Mr Polzella, who said he was coming to the site intermittently.

Should an adverse inference be drawn because the builder did not call its carpenter?

59 The owners make much of the fact that Mr Leung kept no record such as a site diary entry or contemporaneous email of the moisture content of the timber when it was delivered, and when it was laid.[20] It was highlighted that under cross-examination Mr Leung had been unable to say what the readings were.

60 The owners also note that Mr Leung failed to call the carpenter who had assisted him to lay the floor in order to confirm his evidence regarding the measurement of moisture readings after the floor boards were brought into the house and loose laid. It was contended by the owners that in circumstances where there was no documentary record of the moisture measurements, where the evidence given by Mr Leung was self-serving, and where there was no explanation given by him for not calling the carpenter, the Tribunal should draw an adverse inference against the builder under the principle established by *Jones v Dunkel*[21] to the effect that the carpenter's evidence would not have assisted the builder's case.

61 I decline the invitation to draw any such inference. Mr Leung gave evidence about the laying of the boards and the taking of the moisture readings. There was accordingly no gap in the builder's case on these issues. The builder was entitled to rely on Mr Leung's testimony, and is not to be criticised for making an election to confine its evidence to that testimony. Furthermore, there was no suggestion from either Mr Leung or Mr Polzella that the carpenter had observed closely when Mr Leung took the moisture readings, let alone that Mr Leung shared the moisture readings with the carpenter. To draw an adverse inference against the builder in these circumstances would be, in my view, be unfair to the builder.

[20] Owners final submissions at [154-155].
[21] (1959) 101 CLR 298.

The moisture content of the timber

62 As noted, owners' case regarding the floor was based on the proposition that "It is likely that the floorboards were installed with too high a moisture content and have since dried out and shrunk"[22]

63 It is not sufficient that the owners can show that there appears to have been marginal movement in the timber after it was laid. This is to be expected, in response to changes in moisture content, according to the evidence of both Mr Barnes and Mr Scarpella.

64 The principal difficulty facing the owners is that there is no direct evidence that the moisture content of the floorboards was unduly high at the time they were fixed.

65 Mr Hay's evidence on the matter was that he obtained moisture content readings using an Electrophysics Moisture Meter calibrated to Douglas Fir, but corrected for use in measuring Tasmanian Oak/Victorian Ash. He opines that timbers to be used for floor applications require moisture content of between 9% and 14% to be classified as seasoned, under AS 2798-1999. Random sampling throughout the floor areas indicated that moisture content was in the range between 10.75% and 12% i.e. they were well within the recommended range. Mr Hay says that this indicates that the floorboards had adjusted to the present environment and should be stable.[23]

66 It is to be noted that this is *not* evidence that the moisture content of the board was too high when they were laid.

67 The builder meets head on the owners' contention that the moisture content of the timber was likely to have been too high when it was laid, contending that Mr Barnes's evidence indicates that the moisture content of the flooring was correct at the time of installation.[24]

68 Reference to Mr Barnes report indicates that the measurements of moisture content of the flooring at his inspection (on 18 September 2017) were in the range 10%-11.1%. He opined "this is considered normal for this type of installation over bearers and joist (sic) taking into consideration the location of the property and season of year generally producing a higher relative humidity factor."[25]

69 Mr Barnes then noted that he had recorded measurements over 10 boards to provide an average cover width of the boards in the relevant six rooms, and considered that the measurements suggested the boards may have been machined to an average size of 85.2 mm. He opined that 85.2 mm appears to be consistent with an equalized moisture content range of 10%-11.1%, and concluded:

[22] See paragraph 33 above.
[23] Hay first report, paragraphs 5, 6 and 7.
[24] Builder's final submissions relating to the Barnes' report, paragraph 1.
[25] Barnes report, at 3C on page 4.

> It is unlikely the boards have increased in moisture to create the change in cover width from a standard 85 mm since gaps have appeared in the floor.[26]

70 The builder then turns his attention to Mr Scarpella's report. The builder focuses on the observation that no high-level shrinkage was observed, and that no significant gapping was present that would be required to split a 19 mm board. The builder said this confirms there had been correct moisture content at installation.[27]

71 Importantly, the floorers in their final submissions accept that Mr Scarpella's 10 board measurements confirmed "that the boards *were not installed* with an unacceptable level of extra moisture, as it was minimal, and not a concern."[28] This was, clearly, a significant concession, as in their opening submissions the floorers had flagged the following argument:

> It will be suggested that no verification of moisture content was conducted before the floor was installed, and that the timber should have been allowed more time (10 to 14 days) to acclimatise to the home before installation.[29]

Discussion

72 I have accepted at [55] above Mr Leung's evidence regarding the period for which the builder acclimatised the boards before fixing them, over that of Mr Polzella. Accordingly, I accept that the boards were acclimatised for four or five days before being fixed to the joists.

73 Both the builder and the floorers argue that the conclusion to be inferred from Mr Scarpella's 10 board measurements, taken together with the observation of minimal shrinkage, is that the boards did *not* have an unacceptable level of moisture at the time of installation.

74 As observed at [68] above, Mr Barnes measured the moisture content of the flooring at his inspection on 18 September 2017, in the range 10%-11.1%.[30]

75 Mr Scarpella, at his inspection on 22 June 2017, established the moisture content of the new timber in four new areas was in the range 10%-11%. In comparison, the moisture content of the original floor was 11.4%.[31] Mr Scarpella opined that the 10 board measurements he had taken suggested that the flooring had likely "increased marginally in timber moisture content and dimension *prior to install*" before re-adjusting and shrinking post installation.[32]

76 The owners urge that the Tribunal should treat with caution Mr Scarpella's "attempts to calculate the EMC of the timber as laid by reverse extrapolation of

[26] Barnes report page 5.
[27] Builders final submission concerning Mr Scarpella's evidence, paragraph 6.
[28] Floorers' closing submissions paragraphs 8 and 9.
[29] Floorers' opening submissions paragraph 18.
[30] Barnes report page 4.
[31] Scarpella report page 16.
[32] Scarpella report page 17.

the change of the timber width and comparing it with the presumed timber width at delivery (for which there was no evidence)."[33]

77 The owners can point to Mr Scarpella's assessment that the timber had taken on moisture "marginally" prior to installation and had since returned to a range of 10-11%. However, this does not advance their case, because at the hearing Mr Scarpella deposed that he thought the timber had lost 1% of moisture when returning to a content of 10 or 11%. Accordingly, Mr Scarpella agreed that to say that the timber was installed at 12% "makes perfect sense".

78 Mr Scarpella's findings are consistent with Mr Leung's evidence that he used a moisture meter to test the moisture content of 7 or 8 sample boards after they had been acclimatised by being loose laid, and ascertained that the average moisture content was 12%. I accept Mr Leung's evidence on this point.

Finding regards moisture content of boards at installation

79 The upshot is that I find that the timber was installed with an acceptable level of moisture. Accordingly, I reject the owners' argument that the builder contributed to the edge bonding by installing boards with an unacceptable level of moisture.

80 I now turn to the other issue that needs to be addressed in assessing the builder's liability for the floor, namely subfloor ventilation.

Subfloor ventilation issues

81 The owners complain about inadequate ventilation in the subfloor. They contend in their opening submissions:

> [27] Vents on the north and south walls have been installed in alignment with subfloor bearers. Furthermore the majority of vents contain evidence of brick mortar restricting the airflow to the subfloor of the extension (TB 266).
>
> [27] The subfloor construction has cut off airflow between the rumpus room and the remainder of the house, resulting in a restrictive airflow environment in the rumpus room (TB 267). The rumpus room subfloor is separated from the remainder of the subfloor by what is known as a "dwarf wall". The dwarf wall is the remaining 4-5 courses of bricks of the former external wall, now demolished to allow the rumpus room extension. The dwarf wall does not have any vents to allow the passage of air between the subfloor compartments.
>
> [29] Installation of insulation bats further restrict the timber's ability to adjust efficiently to daily and seasonal changes. When combined with the low levels of ventilation it is likely to facilitate an environment detrimental to the long term suitability of the timber (TB 212).
>
> [30] If the subfloor situation is not improved future repairs may be escalated to a more significant reinstatement/replacement program (TB 217). (Sic)

[33] Owners' final submissions at [124].

The evidence of the experts

82 The owners, of course, rely closely on Mr Hay's evidence. Mr Hay tendered a second report dated 3 March 2017 that dealt with the subfloor. At [5] he states that examination of the vents in the north and south walls show they had been installed in alignment with the subfloor bearers. They were therefore non-compliant with BCA clause 3.4.1.2.

83 Furthermore, he finds the majority of vents contained brick mortar resulting in restricted airflow.

84 Mr Hay's report also supports the owners' contention that during the construction of the extension, the original rear brick wall had been demolished down to the floor line, but the original brickwork had been left, creating a dwarf wall. The "dwarf wall clearance of the floor line has been replaced by subfloor membrane (and insulation)". This further limited airflow in the subfloor.[34]

85 Mr Barnes does not address the ventilation issues in his report. However, at the hearing, he deposed that "there are no moisture issues in the subfloor. The ventilation does not comply but it's not consequential.

86 Mr Scarpella, however, notes that subfloor ventilation to the two extended areas appears to be limited by the number of vents present, and their effectiveness. Observable vents were affected by bearers being blocked by insulation batts fitted between the floor joists.

The owner's submission about subfloor ventilation and its relationship to the failed floor

87 The owners firstly submit that:

> …the inadequate subfloor ventilation is a contributing cause of the inability of the flooring to reach a moisture equilibrium with its surrounding environment, which has caused cracking.[35]

88 The owners go on to suggest that the subfloor ventilation issues are more important than the moisture content of the timber at the time of installation[36], but do not refer to the evidence which justifies this assertion. I make no finding about this particular issue.

The builder's response

89 The builder addresses the subfloor ventilation issues in its final submissions, contending:

> Although the vents may be installed one brick course too high, there has been no factual or conclusive evidence provided by any parties showing that this has somehow caused or contributed to the edge bonding defect. If

[34] Hay second report at [7].
[35] Owners' final submission, at [151].
[36] Owners' final submission, at [152].

> there were ventilation issues we would have observed much different problems with the flooring.[37]

90 The builder goes on to observe that the vents are isolated to one section of the house, yet the boards are split everywhere. It is also noted that the moisture content of the floorboards is consistent throughout the house.

91 When responding to Mr Scarpella's criticisms of the subfloor ventilation, the builder suggests:

> …if there was a detrimental effect on the subfloor or the flooring as a result of poor ventilation, then we would be witnessing expansion issues, varying moisture content within the floor boards and different cover width of the boards, but the floor is consistent throughout the entire dwelling.[38]

Finding regarding the effect of vents on the flooring

92 I think these points are well made, and accept that the evidence suggests that the issues with the vents have not affected the flooring.

93 However, there is a second reason why I consider issues with the subfloor ventilation are not a basis to attribute liability for the cracking of the floor to the builder. This is that there are a range of causes of the ventilation issues.

Multiple causes of the subfloor ventilation problems

94 The owners appear to proceed on the premise that there is a single cause of the failure of the subfloor ventilation which is the builder's responsibility.

95 I consider that this proposition is false because, although the builder must clearly accept responsibility for ventilation problems caused by the placement of subfloor vents against bearers, or caused by the presence of mortar inside the vents, the owners must accept responsibility for whatever contribution the placing of insulation batts between the floor bearers had. The key point here is that the batts were installed at the insistence of the owner.

96 Under cross-examination, Mr Polzella conceded that he had prepared the specification, and had done so without any technical assistance, other than that obtained through Google. The effect of the batts on the floorboards is, in the contractual sense, an issue for the owners.

97 The owners assert that Mr Scarpella accepted that the presence of the batts was necessary to achieve the required energy rating for the house.[39] This is true, as Mr Scarpella stated that he did not like batts being installed (under floors) but conceded "if you want an energy rating you have no choice." However, this concession does not transfer contractual responsibility for the decision to install batts away from the owners to the builder.

98 Relevantly, Mr Scarpella opines that the batts:

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[37] The builder's final submissions concerning the owner's evidence, at [8].
[38] The builder's final submissions concerning the floorer's evidence, at [5].
[39] Owners' final submissions at [134].

> …will affect the timbers ability to equalise or adjust efficiently to the natural variation facilitated by daily and seasonal change.[40]

99 I accept Mr Scarpella's opinion on this point, as it was unchallenged by the other experts, and the owners adopted it, as is apparent from their opening submissions at [29]. I accordingly find that the batts affected the floorboards' ability to adjust to changes in environmental moisture.

100 I note that the photographs appended to Mr Scarpella's report at page 15 show insulation batts completely covering the underside of the floorboards between bearers. If insulation batts have been consistently installed in this manner under the entire new floor, then the inability of the floorboards to adjust to changes in environmental moisture, which has been established by the evidence of Mr Scarpella, could be expected to have been present throughout, irrespective of the adequacy or inadequacy of the subfloor ventilation available through the vents.

101 I consider it quite possible that the placement of the batts between the bearers is a more significant factor in retarding the ability of the boards to adjust to daily and seasonal changes in moisture than the partial blocking of an unspecified number of vents by subfloor bearers or the partial blocking of an unspecified number of vents by the presence of mortar. There was no precise evidence about these matters from Mr Hay. Mr Scarpella suggests that the effectiveness of the vents was affected by bearers and insulation batts, but does not mention mortar. Like Mr Hay, he does not attempt any apportionment between the respective causes of the failure of the sub floor ventilation.

Findings regarding subfloor ventilation issues

102 In circumstances where there is no obvious nexus between the location of the vents and the splitting of the floorboards, there is no basis for me to find that the issues with the vents are causative of the failure of the floor.

103 On the other hand, I have found, at [99], that the batts have affected the floorboards' ability to adjust to changes in environmental moisture. For the reason explained, the placing of the batts is in the contractual sense a matter for which the owners must take responsibility.

104 For these reasons, I find against the owners on the question of whether the subfloor ventilation issues caused by the builder contributed to the splitting of the flooring.

Summary

105 As I have resolved against the owner the question of whether the sub floor ventilation issues caused by the builder contributed to the failure of the floor, all the relevant arguments regarding the builder's liability have been addressed. The owners' claim against the builder in respect of the splitting of the flooring fails.

[40] Scarpella final report, page 15.

Liability of the floorers

106 The weakness of the owners' case against the floorers is apparent from the owners' opening submissions, when they discuss the complex causes of edge bonding. The relevant passages are as follows:

> [41] The type of surface coating used is not the sole cause of edge-bonding (TB 544). According to a Polycure technical bulletin issued 12 November 2014 (TB 545), three factors must be present for a coating influenced failure to occur:
>
> a) timber that demonstrates a very high rate of shrinkage: a large dimensional change over a short period of time usually where moisture levels are ignored;
>
> b) gaps between boards: to glue an edge, coating must come into contact with that edge (opened) or poorly machined or loose T & G joints (causing "pooling" of coating); and
>
> c) a coating with low stretch, and high strength properties.
>
> [42] There are twelve potential contributing variables to edge-bonding including construction technique of foundation, bearers and joists, nail type and frequency, nailing techniques and moisture levels of timber at installation (TB 541).
>
> [43] The 12 November 2014 Polycure bulletin states that only a fraction of a percentage of Polycure products have resulted in timber failure, in a sample of 10,000 projects each year for twenty years. The bulletin states that edge bonding is therefore more likely to be the result of inadequate processing or incorrectly installed timber (TB 551).

107 The weakness of the owner's case against the floorers came into sharp relief when, under cross-examination by the floorer's counsel, Mr Hay conceded that he could identify nothing wrong with the manner in which Mr Roh had performed his work. Mr Hay also conceded that he could not identify a guideline that recommended against the use of polyurethane as a sealant, and agreed that he was not contending that it ought to be banned.

108 In their final submissions, the owners sought to rectify the weakness in their own evidence against the floorers by referring to concessions made by Mr Scarpella in evidence.[41] Mr Scarpella deposed that he was the author of the Wood Flooring Association Technical Data Sheet ("**WFA Data Sheet**") which was put to him in evidence. Although the document is some years old, he confirmed that he still stood by its contents.

109 Relevantly, the WFA Data Sheet set out a number of steps a floor sander could take to prevent edge bonding when using polyurethanes. The recommended precautionary measures included always checking the moisture content at equilibrium level (**"EMC"**) of the strip timber joints, obtaining a certificate of moisture content from the builder, if available, and, if the timber was stored on site for any period prior to laying, checking the weather bureau records to see

[41] Owners' submissions at [160-161].

whether it had rained over that period. Also, immediately after making the observation that moisture content in the timber at the time of sanding should be about 12%, it was suggested that possession of a moisture meter was essential.

110 The recommendations in the WFA Data Sheet are consistent with the recommendation contained on the tendered label of Durapol 1045 Super Gloss that the user should be satisfied that the timber has been properly acclimatised and reached an EMC of 10-14% before applying the coating.

Discussion of evidence relevant to the WFA recommendations

111 Even if I were to accept the WFA recommendations as precautions that a prudent floor sander ought to take before undertaking the sanding and sealing of a Tasmanian Oak floor, I do not think the owners have established their case.

112 I think the criticism of Mr Roh that he failed to obtain from the builder a certificate of moisture content is not justified. In the first place, Mr Roh had no contractual relationship with the builder. Secondly, the evidence is that the builder himself did not keep the relevant records, and accordingly, even if Mr Roh had asked for the records, he would have received nothing.

113 Furthermore, the complaint that Mr Roh did not check with the weather bureau regarding rainfall events during the period in which the timber was on-site is not justified, in my view. The owners refer in their submissions to the garage being "open-air".[1] This comment does not accord with my observation at the site inspection. The garage was not a carport, but was a normal enclosed garage with a roof, walls, and closable front and back openings. Any criticism by the owners that the floorers failed to check whether rain had fallen at the site during the period that the timber had been stored is unfounded, in my view, as the evidence is that the timber was stored in its delivery packaging in a roofed and substantially enclosed garage.

114 As to the final point, it is conceded by Mr Roh that he did not own a moisture meter and had not checked the EMC of the timber before sanding it. However, there is no evidence that he had done so he would have found that the timber had an EMC higher than 12%.

115 I have accepted, at [78] above, Mr Leung's evidence that he used a moisture meter to test the moisture content of seven or eight sample boards after they had been acclimatised, and ascertained that their average moisture content was 12%.

Conclusion

116 On the basis of this, and the other matters discussed at [72-80] above, I cannot be satisfied that the moisture level of the timber at the time of installation was higher than 12%, and accordingly the owners' contention that the floorers were in breach of their contract because Mr Roh did not establish the EMC of the timber prior to sanding and sealing it, takes them nowhere. The owners have not established any link between the failure to measure the EMC and any loss or

damage flowing from that failure.[42] The fact that Mr Roh did not possess a moisture meter is, for the same reason, irrelevant.

The floorers' defence

117 The floorers' primary defence is that the edge bonding and the shrinkage together were not the cause of the splitting. They contend that the expert evidence suggests that there were other, overlapping problems with the timber floor, its structure, and the construction of the dwelling generally. These included[43]:

- an uneven floor level, caused by overpacking of the concrete stumps (by the Builder) supporting the timber bearers;
- substandard metal brackets connected the bearers and joists, which have not been adequately nailed;
- poor subfloor ventilation, as established by the Builder, affecting the timber's ability to equalise or adjust efficiently to the natural variation facilitated by daily and seasonal change;
- the timber was installed (by the Builder) when, had it been measured, it exceeded the manufacturers' specified width of 850mm for every 10 boards;
- the impact of central heating units on the surrounding timber, and solar impact from undrawn blinds;
- subsequently to installation, the moisture content of the timber became abnormally low (at 5.4%);
- defects in the timber existing before installation (including transport related damage);
- the gluing of floorboards to the joist with Bostik Ultraset Polyurethane adhesive; and
- the use of T-Nails, from which many of the splits seem to originate (installed with a nail gun).

118 The floorers go on to suggest that it is telling that the builder ignores these potential contributing factors, and that the Tribunal will have to decide the relevance of each of these factors.

119 Apart from challenging the fundamental proposition that the floorboards split because of the combination of edge bonding and shrinkage, the floorers rely on a fallback position. This is that even if edge bonding has contributed to the splitting, it does not necessarily follow that edge bonding is a defect for which they are responsible.

120 I propose to address this argument because, if I find for the floorers in respect of it, it will not be necessary to address the issue of the relative importance of all the other potential causes of the failure of the floor identified by the floorers.

[42] The fact that Mr Roh did not possess a moisture meter is for the same reason, irrelevant.
[43] Taken from the floorers' opening submissions, paragraph 22.

Were the floorers responsible for the occurrence of edge bonding?

121 The floorers observe that edge bonding does not always occur. They submit:

> The likelihood of edge bonding depends on [the] timber used and the 'polish' applied following sanding. That in turn depends on the "particular look" a customer is ultimately after. It may be fairly said that certain "looks" involve a higher level of risk than others, that some "sticking" will occur between the timber boards.[44]

122 The floorers emphasise that they had a limited role, namely to sand and polish the floor. They did not have full control over the construction and finishing of the floor. They attribute blame for the failure of the floor to the owners, asserting that the first coat of Polycure was mixed with tint "to meet the owners mandate that the floor should match the floors in the original dwelling (65 years old)". They contend that, had that request not been made, they would have applied a sealer as the first coat, and this would have reduced the risk of edge bonding. [45]

123 The floorers highlight that it is not suggested by the owners' expert or the builder's expert that if edge bonding has occurred that they could have done anything, in meeting the specific brief set by the owners, to prevent the splitting.

Evidence regarding the floorers' role

124 The owners and the floorers agree that the contract made between them is based on a quotation on the letterhead of the floorers' business name "Mr Floor" No. 2346 dated 12 August 2013. The quotation committed the floorers to perform work on 92 m² of hardwood flooring in several rooms. The work was described as "Sanding-Nails punched, holes filled and three times sanding" and "Coating-Three coats with polyurethane". The price for this work was $1,950 plus GST. Colouring was quoted at an extra cost of $360 plus GST, yielding a total contract price of $2,310 plus GST.

When was the sanding and sealing finished?

125 It was conceded by Mr Polzella under cross-examination that the floor was finished in early November 2013.The completion of the work before 9 November 2013 is confirmed by the floorers' invoice No. 2418 bearing that date. The scope of work (including the colouring) remained the same as in the quotation, as the amount invoiced was $2,310 plus GST.

126 The timing of the sanding and sealing of the floor was determined by Mr Polzella.

[44] Floorers' opening submissions, paragraph 9.
[45] Floorers' opening submissions, at [11].

The gap between laying, and sanding and sealing the floor

127 As noted, Mr Polzella's evidence is that the boards were delivered in "early August/ September". Mr Polzella was "not sure" about the important issue as to whether the floor had been laid at the time Mr Roh first inspected it.[46]

128 Mr Roh's evidence was that the floor was laid when he inspected the house to prepare his quotation just before 12 August 2013. His evidence was detailed. He said he got to the house at about 6 pm. He observed that the new floor was lighter than the old floor. At a later point, under re-examination, he expressly referred to the gap of two and a half months between the laying of the floor and its sanding and sealing, in the context of being asked about whether the floor was acclimatised when he started his work. I accept Mr Roh's evidence that the floor was laid when he saw it in August 2013.

129 I have accepted Mr Leung's evidence that the boards were stored in the garage for only a day before they were taken into the house, and then laid loose over the joists for four or five days before being fixed to the joists.[47]

130 Mr Polzella's evidence was that the process of fixing the boards took a week. There was no evidence to the contrary from Mr Leung.

131 As it has been established that the floorers completed their work in early November, I find that the gap between the laying of the floor and its sanding and sealing was about two and a half months.

The sealant

132 It is necessary to say something about the type of sealant used by the floorers.

133 Mr Hay in his first report refers to the use of semi gloss polyurethane as the coating. [48] I comment that this does not indicate whether he thought the coating was one pack or two pack.

134 Mr Barnes, in his expert report, asserts that it was "apparent" that the floorers had applied a two pack solvent based coating.[49] When he was asked about this at the hearing, he explained that this is what the builder had told him. He was understandably taken to task, in the floorers' final submissions, for this change of evidence.

135 The evidence of Mr Roh is that he was told to match the old floor, and in his judgement the old floor had been sealed with polyurethane. Mr Polzella could not assist him directly about this, as he wasn't sure. However, Mr Roh deposes that he had asked Mr Polzella if the old sealant had had a strong smell, and Mr Polzella had confirmed that it had. This suggested that polyurethane had been used.

[46] See paragraph 54 above.
[47] See paragraph 55 above.
[48] A report, paragraph 3 at page 2.
[49] Barnes report, page 7.

136 Mr Roh's evidence was that he had used three coats of one pack Polycure "DURAPOL 1045 Super Gloss", referred to by him as Polycure.

137 That a one pack product was used was accepted by Mr Polzella, under cross-examination by the floorers' counsel.

138 The use of a one pack sealer was also confirmed by Mr Scarpella, who was satisfied that a one pack product had been used. His evidence was that a two-pack finish looks wetter, and has higher gloss, than a one pack finish. In the present case, there was "no wet look".

139 When Mr Barnes gave his evidence, he agreed that a two pack sealer had a wetter look than a one pack product did.

140 I accept the evidence of Mr Roh, as supported by Mr Scarpella, and find that a one pack sealer was used.

Use of a one pack sealant

141 The use of a one pack rather than a two pack product is significant, because the experts are agreed that a two pack finish carries with it a higher risk of edge bonding. As Mr Scarpella explained, a two pack sealant is thinner and has greater ability to drip into gaps between the boards.

142 Mr Barnes, on becoming aware that the floorers had used a one pack product, postulated that a one pack product should not have been used. This seemed to me to be surprising evidence, as it suggests that a one pack polyurethane sealant ought not be used on the very floors for which it is designed to be used.

143 Mr Barnes's opinion was directly contrary to Mr Scarpella's evidence regarding the widespread use of one pack products around Australia.

144 When he was asked whether there was any issue using a single pack polyurethane sealant on timber flooring, Mr Scarpella answered "No. I have sold 86,000 m² of this." He added that Tasmanian Oak was one of the most popular timbers on which it is used.

145 Later, under cross-examination, he stated that 80,000 m² flooring sealed with polyurethane was laid each year.

146 On the basis of Mr Scarpella's evidence, I find that Mr Roh's use of a one pack polyurethane sealant was reasonable. In selecting a product so widely used with Tasmanian Oak, I find that he conformed to the standard of care to be expected of a flooring contractor experienced in domestic work vested by their client with the responsibility of selecting a sealant for use in this context.

147 Accordingly, I find that Mr Roh was not negligent or in breach of his contract in selecting Polycure as the sealant to be used. Furthermore. I further find Polycure was suitable for the particular purpose for which it was to be used. Accordingly, if the floorers' contract is subject to the warranties implied by s 8 of the *Domestic Building Contracts Act 1995*-and the floorers did not dispute this -they have no liability in respect of the warranty under s8(b) in respect of its use.

Relevance of the addition of tint

148 The builder highlighted Mr Roh's concession that he had used a single pack solvent based polyurethane mixed with a tint made by another manufacturer. He said this contradicted the manufacturer's recommendations. However, the builder conceded:

> There is no way to tell how this could alter the make up of the product and therefore its final performance after application.[50]

149 Interestingly, the owners make no submission regarding the use of tint in the sealant in their final submissions. Perhaps this is not surprising. Even if there had been evidence that the use of tint would have rendered a one pack, solvent-based polyurethane such as Polycure more prone to cause edge bonding, this is not a matter for which the floorers can be criticised, because in using tint, they were merely discharging the mandate given to them by Mr Polzella.

150 Mr Scarpella indicated in his oral evidence that the use of a particular brand of tint by the floorers was not significant, as tints were "generic". They would all have the same risk of edge bonding.

Finding regarding the floorers' liability

151 I have found that edge bonding has occurred. I consider that it must have contributed to the splitting. However, for the reasons set out above, I also find that the occurrence of the edge bonding is not something for which the floorers are responsible.

152 I have also found that the floorers have not been negligent or breached their contract in applying a polyurethane sealant or for using tint.

153 It follows that the owners' case against the floorers in respect of the failure of the floor must fail.

The responsibility of the owners

154 As I have found that the owners' case against both the builder and the floorers in respect of the failed floor, the owners are left with no recourse in respect of the splits in the floor. They, no doubt, will be very disappointed with this result.

155 However, as noted at the outset, the owners proceeded on the assumption that liability for the failure of the floor was a foregone conclusion, and that the substantive issue to be determined was the apportionment of liability as between the builder and the floorers. What they have overlooked, in my view, was their own role in the construction process.

The owner engaged both the builder and the floorers

156 This is not a matter similar to the edge bonding case determined by the Commercial and Consumer Tribunal in Queensland, *Alexander v Harris*[51], which

[50] Builder's final submissions addressing floorers' evidence, at [2].
[51] [2004] CCT: B283-03.

was referred to by the floorers. In that case, the flooring contractor had been engaged by the builder. In the event, the Commercial and Consumer Tribunal, apportioned liability as between the builder and the flooring contractor.

157 Here, the contracting responsibilities are quite different to those in the Queensland case. Specifically, in this proceeding the owners engaged the builder and the owners separately engaged the floorers. The builder in no way relied on the floorers' expertise.

158 The owners here limited the floorers' discretion. Their requirement that the new floor should match the existing floor effectively determined the use of a one pack sealant. Furthermore, they mandated that a tint had to be used so as to ensure that the new floor had a finish similar to the existing floor.

159 The owners also determined the time at which the floorers were to undertake their work. As found at [131], the period between the fixing of the floorboards, and the time that they were sanded and sealed, was two and a half months. This may be a significant point, as it is possible that in the period between the completion of the fixing of the floor by the builder, and the sanding and coating by the floorers, gaps had formed between some boards, thereby facilitating the occurrence of edge bonding. This would explain what happened. However, I do not have to make a finding about that matter to determine the case. The key point is that the owners have failed to make out their case against either the builder or the floorers.

Summary regarding the floor

160 Because the owner's case in respect of the floor fails against both the builder and the floorer, it is not necessary for me to go into the vexed issues concerning rectification costs and consequential damages for accommodation and parking costs.

161 I now turn to other aspects of the case.

VENTILATION

The contractual requirements

162 It was not disputed that in relation to sub-floor ventilation, the builder was to provide:

(a) 230 x 76 sub-floor vents at 1500 max centres;

(b) sub-floor ventilation in compliance with Australian Standards; and

(c) sub-floor ventilation in compliance with part 3.4.1 of the BCA.

The central issue

163 As noted, Mr Hay in his second report stated that the vents in the north and south walls showed they had been installed in alignment with the subfloor bearers and were therefore non-compliant with BCA clause 3.4.1.2. He found the majority of vents contained brick mortar resulting in restricted airflow.

164 The builder conceded these problems with the vents.

First finding

165 As the construction of the vents is defective, I find that the owners are entitled to compensation in respect of the cost of rectification.

Cost of rectification of the vents

166 Mr Hay first addressed the cost of rectification of the vents in an addendum to his first report dated 3 February 2017.[52] In an addendum report dated 3 March 2017[53] Mr Hay at [16] explains that the suggested rectification works he had referred to in his report dated "3rd March 2017" (he presumably meant 3rd February 2017) had not costed the replacement of concrete stumps and subfloor ventilation to the rumpus rooms. He costed the rectification of the vents stated in this report at $1,455 inclusive of GST. He said that a bricklayer would be required to attend to remove and replace the vents. He adopted an hourly rate of $70 per hour inclusive of GST, and says it all would take the bricklayer 14 hours to remove and replace 15 new vents. Furthermore, he said that the cost of materials included 180 new bricks, on the basis that 12 bricks per vent would be required. He assumed a cost of $2 per brick. He said that 15 vents would cost $75, and accordingly priced each vent at $5. He allowed $40 for the cost of mortar.

167 Mr Hay revised the costing of $1,455 in an amended version of the addendum report, which was tendered at the hearing.[54] The new figure contended for was $1,911.25, inclusive of GST. An analysis of this costing indicates that the figure for 40 hours labour was not changed, but the amount for materials have been reduced to $475 to $400. Accordingly, the rectification work was costed at ($980 +$400 =) $1,380. A profit margin of 25% was then allowed, although curiously it was applied to a base cost of $1,390, not $1,380, yielding $347.50. The addition of GST to ($1,390+$347.50 =) $1,737.50 brought the total up to the stated figure of $1,911.25

168 The builder's expert Mr Barnes did not address the costing of the replacement of the vents. The only attack from the builder's camp came in the builder's final submissions concerning the owners' evidence, at [9]. Firstly, these general criticisms are made:

> As was proven during the two days of Mr Hay's very inconclusive evidence in the witness box, it seems he cannot accurately or with any certainty provide an accurate cost of the rectification works.

169 Pausing there, I comment that whatever criticism can be made of Mr Hay's evidence about costing generally, he has costed the rectification of the vents

[52] Exhibit A6.1.
[53] Exhibit A6.2.
[54] Exhibit A6.3.

quite specifically. I accordingly reject the builder's general criticisms in this instance.

170 The builder went on:

> Furthermore, he (Mr Hay) is not qualified to be providing a cost assessment for building works as he is not a licensed or practising builder, is not a quantity surveyor nor is he an active trades person who actually works within the building industry…

171 My response to this criticism is that it overlooks the fact that Mr Hay says his qualifications include a diploma of building, and a building technician certificate, and is a qualified carpenter, joiner and stair builder. He claims to have expertise in building and timber materials. Having regard to his qualifications, I am satisfied that this is the case. I am accordingly not disposed to reject his evidence about costing out of hand.

172 A more reasonable criticism of Mr Hay's evidence made by the builder is that the new costing submitted at the hearing exceeded by almost $500 the costing of $1,455 contained in the supplementary report dated 3 March 2017 that had been made available long before the hearing.

173 There is accordingly a question whether the builder has been taken by surprise, and thereby denied a reasonable opportunity to obtain advice about the revised costing.

174 Putting aside the $25 difference between the base cost of the works in the first assessment compared to the second assessment, the substantive difference can be attributed to the addition of margin of 25%. I am inclined to the view that the revised costing should be accepted. Mr Leung, as a registered domestic builder, would be as familiar as anyone with the fact that builders add margin on labour and materials in order to cover profit and overhead. It should have been abundantly clear to Mr Leung, if he looked closely at Mr Hay's initial costing, that margin had been omitted. I consider that Mr Leung would not have been surprised when this oversight was corrected at the hearing. I am prepared, accordingly, to allow a figure which includes margin.

175 The margin sought is 25%. In my experience, this is not unreasonable. Indeed, it is lower than the margin which is often sought by builders in cases brought to the Tribunal. I will allow it.

176 The base cost of the work assessed in the revised costing was $1,380. Margin of 25% is $345. The total cost to be allowed for rectification of the vents is accordingly $1,725, inclusive of GST.

SQUEAKING IN FLOORBOARDS

174 As noted, the owners in their closing submissions indicated that they were making a claim for damages for rectification of the timber flooring, the defective and non-compliant stump packing and the defective and non-compliant ventilation of the subfloor area. From this summary, it might have been inferred that the claim regarding squeaky flooring referred to at [31] of the owners' opening had been withdrawn. However, as reference is made in the

owners' closing submissions to Mr Polzella's evidence that the flooring at the threshold between the original home and the new flooring squeaked when it had not been walked on for some time, it is necessary to deal with the issue.

175 There are conflicting views as to whether the squeak at the threshold between the old floor and the new floor was apparent on the day of the inspection. The owners say at [14] of their submissions that it was, whereas the builder at [5] of its submission says that it was not.

176 Significantly however, Mr Scarpella agreed under cross examination that he thought there was a loose board leading into the kitchen.

177 Furthermore, the builder's expert Mr Barnes also accepted the owners' complaint about the squeaky floor. He opined:

> The squeaking floor is also considered a defect and is the responsibility of the builder to make good as it is located in the new works of the renovation.[55]

178 Mr Barnes assessed the cost of rectification of the squeaking floor at $600 plus GST for labour, and $100 plus GST for materials. The total allowance inclusive of GST is accordingly $770. I award this sum to the owners in respect of the squeaking floors.

USE OF T NAILS

179 This is declared to be a defect at [32] of the owners' opening submissions. It was confirmed at the inspection that nails with a T profile had been used to affix the new floor.

180 Mr Hay at [17] of his first report [56] refers to the use of T nails and/or a staple fastener, rather than bullet head nails, and opines that this has led to a poor finish in terms of "overall appearance of the floor".

181 The builder in its final submissions at [6] notes that this method of fixing nails was consistent with the existing parts of the house, and was outlined in the initial quotation. The builder contends that the nailing also complied with the relevant Australian Standard AS 1684, table 5.1.

182 The builder highlights the opinion of its expert Mr Barnes that the installation of the floor was compliant. Mr Barnes summarises his opinion as follows:

> [T]aking into consideration the findings regarding the installation of the timber floor… the installation detail is correct and will comply with manufacturers installation instructions for solid timber 19mm T & G Flooring, fixing details comply with AS 1684.[57]

183 Mr Polzella agreed under re-examination that he had not complained about top nailing because that was the method used in the old part of the house.

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[55] Barnes report, page 9.
[56] Hay report dated 22 September 2017.
[57] Barnes report, page 9.

184 I find that the method of nailing the floors does not amount to a defect.

GAP BETWEEN THE KITCHEN FLOORING AND CUPBOARDS

185 The existence of this gap was confirmed at the inspection. However, the owners did not press the complaint in their final submissions. This may have been because the gap has been covered by the owners, using what Mr Polzella described as an "infill". I make no award in favour of the owners in respect of this item.

THE FLOOR IN THE RUMPUS ROOM IS WIDER THAN 6 METRES AND EXPANSION JOINTS HAVE NOT BEEN INSTALLED

186 The genesis of this complaint is to be found in Mr Hay's first report at [9] where it is noted that the floor width of the rumpus room exceeded 6 metres but there had been no placement of additional expansion joints as required by clause 3.5.4. of AS1684.

187 At the hearing Mr Hay repeated this criticism of the floor in the rumpus room, but agreed that it was not a factor that had contributed to the edge bonding.

188 Reference to this clause 3.5.4. of AS1684 indicates that the required additional joint can either be a single 10 mm gap, or smaller gaps with closer spacing to give an equivalent space.

189 The builder, in its defence, points out that when the boards were laid, a gap of 1 mm was allowed for every 600 mm to allow for the additional expansion requirement. Arithmetically, this solution complies with the relevant Australian Standard, and I find the identified failure to install an additional expansion joints is not a defect.

CONNECTING POINTS BETWEEN BEARERS AND STUMPS

Alleged use of compressible material

190 In the owners' opening submissions, the complaint made at [35] is:

> All readily accessible and observable connecting points between bearers and stumps use a mixture of compressible and non-compressible material.

191 Reference is made to Mr Hay's second report of 3 March 2017 prepared following his inspection, which states at [8]:

> Examination of the concrete stumps, found … "packing material" installed between stumps and bearers, consisting of compatible and noncompatible material Where viewed the number of layers (packing) varied between one non-compressible and between three and four layers of compressible material…

192 Perhaps understandably, having regard to the limited sub-floor space, Mr Hay did not extract any compressible packing material for examination.

193 The owners refer to photographs in the Tribunal book (TB 612 to 627) which they assert are consistent with the placement of compressible and non-

compressible material between bearers and stumps.[58] I do not regard the photographs as confirming the allegation.

194 The only direct evidence on the issue comes from the builder. At the inspection Mr Leung, on behalf the builder, went under the house and extracted samples of packing material from between accessible stumps and bearers. He said the samples he extracted were non-compressible. They appeared to be non-compressible to me.

195 After the site inspection, and also after the closing of the owners' case, Mr Polzella apparently went under the house and extracted packing material, which he sent for testing. He attempted to put in evidence a further witness statement attaching the test results. After an objection was raised by the builder, this attempt to admit new evidence after the closing of the owners' case was abandoned.

196 The builder was strongly critical of this action of Mr Polzella, and said that the issue should not be left unaddressed. He queried why the new witness statement had been allowed to be withdrawn. He asserted that Mr Polzella had made an attempt to plant evidence that would put his integrity into question.

197 I make no finding about the builder's assertion concerning this particular conduct by Mr Polzella. I cannot make any finding concerning the proposed new evidence without looking at it, and I cannot look at the evidence because the application to tender it has been withdrawn following the objection to its admission.

198 I confine myself to observing that the withdrawal of the application to tender the new evidence means that, other than Mr Hay's observations-which are not backed up by the production of any physical evidence- the owners have adduced no evidence that any of the packing materials were compressible.

199 I accordingly accept Mr Leung's evidence, and find that the builder did not use compressible material when packing the spaces between the concrete stumps and the bearers.

The packed material exceeds 20 mm

200 It is not surprising that in their final submissions, the owners concentrate not on the alleged use of compressible material, but on the undisputed fact that some of the packed material exceeds 20 mm in height.

201 Reference has already been made to Mr Hay's second report which refers at [8] to the use of compressible packing material between the stumps and bearers.

202 Mr Hay makes a further point, relying upon clause 4.04 of the VBA Guide. He opined that the observable packing exceeded 30 mm. This was said to exceed the allowable tolerance of 20 mm, and required rectification.

203 As noted above,[59] the builder in its final submissions concedes that the packers are technically defective, but disputes that the packing has compromised the

[58] Owners' opening submissions at [35].

subfloor system or affected the splitting of the boards. I have accepted the builder's argument, and found that the technical defect with the packing has not affected the structural integrity or performance of the subfloor system, and has not contributed to the splitting of the floorboards.[60]

204 However, Mr Hay indicates in the first assessment he made of the costing of the rectification of the stumps that 10 stumps were affected. The builder refers in his final submissions to Mr Hay's discussion of the stumps and in particular to the assertion that there are 8-10 existing stumps with excessive packing without disputing the figures. I will proceed on the assumption that there are at least 8 stumps affected by excessive packing.

205 As each occasion on which packing in excess of the allowable height of 20 mm is technically a defect, it is necessary to consider whether damages should be allowed to the owners in respect of the excessive packing.

206 In my view, the context in which the defective packing arises is relevant.

207 Mr Polzella's evidence was that during the course of the works, the building surveyor informed the builder that the existing subfloor structure was undersized for the proposed new load. In these circumstances the builder offered Mr Polzella a choice. One was to batten screw the noggins and lay new boards over them. The second was to remove the existing frame, and install new stumps where required and install new bearers and joists. The cost of the second option of $5,200 plus GST was more than six times more expensive than the first option. Despite the substantial cost differential, Mr Polzella says he opted for the second option. The builder raised an invoice, which Mr Polzella paid.

208 The builder characterised the problem with the subfloor differently. He said the issue was that the subfloor to the original dwelling had been constructed in the "wrong direction."

209 Mr Leung agreed that he offered Mr Polzella two solutions. One involved leaving the structure as it was, and the second involved partially rebuilding the subfloor by screwing on noggins. Mr Leung deposed that the owners opted for the option of partially rebuilding the subfloor.

210 Mr Polzella tendered an email addressed to him from the builder dated 18 June 2013 which supported his recollection that the problem to be addressed was that the studs were not suitable to take the extra load. The email set out the two options described by Mr Polzella. I accordingly accept Mr Polzella's evidence on this issue.

211 Mr Polzella's acceptance of the quotation of $5,200 plus GST did not automatically require the builder to put in new stumps, as the quotation allowed for the cost of bearers and joists, but not stumps.

212 However, in circumstances where the inadequate nature of the relevant part of the subfloor was the subject of a variation to the initial contract, and where the

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[59] See paragraph 42 above.
[60] See paragraph 43 above.

owners had elected to pay a substantial sum in order to get a new subfloor including "new stumps where required", the owner is in my view entitled to an award of damages, if new stumps are in fact required.

213 This conclusion leads me to a consideration of the nature of the defect identified by Mr Hay. The allowable tolerance of 20 mm to which he refers is taken from clause 4.04 of the VBA Guide, which provides:

> 4.04 Packing under bearers
>
> Packing to stumps or piers under bearers is defective if it is not made of durable, non-compressible materials, such as engineered plastic packers, or does not provide the minimum bearing area required by AS 1684, is more than a total thickness of 20 mm, or is not fixed in a proper and workmanlike manner.[61]

214 The relevant requirement contained in the Australian Standard Timber Framing Code AS 1684, is according to Mr Hay's addendum report dated 3 March 2017 at [8], to be found in clause 4.2.1.1. It reads:

> Where required, bearers shall be levelled, preferably by checking (notching) out the underside over supports. Packing of minor deficiencies in depth is permitted, provided the packing is a corrosion-resistant, incompressible material over the full area of support.

215 I have found above, at [199] that the builder did not use compressible material when packing the spaces between the concrete stumps and the bearers.[62] It was not suggested by Mr Hay that the packing was other than corrosion-resistant, nor did he suggest that the packing, where required, was not used over the full area of support.

216 I accordingly find that the use of excessive packers in the present case does not breach clause 4.2.1.1 of AS 1684.

217 Furthermore, the builder has satisfied me that the excessive packing has not affected the structural integrity or performance of the subfloor system.

218 At the hearing, it was explained to the parties that in assessing damages for breach of a building contract, the starting point is that the owners are entitled to be put in the same position that they would have been had the contract been performed. However, the qualification recognised by the High Court in *Bellgrove v Eldridge*[63] is that the proposed rectification work must be both necessary to achieve conformity with the contract and a reasonable course to adopt. As indicated by the High Court in *Tabcorp Holdings Pty Ltd v Bowen Investments Pty Ltd* [64], this qualification is to apply only in fairly exceptional circumstances, for instance where the innocent party is "merely using a technical

[61] Mr Hay's addendum report dated 3 March 2017 at [8].
[62] See paragraph 189.
[63] [1954] HCA 36; (1954) 90 CLR 613.
[64] (2009) 83 ALJR 390; [2009] HCA 8.

breach to secure an uncovenanted profit", quoting from Oliver J in *Radford v De Froberville*[65].

219 I find the use of excessive packing is a technical breach of contract which falls within the scope of the exception to the rule in *Bellgrove v Eldridge* recognised by the High Court in *Tabcorp v Bowen Investments.* I hold this view because the defect is a breach of the VBA Guide, which is, after all, merely a guide. However, the defect is not a breach of the relevant clause of AS 1684, and as noted, it does not affect the integrity or performance of the subfloor.

220 It follows, and I find, that it is not necessary to replace the stumps that are topped with packing in excess of 20 mm. Accordingly, there is no basis for an award of damages in respect of this work.

SUMMARY

221 I have awarded the owners, $1,725 inclusive of GST in respect of the replacement of the vents, and $770 in respect of the squeaking floors. The total award to the owners is accordingly $2,495.

INTEREST

222 The owners are given leave to make an application for interest within 60 days. The application can be by way of written submissions, or at any costs' hearing.

COSTS AND FEES

223 Costs are reserved. Any party is given leave to make an application for costs within 60 days.

224 Reimbursement of fees under s 115B or is reserved. Any party is given leave to make an application for reimbursement of fees within 60 days.

ORDERS

225 I will make orders accordingly.

C Equist

Member

[65] [1977] one WLR 1262.