VICTORIAN CIVIL AND ADMINISTRATIVE TRIBUNAL

CIVIL DIVISION

BUILDING AND PROPERTY LIST VCAT REFERENCE NO. D586/2012

CATCHWORDS

Domestic building work – *Building Act* 1993 – s.137B and s.137C – implied warranties in contract of sale by owner-builder as to the quality of the work – footings failure caused by drying action of tree roots – consequential damage to internal finishes – trees not present when slab constructed – very small trees planted outside boundary by council before construction completed – nature of warranties implied by the Act – building work not defective at time of construction - builder not responsible for trees – jurisdiction – s.53 *Domestic Building Contracts Act* 1995 - claim for breach of warranty a domestic building dispute within meaning of Act

FIRST APPLICANT	Tharwat Bestawaros
SECOND APPLICANT	Jacqueline Bestawaros
FIRST RESPONDENT	Domiano Sorace
SECOND RESPONDENT	Felice Sorace
THIRD RESPONDENT	Melton City Council
WHERE HELD	Melbourne
BEFORE	Senior Member R. Walker
HEARING TYPE	Hearing
DATE OF HEARING	30 March to 1 April 2016
DATE OF ORDER	17 June 2016
CITATION	Bestawaros v Sorace (Building and Property) [2016] VCAT 1005 (17 June 2016)

ORDERS

1. Order the respondents to pay to the applicants $62,502.39.
2. Costs are reserved.
3. Liberty to apply.

SENIOR MEMBER R. WALKER

APPEARANCES:

For the Applicants:	Mr D. Pumpa of Counsel
For the First and Second Respondents:	Mr J. Gray, Solicitor

REASONS FOR DECISION

Background

1. The applicants ("the Owners") are the owners of a large two storey house in Caroline Springs ("the House"). The House was constructed by the first and second respondents ("the Builders") as owner-builders between 2004 and 2005, although the occupancy permit was not issued until June 2006.

2. According to the occupancy permit, the steel for the waffle pod slab was inspected by the relevant building surveyor on 4 May 2004 and the framework was inspected on 2 December 2004. The second respondent, Mr Sorace, said that the foundations were inspected on 4 March 2004.

3. After living in the House for about three years, the Builders sold it to the Owners by a contract of sale that was signed on or about 6 August 2008.

4. By reason of ss.137B and 137C of the *Building Act* 1993 ("the Building Act"), the following warranties formed part of the contract of sale:

   (a) the Builders warranted that all domestic building work carried out in relation to the construction, by them or on their behalf, of the House was carried out in a proper and workmanlike manner;

   (b) the Builders warranted that all materials used in the domestic building work were good and suitable for the purpose for which they were used and that, unless otherwise stated in the contract, those materials were new; and

   (c) the Builders warranted that the domestic building work was carried out in accordance with all laws and legal requirements including, without limiting the generality of the warranty, the Building Act and the regulations.

5. About a year after purchasing the property the Owners noticed a crack in the external walls and damage to the walls and plaster inside the House.

This proceeding

6. After unsuccessfully claiming on their insurance the Owners sought expert advice and ultimately brought this proceeding against the Builders claiming damages for alleged breaches of the warranties referred to.

7. As well as the defects, it was alleged by the Owners that, contrary to the requirements of s.137B, the Builders entered into the contract of sale without:

   (a) obtaining and providing to them a report concerning the House from a prescribed building practitioner;

   (b) providing them with a certificate of insurance; and

   (c) setting out in the contract the warranties implied by s.37B of the Building Act.

   An alternate claim was pleaded in negligence.

8. The principal defence taken by the Builders was that the damage about which complaint was made was not defective workmanship but was caused by trees that were planted by the Melton City Council ("the Council") outside the boundary fence on the western side of the building block upon which the House was constructed.

9. On 13 March 2015, on the application of the Owners, the tribunal joined the Council as a third respondent to the proceeding on the ground that at least some of the damage complained of was the result of the roots of the trees, which were alleged to have caused the soil beneath the slab of the House to dry out and settle, causing the western wall of the House to drop slightly. That opinion had been expressed by the Owners' engineer, Mr Khouri, and also the Builder's engineer, Mr Brown.

10. Further Amended Points of Claim were served upon the Council by the Owners' solicitors. By this document it was pleaded against the Council that, if this tribunal were to determine that the damage to the House was not the consequence of any breach of warranty by the Builders, then that damage was as a consequence of the nuisance and trespass of the trees that the Council had planted. It was claimed that the Council knew or ought reasonably to have known that, given the types of trees planted, their location and their likely growth, it was most likely that they would create a danger to the House and that, as a consequence of the nuisance and trespass of the tree roots, the Council was liable for the damage suffered by the Owners.

11. Following negotiations, the Owners' claim against the Council was settled upon terms whereby the Council agreed to pay to the Owners $95,000 inclusive of costs. Settlement was for an "all in figure" and the proportion of this amount that was paid with respect to the claim and the proportion that was paid with respect to any claim or potential claim for costs was not stated or, apparently, agreed upon. However I was informed in submissions that the costs incurred by the Owners in conducting the claim against the Council were estimated at $15,000.00.

12. Notwithstanding the settlement and the striking out of the Owners' claim against the Council, the Council remained a party to the proceeding for the purpose of any apportionment pursuant to Part IVAA of the *Wrongs Act* 1958. I note however that no defence of apportionment was taken by the Builders.

The hearing

13. The proceeding as between the Owners and the Builders remained to be determined and it came before me for hearing on 30 March 2016 with three days allocated. Mr D Pumpa of counsel appeared on behalf of the Owners and Mr D Gray, Solicitor, appeared on behalf of the Builders.

14. On the first day of the hearing I heard lay evidence from the second applicant and the first respondent and then visited the House together with the parties in the afternoon. On the second day, expert engineering evidence was given

concurrently by the Owners' engineer, Mr Khouri and the Builders' engineer, Mr Brown.

15. The morning of the third day was taken up with the concurrent evidence of the costing experts, who were Mr Limburg on behalf of the Owners and Mr Mackie on behalf of the Builders. Directions were then given for the filing and service of written submissions and 3 June 2016 was fixed for the making of any oral submissions if these should be required. As it happened, neither side asked to make oral submissions.

Does the tribunal have jurisdiction?

16. Mr Gray submitted that, because the claim was brought for a breach of the warranties implied by a section of the Building Act and no reliance was placed upon the warranties implied by ss.8 and 9 of the *Domestic Building Contracts Act* 1995 ("the Act"), the tribunal does not have jurisdiction to deal with the claim. I do not accept that submission.

17. By s.53 of the Act, the tribunal may make any order it considers fair to resolve a "domestic building dispute". A domestic building dispute is defined by s.54 to be a dispute or claim arising between various persons, including a building owner and a builder, in relation to the carrying out of domestic building work. By s.3(1) and s.5(1)(a) of the Act, "domestic building work" includes the erection or construction of a home.

18. Section 3(1) defines the word "builder" as including a person who, or a partnership which, carries out domestic building work, manages or arranges the carrying out of domestic building work or intends to do any of those things.

19. It is not disputed that the respondents constructed the House or that the Owners are the present Owners of it and are entitled to the benefits of the warranties set out in, or implied into, the contract. Mr Gray submitted that an owner-builder is a "separate species" from that of a builder but however one might describe them, the respondents clearly fall within the definition of "builder" set out in the Act.

20. It does not make any difference whether the cause of action is pursuant to a domestic building contract or a contract for the sale of land. The dispute is nonetheless one between a builder and a subsequent owner of a House to whom the builder has warranted the quality of the work.

Non-compliance with section 137B of the Building Act

21. Non-compliance with the requirements of s.137B of the Building Act was said in the amended points of claim to amount to a particular of breach of duty with respect which damages were sought.

22. Non-compliance with the section is an offence but, although the Owners could have avoided the Contract of Sale at any time before completion, it is not void (s.137B(3)). I do not think anything turns on this alleged non-compliance for the purpose of the present case. The issue is whether the warranties that are both implied into, and required to be inserted in, the Contract of Sale by the Building Act have been broken.

The lay evidence

23. Evidence was given by the second applicant that she and her husband purchased the House on 14 August 2008 from the Builders. She said that, about a year after moving in, in about December 2009, they started to most notice cracks appearing. She said that they attempted to contact the Builders without success. They claimed upon their insurance company but their claims were rejected. After obtaining expert advice as to the nature and extent of the defects in the House they brought the present proceeding.

24. The second respondent, Mr Sorace, said that he obtained a building permit for the construction of the House on 31 March 2004 and construction began shortly afterwards. The fence on the western side of the block had already been constructed when they bought the land and although he was aware that people were working on the other side of the fence he said that he did not know what they were doing. He said the House was completed in about mid-2005 and he then moved into it with his wife. It was not until 23 June 2006 that he obtained a certificate of occupancy but he said that this was by oversight.

25. Mr Sorace said that he constructed the footings of the House in accordance with the engineering plans that are in evidence and that during construction, the required stages were inspected and passed by the relevant building surveyor.

26. During evidence, questions were asked concerning the trees planted outside the fence line on the western side of the site. According to an email received from the operations manager of the Council, the trees in question were planted by the developer of the residential estate, Delfin Lend Lease, in October 2004 and they were 50 mm plant stock, which I understand means that they were 50mm high when planted. Mr Sorace said that, although he saw plants there, he did not believe that they would cause any damage and he put no root barrier in. He said that he was not a landscaper and he did not know much about trees. Although it is suggested that the trees were planted by the developer, it appears that the land was owned by the Council.

The expert evidence

27. There were two reports from Mr Khouri produced, one dated 6 July 2012 and the other dated 30 October 2012. There were four reports from Mr Brown dated 29 August, 19 November 2012 and 19 December 2013 respectively and an amended report dated 28 April 2014 which was handed up during the hearing.

28. For the costing of the rectification work, reports were received from Mr Limburg dated 26 October 2013 and from Mr Mackie dated 7 May 2014.

29. Conclaves of evidence had been conducted of both the engineering experts and the costing experts and reports of the results of these conclaves were tendered. There was agreement between the experts as to many matters and dispute as to others. In addition to the disputes suggested by the conclave reports, the opinions of the experts called on behalf the Builders changed somewhat from what had been written in the joint reports.

The issues

30. From an engineering perspective the principal matters to be determined were as follows:

    a) the gradients and drainage of the concrete pavement against the southern and western walls;

    b) the settlement of the western wall;

    c) the adequacy or otherwise of the founding of steel support posts within the fabric of the House;

    d) the installation of new articulation joints in the brick wall;

    e) cracks in the walls, floors and ceilings of the House.

The concrete pavement

31. The whole of the areas between the House and the boundary fences of the site on the western side and on the southern side have been concreted. On the western side the pavement falls slightly to the west that is, away from the House but not to the extent required by the Building Code of Australia ("the Code"). The pavement on the southern side of the House has a negative fall, that is, it slopes towards the House.

32. Mr Brown suggested that the pavement on the western side might have been correctly graded at the time of construction but has since been pulled down by the settlement of the wall on that side. On his evidence I must accept that it is possible but Mr Brown did not point to any cracking in the pavement or other indication on site that it has actually occurred.

33. Mr Brown also said that the pavement on the southern side could not have been sloped to the south because the run-off would have been into neighbouring property. I accept that water run-off from impervious surfaces should not be directed into adjoining property but I accept Mr Khouri's evidence that it must also not be directed towards the House. The Code requires the pavement to slope away from the House and it does not do so. It slopes towards the House.

34. I accept Mr Khouri's evidence that this is a defect and will have to be rectified. Mr Brown suggested that, rather than replace the existing pavement, localised drainage could be installed. He said that the "Ableflex" material isolating the paving from the brickwork of the House was waterproof and would prevent any water from entering the subsoil near the foundation of the House. He acknowledged that the drainage that he suggested would need to be connected to the stormwater drainage system and directed to the lawful point of discharge.

35. On this issue I prefer the opinion of Mr Khouri. I find that it is necessary to replace the pavement on the western side and also on the southern side of the House. As to the pavement on the western side of the House I find that, quite apart from the inadequate slope, it will be necessary to remove a certain part of the paving on that side in order to underpin the foundations. Accordingly, not all

of the cost of replacing the western paving should be attributed to the Builders' failure to lay the concrete with a sufficient gradient.

36. As to the pavement on the south of the House, the issue is whether it is necessary to break up and relay the pavement beyond the corner of the House. Mr Limburg said that it would be necessary to do so in order to preserve a reasonable appearance and a constant gradient between the replacement concrete and the original concrete that remained.

37. At the costing conclave the experts agreed upon the scope of works and the likely costs involved in the removal of the pumps and filters, the side and pool fences, the covering of the pool, the cutting and removal of the concrete, the relaying of the paving and then the refitting of the fencing and gates and all equipment, all for a total cost of $23,335. Included in this figure was an amount of $4,600 for covering the swimming pool In the course of his evidence at the hearing Mr Mackie said that he had changed his mind as to whether the swimming pool needed to be covered and said that this would not be necessary.

38. I accept Mr Pumpa's submission that, if a large section of the paving is to be replaced, it is reasonable to replace it all in order to avoid a patchwork appearance and an inconsistency between the grading of the replacement and the existing concrete. That was Mr Limburg's opinion, it is reasonable and I accept it.

39. As to whether an allowance should be made for covering the swimming pool, Mr Mackie agreed at the conclave that that was necessary but has now changed his mind. It is not for an expert to bind the party who instructs him by agreeing upon a scope of works or an amount to be allowed for carrying out an item of work. It is for the expert to form his own independent opinion as to what that scope of works or cost is likely to be. The purpose of the conclave is not to reach an agreement binding upon the parties but rather, to enable the experts to confer and turn their minds to the opinions of the other experts and reconsider their own opinions in the light of what the other experts say. After hearing from Mr Limburg and Mr Mackie, I am satisfied that the figures they agreed upon during their conclave represented the opinions of both experts at that time. Mr Mackie changed his mind in response to a number of questions put to him by Mr Gray. He is entitled to change his mind. In considering which opinion I should accept I take into account that Mr Limburg has not changed his mind and that the opinion as to these matters that he has expressed was once shared by Mr Mackie but that is only one matter to consider. I must look at both opinions that are now expressed on their own merits. Having done so and considered the extent of the work that is to be undertaken at the rear of the property in pulling up and disposing of all of this concrete and the risk of damage to the swimming pool I am satisfied that the swimming pool should be covered. I adopt the costing the two experts agreed upon at the conclave, not because it amounted to any agreement but because I think that it is more likely to represent the actual cost the Owners will incur rather than the revised assessment by Mr Mackie.

40. The experts did not apportion the cost between the western and northern pavements. Some of the figures in the costing relate to the west side, some to the south side and some relate to both sides. The gross figures, before 30% profit and overheads, are as follows:

West side	
Remove pumps and filters	$ 375
Refit pool equipment	$ 500
	$ 875
South side	
Remove side and pool fences	$ 2,360
Cover pool	$ 4,600
Refit fencing	$ 1,200
	$ 8,160
Both areas	
Bins	$ 1,540
Removing and replacing bins	$ 600
Materials	$ 500
Labour	$ 1,920
Plumbing for drainage	$ 480
Concrete	$10,800
	$15,840

41. The area of the western paving is much less than the area of paving on the south of the House but the latter includes the swimming pool which is not to be re-paved. Doing the best I can from the plans I think that each of them accounts for approximately 50% of the area that is to be re-concreted. In addition, the requirement to move the pool equipment would appear to be related as much to the need for underpinning the western wall as to the need to relay the paving on that side. I think the appropriate course is to apportion one half of the cost of breaking up and replacing the western paving to the gradient issue and the other to the need to underpin the western wall.

42. The defective pavement component relating to the west paving is therefore:

One half of the common cost of $15,840	$ 7,920	
plus costs solely relating to the west paving	$ 875	
	$ 8,795	
Proportion relating to the gradient issue		$4,397.50
Proportion relating to the settlement issue		$4,397.50

43. The cost of breaking up and replacing the defective pavement on the southern side is therefore:

One half of the common cost of $15,840	$ 7,920

plus costs solely relating to the south paving	$ 8,160
	$16,080

The settlement of the Western Wall

44. In his report of 30 October 2012 Mr Khouri said that the western wall of the House had settled between 9 mm and 35mm. He said that, as the wall settled, the slab and wall have rotated, resulting in cracking to the first floor and to the ground floor. He said that cracking in the tiles in the living areas indicate that the slab has rotated along this point.

45. He said that the geotechnical report indicated that tree roots were present in three of the four boreholes that were excavated. He said that tree roots will dry the soil and thus affect the soil moisture content locally, thus resulting in differential settlement. He described the trees in his report as being within 2.5 m of the House on the western side of the allotment and varying in height between 3 m to 5 m.

46. In addition, Mr Khouri said that any paving graded towards the House or having insufficient fall would cause water to accumulate against the base of the House footing, which would have the effect of softening the ground, reducing the bearing capacity of the soil, resulting in differential settlement.

47. He summarised his findings by saying that the footing movement is being caused by a combination of the effect of nearby trees and the grading of the paving located against the House

48. After taking levels, Mr Brown agreed that the western wall had dropped but he disagreed that the slab had lifted. He said that, whereas at the front of the property, soil conditions were damp, the other two bore logs which were taken outside the House and under the fence line where the trees are, indicated very dry soil. He attributed this to the drying out action caused by the trees which he suggested had caused the dropping of the slab. He concluded that either the trees should be removed or that a root barrier should be installed to stop the roots penetrating beneath the slab.

49. In his conclusion he said that he believed that the vast majority of the distress or distortion within the House has been generated by the dropping action along the western side of the building where the trees and shrubs were. He added:

> "Thereafter, there are secondary effects in that when that side of the building drops so does the support for the trusses. They then drop down as well placing load onto the walls between the large corridor and bedrooms to the ensuite and bedroom 3. The effect is that the ground floor wall underneath is not exactly underneath the upper level wall, therefore the extra load pushes the floor joists down. Worse is that these floor joists cantilever out over and thereafter the tips of them are lifting by this action.
>
> The second effect which is even bigger is that the plain pure mechanical situation of the wall adjacent to the corridor is probably not moving a great deal, whereas the wall on the outside (i.e. west) drops 20 mm. The pivot point internally does not move and the tip of the cantilever goes up approximately 7 mm."

50. He said that the ceiling falls into the same category as the floor, in that as the trusses drop on the edge support on the west side, stresses are built up and are dependent on whether the ribs connect into it, and where local support is trying to be given and where local support cannot be given.

51. In his conclusion he added that, if the beam B5 had been able to hold down the eastern ends of the floor joists which were supported by the beam B9, then the distortion in the floorboards at the top of the stairwell would probably not have occurred.

52. A comparison of sheets 6 and 7 of the engineering plans supports what he says in terms of the configuration of the walls. One would expect that, if the floor joists pivoted on the beam B9, the effect might well be as he has described. I therefore accept this analysis.

53. He seemed to suggest in the conclusion in his first report that the design engineer should have ensured that lifting up would not occur but he did not elaborate on that. He attributed "the vast majority" of the cracking to movements caused by the dropping of the western wall.

54. Despite that passing reference by Mr Brown, there is no evidence that the design of the slab was inadequate. I accept that the majority of the cracking in the House was due to movements caused by the dropping of the western wall caused principally by the drying effect of the tree roots, although Mr Khouri said that part of the cause of the settlement of the western wall was the incorrect slope of the paving. Consequently it seems to me that the responsibility for the majority of the loss relating to the settlement should depend upon responsibility for the effect of the trees on the western boundary.

55. The gross cost of underpinning the western wall, before 30% profit and overheads, was agreed by the costing experts as follows:

Dig trench and remove soil	$13,440
Bins for 80 m^3 of soil (14 bins at $385)	$ 5,390
Concrete 40 m^3 at $180 a cubic metre	$ 7,200
Three pumps at $1200	$ 3,600
Grout and jacking	$ 3,600
	$33,230

Consequential damage

56. In addition, there is the cost of rectifying the cracks in the walls, floors and ceilings and repainting the interior of the House. The difference between the costing experts in this regard related to the plaster repairs. Mr Limburg's assessment of the cost was $40,190 whereas Mr Mackie's assessment was $6,500. The cost of repainting was agreed at $17,710, the refitting and resealing of the timber floor at the top of the stairs was agreed at $65 and the removal of the carpet and underlay particle board in the master bedroom and adjustment of the floor joists was agreed at $2,613.

57. Regarding the ground floor, Mr Limburg allowed for the re-laying of 200 m² of tiles at a cost of $6,000 for labour and $25,300 for the supply of the replacement tiles. Mr Mackie allowed $750 for repairing a broken grout line. I saw no cracked tiles in the House and I do not see why it is necessary to replace tiles as suggested. I will allow Mr Mackie's figure of $750 to repair the broken grout line.

58. The extent of the plaster repair work that will be necessary cannot be known with any certainty until such time as the underpinning is completed. However I think that Mr Mackie's figure of $6,500 is more likely to represent the actual cost, rather than Mr Khouri's much higher figure, and I accept that assessment.

59. As to the painting, Mr Mackie pointed out that, after 10 years, the House was due to be repainted anyway. The paintwork inside the House appeared to be in good condition but at some time it would have required repainting whether this plaster repair work had to be done or not. If the Owners now receive the benefit of having the interior of the House repainted there will be a substantial element of benefit because it will have not have to be done again for a number of years. Quite obviously, the areas where the plaster is being repaired must be painted as part of the repair. However the remainder of the paintwork is to be done in order to match the repair. Some allowance for betterment must be made and to that end I will allow one half of the assessed figure for painting, which is $8,855.

60. The base cost of repairing the internal defects is therefore assessed at $18,783, calculated as follows:

Plaster	$6,500
Painting	$8,855
Repairs to top of stairs	$ 65
Remove carpet in master bedroom, adjust floor joists and refit	$2,613
Repair grout line	$ 750
	$18,783

The cause of the cracking

61. The crack at the top of the stairs and the broken grout line appear to be related entirely to the settlement issue. As to the other cracks, it appears that they are largely due to the same cause.

62. In his report on 30 October 2012, Mr Khouri said:

> "The wall, floor and roof cracks survey in this report are as a result of footing rotation and settlement. This footing movement has been caused by a combination of the following issues:
>
> a the effect of nearby trees on the foundation supporting the footings
>
> b the grading of paving located against the building."

63. He added that there were serious bearing capacity problems and punching sheer issues concerning several posts supporting upper floor loads when full capacity

for loading is to be applied to the upper floor of the building but he did not suggest that this problem that he perceived was responsible for any of the cracks that he observed and photographed.

64. Mr Brown referred in his reports to slab movement which he said was within tolerance although he did not specifically attribute any of the cracking to such movements. Indeed, he said that he believed that the vast majority of the distress and distortion within the House was generated by the dropping action along the western side of the House.

Liability for the trees

65. The principal cause of the settlement and the resulting consequential damage was the drying effect of the tree roots.

66. Mr Pumpa submitted that the trees were planted some time before the frame was inspected and their presence was a change in circumstances during the course of construction which required the Builders to make allowance for their potential impact on the House. I do not think that this claim is made out.

67. The plants were only 50 mm high when planted and Mr Sorace's evidence is that he did not know what they were. I am unable to find that he should, in the circumstances, have formed an opinion that they would have an adverse effect on the House that he was building. Consequently, I am unable to make a finding that the Builders were negligent in not having the slab, which had already been constructed at the time these trees were planted, underpinned in order to take account of any possible future effect of these plants.

68. At the time when it is alleged the trees reached the height of the fence, construction of the House had been completed. The failure of the Builders to do something at that time to guard against the possible intrusion of tree roots would not fall within the s.137B warranties.

69. Mr Pumpa relied upon the Tribunal's decision in *Pilmore v. Orbit Homes Australia Pty Ltd* [2013] VCAT 1434 where it was found that, in preparing for the design of a House a builder failed to make allowance for trees that were there. In the present case there were no trees when the House was designed and none when the slab was poured. Any engineer who designs a slab must take account of conditions about which he knows or ought to know but it is imposing too high a duty to say that he ought to allow for something that is neither there nor anticipated. As for the Builders, once they have completed the work, the failure to then do something additional cannot have the retrospective effect of making work that has already been done defective.

70. I am not satisfied that it has been established that any of the warranties in the contract of sale relating to workmanship were breached by the Builders on account of the trees.

The support of steel support posts in the fabric of the House

71. The structural design of the House incorporates a number of steel columns that rest upon the waffle pod slab. The base of each column sits upon a steel plate

bolted into the slab. In his reports Mr Khouri has raised concerns as to the possibility of punching shear by these columns through the slab.

72. The columns in question carry the loads from the beams supporting the upper storey. Mr Khouri said in his report of 6 July 2012 that the columns were not supported by slab thickening as is required by engineering design principles. He said that his calculations show that current loadings from several of the columns have the potential to punch through the slab, resulting in local settlement. He said that the posts supporting the beams B1, B9, B11 and B12 exceed the allowable point loads on the slab.

73. In his later report of 30 October 2012 he said that, although the 85 mm slab of the waffle raft has a punching shear capacity of 28.5 kN, the waffle pod or polystyrene void formers, supporting the slab have very little bearing capacity for the support of posts. He said that they only had a bearing capacity of 17 kPa and this figure did not appear to be disputed by Mr Brown.

74. The engineering drawing shows that the waffle pod slab the Builders were to construct was not designed to incorporate any slab thickenings of the nature referred to by Mr Khouri. Since Mr Sorace said that he constructed the slab in accordance with the engineer's design I accept Mr Khouri's evidence that there is no slab thickening of the nature that he described beneath these posts.

75. Mr Khouri said that if the posts are sitting on a concrete rib in the slab, the load capacity would be 19.8 kN which would exceed the service point loads of B9 and B11 and be just below the service point loads of B12 and slightly further below for B1. He set out calculations which he said supported these conclusions.

76. Mr Khouri said that, assuming that the poles rested upon a 250 x 250 base plate, which is larger than the base plate that he observed on site, the 85 mm thick slab has a point load capacity of only 3 kN whereas the ultimate point load of beams B1 to B12 ranged between 21.6 and 45.2 kN.

77. Mr Brown said that for the purpose of his own calculations, the full size of the base plates for the steel uprights can be used, in that they would not fail because their bending capacity would not be exceeded. He said that, using AS3600, the punching shear was not exceeded in the worst case. He said that locations close to ribs cannot possibly be causing punching shear because the ribs are more than adequate to handle the loads. He said that there has been no failure and he did not believe that was going to any failure.

78. Mr Brown pointed out that, assuming the slab to have been constructed as designed, all but two of the columns would be resting upon or adjacent to a rib of the waffle pod slab. According to the engineering design the slab has an overall thickness of 385 mm, of which 300 m is taken up by void formers. I accept that these void formers have no significant structural role. The slab thickness between the ribs is 85 mm and the width of the internal ribs is 110 mm. As to the two columns that are not adjacent to internal ribs, supporting each end of the beam B12, Mr Brown said that the punching shear was still not exceeded.

79. In his report of 19 December 2013 Mr Brown said that the two point loads of concern could be addressed by grout under the steel plate to spread the load out just a little more. However he did not appear to acknowledge that this work was necessary.

80. Mr Pumpa submitted that it was accepted that investigation was required to determine where the steel posts were located in relation to the ribs in the slab. Investigation is only necessary if it is apparent on the evidence that there is something to investigate. It is not for the Builders to prove that the posts are adequately supported. The onus of proof is upon the Owners to prove a breach of the contractual warranties.

81. I accept Mr Sorace's evidence that he constructed the slab in accordance with the engineer's design. That design shows the point load of all but two of the posts falling on or immediately adjacent to a rib in the slab. There is a conflict in the engineering evidence concerning the likelihood or otherwise of punching shear at those positions. It is not suggested that any such shear has been experienced, notwithstanding that the slab was constructed more than 10 years ago. I am not satisfied that it has been proven on the balance of probabilities that support for these posts is inadequate. However the design shows that the point loads of the two rear posts fall over the void formers and I am satisfied on the balance of probabilities that these two poles require further support.

82. A number of rectification methods were discussed during evidence. Mr Khouri said that new footings would need to be constructed below the steel posts. Mr Russell suggested that the void former could be dissolved by a solvent material and a grout could be inserted into the void to provide the additional support required. In the alternative, he suggested that the base plate of each post could be extended and a fillet welded in place to spread the load over a wider area which he said would be sufficient.

83. As to liability Mr Gray submitted that the Owners' cause of action should be against the engineer rather than the Builders, on the ground that the engineer owed the Owners a duty of care. However the cause of action that I have to deal with is breach of a contractual warranty given by the Builders that all domestic building work carried out in relation to the construction of the House by them or on their behalf was carried out in a proper and workmanlike manner. The work of the engineer in designing the slab was domestic building work within the meaning of the Act (see s.5(1)(g)) and since it was carried out on behalf of the Builders, they are responsible for it because they have given warranties that it was satisfactory.

84. According to the costing experts, if the method of dissolving the void formers and injecting expandable grout is adopted, the cost will be $500 per post. If new footings are required the cost would be $3,750 per post. I think that I should allow the cost of providing new footings as suggested by Mr Khouri. That seems to be a more conventional solution than that proposed by Mr Russell and so would be more likely to be the method adopted by a rectifying builder. For two posts that would amount to $7,500.

Articulation joints

85. The cost of installing new articulation joints in the external brick walls was agreed by the costing experts at $11,350. In addition, there is a cost of $1,386 for caulking the new articulation joints and also the existing joints that have opened up. Both those amounts will be allowed to the Owners. It was suggested by Mr Gray that the joints could be simply cut with a saw but when this was discussed it appears that the brickwork on either side of the joints will have to be properly connected and re-done. I accept the figures the costing experts agreed upon.

Protection works

86. Protection works to fit protective plastic throughout the House has been agreed upon at $1,750. This is related to the repair of the internal finishes and needs to be apportioned.

New trims around Windows

87. The costing experts agreed that it will cost $2,000 to fit new trims around the windows and that will be allowed.

Rubbish removal

88. Rubbish removal has been agreed at $1,500. Since a separate allowance has been made for the removal of the concrete this seems to relate entirely to internal works. Again, this figure will need to be apportioned

Removalist and alternate accommodation

89. The Owners claim the cost of packing up and removing their furniture and belongings and storing them for a period of eight weeks during which they say the work will be carried out. They also claim the cost of eight weeks alternate accommodation during the same period.

90. It was suggested on behalf of the Builders that the Owners' furniture could be stored in the garage which is certainly very large. Mr Pumpa said that the Owners ought not to be deprived of the use of their garage for the period during which the work is carried out. However the claim for alternate accommodation is made on the ground that they will have to vacate the House in any event and I do not see why the garage could not be used for storage while they are away. I think it is most unlikely that the Owners would go to the expense of having the furniture taken out of the House and then brought back again.

91. I will allow for the furniture to be removed from the areas where the work will occur and the placement of drop sheets, which has been assessed by Mr Mackie at $1,200. As to the time the work will take, Mr Limburg said it would take eight weeks and Mr Mackie said it would take two weeks. There is a substantial amount of work to do but much of it is outside. I accept that repairing the internal finishes and repainting will require the affected areas to be vacated and I do not think that it would be practicable for the Owners to remain in the House while that work is being done. I will allow six weeks alternate accommodation. The rate of $2,000 a week was not disputed between the experts.

Supervisor/engineer

92. Mr Limburg has allowed for project manager to oversee the work at a cost $24,000 and a structural engineer to supervise the structural work at a further cost of $18,000. Mr Mackie says that these are included in the Builders supervision. The margin that is agreed between the experts is 30% and I accept Mr Mackie's evidence that this includes supervision.

Preliminaries

93. An amount of $6,200.00 was agreed between the costing experts as being appropriate for preliminaries. This would involve the full scope of works and I will apportion this equally between the works relating to the settlement of the west wall and the other defects.

Responsibility for the cracking

94. Mr Khouri did not identify any causes of the cracking apart from the settlement of the west wall. Mr Brown said that the settlement of the wall was responsible for the vast majority of the cracking but did not say what was responsible for the rest, although the changing levels that he noted in his reports would suggest some slab movement which, apart from the settlement of the west wall, has not been proven to be due to any defective design or construction.

95. On this evidence I find that the vast majority of the cracking is due to the settlement of the west wall, and that this in turn is due principally to the action of the trees and to a much lesser extent, to the poor grading of the western pavement.

96. It is unclear on the evidence whether the remaining cracking is due to the other defects identified, such as the lack of articulation joints, or whether it is simply due to movement of the slab as identified by Mr Brown which, it appears, is not necessarily related to any defective building work. I am not satisfied that any connection between the cracking and the other defects has been proven.

97. The term "vast majority" is imprecise but doing the best I can, I apportion 90% of the internal repair cost as being related to the settlement of the west wall and 10% as being related to other causes which, apart from soil movement which is not proven to be the fault of the Builders, have not been identified.

98. The cost of internal repairs of the damage to the internal finishes are as follows:

Internal repair costs	$18,783.00
Protection works	$ 1,750.00
Rubbish removal	$ 1,500.00
Moving and protection of furniture	$ 1,200.00
add one half or preliminaries	$ 3,100.00
	$26,333.00
Add profit and supervision at 30%	$ 7,899.90
	$34,232.90
add GST	$..3,423.29
Alternate accommodation	$12,000.00

	$49,656.19
Less 10% not attributable to settlement	$ 4,965.62
Cost attributable to settlement of west wall	$44,690.57

Responsibility for the settlement of west wall

99. The western paving was slightly graded away from the House, although the extent of the grading was less than the Code required. Most of the evidence as to settlement centred on the effect of the trees and it appears to me that the inadequate grading played no more than a minor role in the problem. The overall loss relating to the settlement will be apportioned 85% to the effect of the trees, for which the Builders are not responsible, and 15% to the poor grading of the pavement, for which they are responsible. The Builders' responsibility therefore is calculated as follows:

Internal repairs related to settlement of west wall		$44,690.57
Pavement replacement related to underpinning	$ 4,397.50	
Underpinning costs	$33,230.00	
	$37,627.50	
Add profit and supervision at 30%	$11,288.25	
	$48,915.75	
add GST	$4,891.58	$53,807.33
		$98,498.90
less 85% attributable to trees		$83,724.06
Balance attributable to Builders		$14,774.84

Summary

100. As a result of the above assessments and apportionments, I find that the damages to be awarded in favour of the Owners against the Builders are $62,502.39, calculated as follows:

Half Cost of Replacement of paving on West side	$ 4,397.50
Replacement of paving south side	$16,080.00
Construction of articulation joints	$11,350.00
Caulking of articulation joints	$ 1,386.00
New trims around windows	$ 2,000.00
Rubbish removal	$..1,500.00
Total	$36,713.50
Add profit and supervision at 30%	$11,014.05
	$47,727.55
Proportion of losses due to settlement of west wall	$14,774.84
	$62,502.39

Other matters

101. By the terms of settlement that the Owners entered into with the Council, it was agreed that they could seek an order against the Council in the settlement sum. I will reserve liberty to apply in case such an order is sought, although I can see little purpose in it. Part IVAA of the *Wrongs Act* 1958 operates to limit liability. In the present case I found that the Builders were not responsible for the effect of the trees and it has been unnecessary for me to consider whether it was the fault of the Council. In any case, no problem of double recovery arises because, if the Owners' costs of recovery were $15,000 as I was informed, the net recovery from the Council was slightly less than my own findings would suggest was appropriate.

102. Mr Gray submitted that the Owners failed to mitigate their loss by failing to identify the cause of the damage with reasonable promptness and take legal action against the Council to secure the removal of the trees. No such defence was taken in the points of defence but in any case, it is unnecessary to consider this submission because I am not satisfied that the Builders are responsible for the effect of the trees and the contribution that they made to the settlement of the west wall.

Orders to be made

103 There will be an order that the respondents pay to the applicants $62,502.39. Cost will be reserved and there would be liberty to apply for any further orders sought.

SENIOR MEMBER R. WALKER