



**New South Wales
District Court**

HEARING DATES: 28, 29, 30, 31 March and 1 April 2011

JUDGMENT DATE: 14 December 2011

JUDGMENT OF: E Olsson SC DCJ

DECISION:

1. Verdict for the defendant.
2. Plaintiff to pay the defendant's costs.

CATCHWORDS: Breach of retainer, negligent design, performance criteria for air conditioning

LEGISLATION CITED: Civil Liability Act 2002; Limitation Act 1969

CASES CITED: *Platt v Nutt* (1998) 12 NSWLR 231; *Reinhold v New South Wales Lotteries Corporation (No. 2)* [2008] NSWSC 18

PARTIES: **GREGORY ALLAN LAUGHTON** (Plaintiff)
BARRY C SMITH & ASSOCIATES (Defendant)

FILE NUMBER: 2010/99653

COUNSEL: Ms K Burke (Plaintiff)
Ms L Chan (Defendant)

SOLICITORS: Ms T Helm, Kennedys (Defendant)

Reasons for Judgment

The Proceedings

1. The plaintiff commenced proceedings in the Consumer Trader & Tenancy Tribunal in August 2008. Those proceedings were transferred to the District Court on or about 20 May 2009 and for various reasons were not heard until March and April 2011.
2. At the outset of the hearing, the court was informed that the plaintiff and the first defendant, January Engineering Pty Limited, had settled their differences and a Notice of Discontinuance was filed in respect of those proceedings. Accordingly, the matter proceeded only as against the other defendant, Barry C Smith & Associates Pty Limited ("the defendant").
3. The issues in dispute were distilled by the plaintiff to two questions: -
 - (a) Whether the air conditioning system designed by the defendant achieved the design parameters contained within clause 1.3(2) of the specifications;
 - (b) If not, whether the failure to achieve the design parameters contained in clause 1.3(2) of the specifications arose as a consequence of:-
 - (i) The temperature sensor being in a position in the return air duct which measured the temperature in the return air duct, and not the space in the rooms; and
 - (ii) Does not balance the thermal load [sic], and
 - (iii) Has the effect of the temperature been averaged rather than recording the actual temperature [sic], and
 - (iv) The location of one temperature sensor causing an inability to maintain a consistency of temperature throughout the whole house.
4. The defence raised a number of further issues:
 - (a) whether the proceedings were time barred;
 - (b) whether the design of the system was defective;
 - (c) whether the design of the system meets the plaintiff's design criteria;

- (d) whether the system as designed was installed;
- (e) if there is a defect in the design of the system, what rectification is required.

Background

- 5. The plaintiff is the owner of a property at 51 Wolseley Avenue, Mosman. In 2001 he engaged an architect, Ms Dianne Ramsay, to design and administer the building of a new house on the property.
- 6. The builder engaged for the project was F J Scoot Pty Ltd, the principal of which was Mr John Scoot.
- 7. The plaintiff engaged the defendant to undertake the design of an air conditioning system for the new house.
- 8. The defendant prepared a design for an air conditioning system for the premises, and invited a number of quotes for the installation of the air conditioning system. January Engineering Pty Limited (the former first defendant) tendered and was engaged to carry out the installation.
- 9. The design phase of the house commenced in late 2001. Construction commenced in late 2002 and the plaintiff took possession of the new house on 16 October 2003.
- 10. The air conditioning system was designed by the defendant between January 2002 and July 2002. The installation of the air conditioning system appears to have occurred around May 2003.

The Issues

- 11. Although the parties helpfully each prepared a list of issues, it is necessary to start with the contract between the parties.

The design criteria

- 12. Negotiations and discussions regarding the air conditioning system took place well before construction of the house commenced. The plaintiff's architect (Ms Diane Ramsay) wrote to the defendant on 6 November 2001 setting out in broad terms the desired design criteria for the air conditioning system. It was plain from that

correspondence that she was contemplating the partial regulation of temperature within the house by external shading.

13. The letter sought advice as to the advantages and disadvantages of the installation of vertical external shading to areas of the house, as well as the advantages and disadvantages of being able to 'zone' the various areas. It observed that obtaining development approval for the air conditioning unit would be less complicated if the design and the location of the unit complied with the requirements of the local Council which specified that: -

"air conditioning units for dwellings and dwelling houses (internal):-

- (a) Must be located within the external masonry walls of the building;*
- (b) Must be suitably screened if visible from the street; and*
- (c) Must not incorporate ventilation grills; and*
- (d) Only one air conditioning unit per property."*

14. Ms Ramsay enclosed some drawings for the defendant's consideration.
15. Mr Laughton, the plaintiff, said that he had no expertise in the design of the air conditioning system and that he relied solely upon the defendant, by its principal, Mr Barry Smith, for the design.
16. The plaintiff said that he was not able to recall whether he ever actually received any formal advice about "zoning", but he did recall receiving a proposal from the defendant for mechanical services – that is, the air conditioning. That proposal was prepared by the defendant and dated November 2001.
17. The plaintiff said that he could recall only one meeting during the design and development phase of the project and that was conducted at the office of Ms Ramsay with the defendant's representative, Mr Smith, and that it was probably before 15 January 2002. He said that the topic of discussion at that meeting was the way in which the air conditioning system would be designed, and that there was discussion about the cost of it and the overall cost of installing the air conditioning unit. He said that there were technical issues raised that he did not fully understand, but he was certain that there was conversation about how air was going to be introduced into each of those rooms in the house.

18. The plaintiff said that he had a recollection of saying something to the effect, "*my partner's mother has MS. She has specific temperature control issues; that is to say she is immobile.*" He also thought that he had said, "*my partner is German. Her parents come out and stay with us up to twice a year, up to six weeks each time. She feels the heat. She feels the cold.*" He was not able to recall Mr Smith's response.
19. Mr Smith denied that the plaintiff told him anything about either his partner or his partner's parents and their needs.
20. Under cross-examination the plaintiff conceded that he only thought that he had said this to Mr Smith; he was not certain. Mr Smith was not cross-examined on the point. The matter was not referred to in any contemporaneous correspondence and was not included in the plaintiff's written statement of evidence.
21. To the extent that it is necessary to do so, I find that on balance I am not satisfied that the plaintiff told the defendant's representative about the need for specific temperature control issues. It seems to me that had that matter been of importance, it would have been included in the documented design criteria or at least been referred to in correspondence or in Mr Laughton's statement.
22. The proposal dated November 2001 prepared by the defendant identified the following as the scope of works: -
 - (1) *We understand that the scope of works for which consulting engineering services are required will be as follows.*
 - (2) *Mechanical.*
 - (a) *Air conditioning systems to serve all living and bedroom areas.*
 - (b) *Mechanical ventilation for internal bathrooms, toilets, etc.*
 - (c) *Kitchen range hood ventilation systems (if required).*"
23. The balance of the proposal dealt with the scope of the consulting services, quality procedures and the costs for the same.
24. The proposal was accepted and the defendant was engaged by the plaintiff in or about December 2001.
25. On 15 January 2002 the defendant wrote to the plaintiff in these terms:

"The design will be based on a system which will simultaneously air condition the whole house.

You may wish to give consideration to a system which is divided into two zones, one zone serving the living area, and the other serving the sleeping areas. A system of dampers will be provided to change over from one area to the other.

We understand from discussions with your architect, Dianne Ramsay, that there has [sic] been some changes to the building design. Final documentation will not be commenced until these matters have been finalised and agreement reached on the preliminary air conditioning system design."

26. The plaintiff gave evidence that his understanding of that letter was that the defendant was going to design the system "*which would constantly air condition the whole house at the dialled up temperature*"¹.
27. With respect to the defendant's suggestion of a system that was divided into two zones, the plaintiff said that he understood by that "*that one part of the house would receive air from the air conditioning system for the purposes of saving loading on the system*"²."
28. The plaintiff said that he initially favoured the two zone system because it seemed to him that it saved operating costs, and also it seemed pointless to him to have the whole of the house air conditioned when from time to time there were only two people in it.
29. By letter dated 21 January 2002 the plaintiff wrote directly to the defendant and said:-

"My preference is for the system to be divided into two zones. Dianne Ramsay will be in touch with you again once the final design is settled and final plans prepared."

30. In the meantime, the architect had contacted the defendant and raised some questions regarding the preliminary design for the air conditioning system. By letter dated 14 February 2002 the defendant wrote to the architect, responding to her comments about the preliminary design. In that letter the defendant noted that it had received a letter from the plaintiff advising that a two-zone system was preferred. The defendant enclosed revised sketch layouts based on a two-zone arrangement, dividing the air-conditioned spaces into "zone 1 living areas" and "zone 2 sleeping areas". The defendant made the observation:-

"with this zoning arrangement, if maximum cooling/heating is required for zone 1, there will be no air conditioning available for zone 2. If zone 2 requires maximum cooling/heating, then zone 1 will still receive a portion of conditioned air which would not be adequate for maintaining room condition on design condition outdoor

¹ Transcript – 25:37

² Transcript - 25: 46-47

temperature days. The system could also be arranged to air condition the whole house simultaneously, but the system would not maintain indoor design temperature when the outdoor temperatures are at or near the maximum."

31. The plaintiff said that he understood by this correspondence that,-

*"if it was more than 32 degrees outside and the bedroom area needed all of the air being directed into the sleeping areas in zone 2, then it wouldn't maintain room condition, that is to say it wouldn't achieve 24 degrees. I'm reasonably sure I knew that at some point."*³

32. The plaintiff said that he thought the reference to the system being able to air condition the whole house simultaneously was an alternative to the zoning system. He also said that he understood that whatever the temperature was designed to be, could not be achieved if the outdoor temperature exceeded the design maximum.

33. The plaintiff said that he thought that irrespective of whether a two-zone system was used, or a 'whole house' system, that it would keep a constant temperature unless the external temperature exceeded the design parameters.

34. The defendant said that about this time (February 2002) he had a conversation with the architect with regard to another alternative, that being a multi-zone system to air condition the whole house with separate units on each floor, but that would have require two or three units for the property. The plaintiff said he had no recollection of that conversation.

35. The architect was not called to give evidence.

36. One thing about which the plaintiff was certain was that Mosman Council had a requirement that there only be one air conditioning unit per property unless a further Development Application was made. That information was conveyed to him by a letter from the architect of 9 May 2002. He was most reluctant to approach Council for a further DA because he had already had to overcome some nine objections to the original DA including one from the neighbour on the eastern side of the dwelling.

37. The plaintiff agreed that he instructed the defendant to continue to design the air conditioning system using one air conditioning unit and not two. That information was conveyed to the defendant by the architect on 16 May 2002.

³ Transcript – 29:45

38. The plaintiff said that he understood that the whole of the house would be air conditioned in "one go"⁴.
39. The plaintiff said that he understood that if "you only had one air conditioning system – one air conditioning unit, you could only have one zone".⁵ This evidence is consistent with the contemporaneous correspondence between the architect and the defendant in which details of the size, operation and location of the plant for the air conditioning system were discussed.
40. The architect wrote to the plaintiff on 29 May 2002 setting out the requirements and the locations for each of the component units for the air conditioning system.
41. The defendant prepared a specification which was undated, but identified as number 1002M/02.
42. At paragraph 1.3 of the design conditions the specification provided as follows:-
- (1) *The systems have been designed to the following requirements.*
 - (2) *Air conditioned spaces will be maintained at 24 degrees C DB and 40% to 50% relative humidity up to maximum outdoor summer conditions of 32 degrees C DB and 23 degrees C WB and a minimum of 20 degrees C DB down to minimum outdoor winter temperature of 7 degrees C DB.*⁶
 - (3) *Minimum outside air requirements for air conditioned spaces have been assessed on the basis that the areas be naturally ventilated in accordance with the Building Code of Australia.*
 - (4) *All sunlit windows shaded with internal Venetian blinds or similar set at 45 degrees. The blinds should have the following performance:-*
 - (a) *Absorbitivity 0.37.*
 - (b) *Reflectivity 0.51.*
 - (c) *Transmissibility 0.12.*
 - (d) *Solar shade 0.56.*
43. Plainly, the air temperature inside the house was to be regulated by a combination of window shading and air conditioning. It may safely be inferred, I think, that the specification made clear the fact that if the design criteria was to be achieved, the blinds would have to conform to specification both in terms of fabrication and angle.

⁴ Transcript - 32: 12

⁵ Transcript 32:25-40

⁶ 'C' refers to Celsius, 'DB' refers to Dry Bulb and 'WB' refers to Wet Bulb

44. The plaintiff said that he understood this specification to mean that when the external temperature was 32 degrees C, the air conditioning would maintain a constant temperature within the house of 24 degrees. In other words, he said, he understood that if the external temperature were 7 degrees, the system would achieve an internal temperature of between 23 degrees and 20 degrees⁷. He said that *"irrespective of where in the house the temperature was taken, 32 degrees outside that the air conditioning would maintain a constant temperature within the house of 24 degrees."*⁸
45. He said that he had not used a temperature gauge or a thermometer in the house but was able to say that when the system was running, there was not a simultaneously maintained constant temperature, either in summer or winter.
46. There was no suggestion that the defendant's representative, Mr Smith, ever told the plaintiff that the system would maintain a temperature of 24 degrees within the house. Mr Smith said in fact that he expressly told the plaintiff that there would be temperature variations within the house.⁹
47. The architect and defendant liaised about the size and location of the air conditioning plant. Initially (in the DA approval) the condenser unit and fan coil were located on the eastern side of the house. However there was insufficient space on the eastern side and ultimately both units were moved to the western side and housed in a sub-floor space that required excavation. In order to reduce the noise of the unit, various steps had to be taken by the builder, including the installation of a solid core access door and acoustic louvres.
48. During June 2002, the defendant obtained quotes from mechanical services contractors for the installation of the system. The quotation of January Engineering was accepted.
49. The defendant was consulted about the need to relocate the fan coil unit from the eastern side of the subfloor area to the western side. Revised drawings were prepared by the defendant and forwarded. On 2 August 2002, the structural engineer requested minor changes to the ductwork under the ground floor slab from the plant room and the defendant incorporated the changes into the drawings by revision dated 7 August 2002. The defendant said that this version (7 August) was the final design of the air conditioning system.

⁷ Transcript - 34: 10 -25

⁸ Transcript - 34: 10-17

⁹ Paragraph 3 of Exhibit 2

50. Notwithstanding that inspections of the work were envisaged by the defendant's original proposal for the works, the defendant said that he was not contacted in connection with the project until May 2003 when he received an email from the architect inquiring of him whether zoning had been incorporated in the design.
51. In some ways, this was an extraordinary question for the architect to have asked at that stage of the works.
52. It seems to have been prompted by a letter from the plaintiff to the architect of 12 May 2003 in which he said that he had had a conversation with the "air conditioning people" and that *"they tell me that the air conditioning is not zoned, but if a decision is made quickly, it can be"*. He said: *"it seems to me to be important that the air conditioning is zoned, since there are considerable variables between the bottom floor and the top. It seems to me for instance, that the top will absorb some heat from the roof and it is important that it is kept cool, but to do that, would mean turning the ground floor into an ice cave. I attach a letter to January Engineering asking them to see what can be done asap about zoning, and the cost, if any, to do it."*
53. The architect then wrote to Mr Smith. In his reply, Mr Smith reiterated that his initial design included zoning based on separate systems for each floor but that the design was amended because of the Council requirement that there was to be only one air conditioning unit per house and problems with finding sufficient sub floor space to fit 3 units.
54. He added however, that although the system was designed to air condition the whole house, it was possible to get closer temperature control if a sensor was installed on each floor of the dwelling. On or about 22 May 2003, the plaintiff wrote to the defendant and requested that the system:
1. be able to shut of [sic] single rooms from any air by using MANUALLY OPERATED dampers in the duct.
 2. be able to shut off entire levels by using the same type of system
 3. to compensate for the reduced amount of air going into the house, be able to reduce the speed of the engine, to say, 30 per cent, and 60 per cent."
55. The defendant's evidence was that the type of system that he had designed produced a fixed volume of treated air. He said it was the only technology available at the time that would produce the volume of air required to air condition the entire dwelling using only one unit.

56. The defendant said that the plaintiff's suggestion that the option be available for the engine to operate at 30% or 60% necessarily referred to the volume of air treated in the fan coil unit. He said the volume of air treated in the fan coil unit in this type of system could not be varied as per the plaintiff's suggestion because of the way in which the fan coil unit operated. At this stage (May 2003) the plant had already been installed and the defendant said it was not possible to reduce the volume of air to be treated if certain spaces were to be excluded from the system from time to time by being shut off. If spaces were to be shut off, then it was necessary to bleed the excess air from the system, and if it was not bled from the system, it would be pushed through the remaining open outlets, creating noise and potentially also temperature control problems.
57. The defendant said that on or about 27 May 2003 he attended a meeting on the site with the plaintiff. As a result of that meeting the defendant wrote to the plaintiff on 29 May 2003 confirming that the system was to incorporate zoning by installing dampers to shut off certain rooms, and excess air from the system was to be bled from the system into the plant room. However, he said BSA was not instructed to document the variations to the design.
58. It is reasonable to infer at this point that the plaintiff, via his architect, had required the defendant to design a system that would conform to Council's requirements and the exigencies of the site. He had specifically endorsed a design that involved a single unit that would air condition the whole house simultaneously. His own correspondence makes it clear that he was aware of the potential for differences in temperature throughout the house with this type of system. The effect of the 27 May 2003 meeting and agreement was to vary the design so as to isolate certain areas from receiving conditioned air with a view to maximizing the operation of the system in other areas. In short, to achieve a zoned effect without separate units.
59. The fact that the defendant was not asked to document these changes leads to the conclusion that either the changes were not made or that the supplier and installer of the system gave effect to them without the benefit of a revised design by the defendant.
60. In his statement of March 2011 (Exhibit 6), Mr Smith said the temperature controller has differential settings of approximately 1.5 degrees C either side of the target temperature to stop the system cutting in and out in quick bursts in order to maintain the target temperature. As a result, he said, if the controller is set at 24 degrees C

then the space will be maintained between 22.4 and 25.5 degrees C. He said that the provision of internal shading on sunlit windows (clause 4 of section 1.3 Design Conditions in the specification) would considerably help to maintain closer temperature control. When calculating the cooling load for a space, the aspect and size of the windows is taken into account and in doing so, an assumption must be made as to whether the windows will be covered by blinds or drapes and to what extent those blinds or drapes would exclude heat being introduced into the space.

61. Mr Smith said that in 2001 when the system was designed, VRV/VRF condenser units were not suitable for use in an enclosed area (that is, the plant room). The Mitsubishi MLA unit nominated by Mr McGregor as an alternative system was an outdoor unit and not suitable for mounting in a confined space such as an enclosed plant room. Moreover, the calculated cooling load was 44.5 kilowatts. The largest single VRV unit at the time was 28 kilowatts. It would have been necessary to have two 28 kilowatt units, which would have contravened Council DA conditions. He identified other problems with the units proposed by Mr McGregor, most of which concerned the space constraints imposed by the site and by the need to enclose the plant so as to reduce noise.
62. If this evidence is to be accepted, it demonstrates not only that the defendant gave very careful thought to the design of the system but also that the options were necessarily limited by reason of the Council's restrictions and the potential for complaints from neighbours about noise.
63. It was a point picked up by Mr Beeche. In his report which became Exhibit 3, at page 4 he said *"the brief is defined as the client requirements for a "whole-of-house air conditioning system utilising a single unit" after consideration was given to day/night zoning and level-by-level multiple unit options. The email dated 17 May 2002 from Ramsay to Laughton confirms the client instruction to design for "one air conditioning unit and no zoning."*
64. He noted that post tender, the plaintiff had raised a query about zoning and that the defendant had explained the earlier decision and *"the additional option offered to provide thermostats at each level for closer temperature control. I have not been briefed with any evidence to suggest that this control option was accepted or documented but my inspection revealed that additional controls are installed enabling operation from the two upper levels. Although not controlling the local temperature, ie*

not providing the sensing and function of a thermostat, they provide on/off, cool/vent and set point adjustment functionality from the occupied level."

65. Mr Beeche elaborated on this point in his later report (Exhibit 4, page 3) when he noted that the defendant had not been instructed to amend the design to provide the option of the sensors on each level.
66. In a later report (Exhibit 5) he said that *"the BSA specification states that the system was designed to maintain a set point temperature of 24 degrees C and 40 to 50% RH when outdoor conditions do not exceed 32 degrees C db and 24 degrees C wb. This set point, used to design the system capacity, should not be confused with control accuracy or tolerance associated with system performance. The specification does not specify control accuracy but specifies that a Leasam LE 501 microprocessor controller be utilised. This controller utilises a thermistor sensor, which typically has a sensing accuracy of +/- 0.3 degrees C and typically controls to within +/- 1 degree C of set point which is well within the traditional +/- 2 degrees C system control tolerance for residential air conditioning"*.
67. On or about 17 July 2003, January Engineering sent to the defendant a copy of their air balance testing checks. At that stage, due to an issue that had arisen with the plaintiff's neighbour on the eastern side of the property with respect to the noise of the system, the installation was not complete. The defendant noted that the system would require further air balance testing.
68. The installation was completed by January Engineering and the defendant inspected it at a site meeting in late August 2003. The meeting had been called because of the level of external noise generated by the operation of the condenser and fan coil unit. Both he and the builder made suggestions for the reduction of noise. Mr Smith prepared a report of his observations dated 28 August 2003. It is obvious from that report that there had been, in the installation or construction phase, changes from the initial plan of the system, its components and ductwork.
69. Mr Smith said that he did not receive any further air balance testing results from January Engineering or anyone else and in fact heard nothing further until 17 August 2004.
70. In the meantime, the plaintiff had taken occupation of the house on 16 October 2003.

71. On 17 August 2004, the plaintiff wrote to the defendant complaining that the air conditioning unit did not heat but merely recirculated the existing air. The defendant forwarded the complaint to January Engineering who declined to attend upon the plaintiff because (they said) their final invoice had not been paid. The defendant's attitude then, as it is now, was that any defect with the operation of the unit was a matter for the party that supplied and installed it.
72. The defendant was not contacted again until August 2007 when the plaintiff issued a letter of demand, contending that the design of the system was defective. He enclosed two expert reports, one from Mr Rigney and one from a Mr MacGregor.
73. Mr Rigney prepared a report and gave evidence. He said that he attended the plaintiff's property on 14 January 2007 to find out "*why the air conditioning system was not working*". He said that once he familiarised himself with the system, he discovered it was a two stage or two circuit system and both of the compressors were short of gas. Once that fault was identified and they were re-tightened, he added gas, and the air conditioning system worked. In the course of carrying out that work, he observed that the unit was very noisy and lacked system control. He said he felt that the return air in the house was making too much noise, and in the plant room he had to wear earmuffs. He said that he felt the system was more suited to a commercial building than to a house, and although he did not record actual measurements, walking from the lower level to the top level of the house he was able to observe that there was a substantial difference in temperature right throughout the house. He said that he thought it was an entirely inappropriate sort of system. He said "*it would be beautiful for a big, massive space which is 55 kilowatts of space is quite a big – quite a big area but it was not capable of changing and controlling the temperature on each different level as I would've thought, in my opinion, it should be.*"¹⁰ It was his view that it was not possible to rectify the system. He said that taking into account the capacity of the air conditioning unit at 55 kilowatts, the return air grill and the ducting, the linking ducting was too small for the size. He said that the result of having duct work which was too small was that it would affect the overall performance. He said that "*if the unit was performing correctly, you would still have a differential in temperature between the lower level and the top level.*"¹¹ It was his view that the system could not be modified successfully to make it work "*correctly*". He said it was working as far as refrigeration was going, but it was not delivering comfort to the client. His suggestion was to pull it

¹⁰ Transcript - 37: 20-27

¹¹ Transcript - 41:16 & 22

out and start again with a system that would be able to run individual rooms at individual temperatures at any time. He provided that opinion in a report dated 15 September 2006.¹²

74. In answer to the question of whether the client wanted the whole of the house to be 24 degrees, was it possible to use a single unit to achieve that, Mr Rigney said, "*If you had installed zone proportional temperature zone controllers with individual thermostats, a very complicated and unreliable system, yes.*"¹³
75. Mr Rigney gave evidence that in 2002 there was an air conditioning system that would have met the requirements and would have fitted into the plant room, and that was a Mitsubishi Electric City Multi that started at a net capacity of 45 kilowatts. He was of the view that this system could have been used in the plaintiff's house.
76. Mr Rigney's suggestion to pull the air conditioning system out and to start again would have involved, in his view, a cost of "*somewhere about \$70,000.00.*"
77. Mr Rigney agreed in cross-examination that the installation of the type of multi system that he had recommended could possibly have been installed in a plant room, but he would have preferred a bigger, and higher area.
78. He undertook two visits to the property – at the first visit, he tested the system for about thirty minutes¹⁴ and tested the refrigeration gases. He attended on a second occasion to ascertain why the system was not heating. He ran the system for about fifteen minutes and rewired it so that it would heat the home.¹⁵ He conceded that it was possible that he had adjusted the system so that it would only heat and not cool.¹⁶
79. In my view it is important to bear in mind that Mr Rigney attended the site as a result of a service call arising from the fact that the system would not operate. He ran the system for a short period of time before ascertaining that there were gas leaks causing the system not to cool effectively. His observations regarding the style and noise of the system derived from a very short inspection and even shorter test-run of the system and without access to any of the design criteria or documentation. His second attendance arose because the system would not heat. He was not called to the site for the purpose of proffering an expert opinion as to the system's suitability to the

¹² Transcript - 42

¹³ Transcript - 44:40-43

¹⁴ Transcript - 56: 30

¹⁵ Transcript - 56:35-40

¹⁶ Transcript - 56:45

premises or whether it complied with its design specification. He was not asked to review the design specification. He did not run the system for longer than half an hour and he did not record the temperatures throughout the house. Indeed, he did not check the temperature at all. He relied on his impressions.

80. Both parties called expert evidence from air conditioning engineers, Mr Beeche for the defendant and Mr MacGregor for the plaintiff. Their reports were tendered and they gave evidence simultaneously. At T 162 -163, both witnesses agreed that three separate units would have delivered a better result to the house than one system with what they called the "*rather tortuous route for all the ducting*".¹⁷ They continued (and it is useful to quote) at T 163:-

Q. Alright then, if a client said to you, 'well, look, I want the whole house to be maintained – I want to maintain it at a particular temperature, say 24 degrees'. Is that possible?

Witness Beeche: You would have to advise him that split system per level would achieve a better outcome than a single unit serving the whole house. I think within the realms of residential air conditioning, people's expectations for temperature control are low. It's a bit like a car. You know, they are becoming more sophisticated these days, but not back in 2002. There's a whole variety of optimisation of equipment that has taken place in the last 10 years that allows you to achieve much closer control, the inverter systems for instance, it's a speed control of the compressor. So that it can be reduced to match that load that exists at the particular time it's operating, which saves energy and is quieter and achieves a better outcome from a stable temperature point of view. The systems that existed at the time were largely constant compressor speed units. This one has two compressors, so it enables the capacity to be reduced in half.....

Witness MacGregor: We've done that sort of thing in houses and used an inverter, VRF type system. We did one of those in 2000 – no 1999. The issue though.....you had to be very careful there with what we call compliance with the practical limits. In an engineering way, you had to sort of be careful how you applied them.

Her Honour: Could you air condition a house satisfactorily using one system, such as the one that is there at the moment?

Witness MacGregor: Look, you know, it's not the way you'd do it, you'd sort of normally – as Geoff was saying before – it's not the way you'd normally sort of try to approach it. But if it had to be done, it could be done. Contrary to some opinions, I think it could have been achieved. Even on a retro fit basis, I think it could be achieved.

Witness Beeche: No. I think you can probably meet the expectations for the broad brief, a loose brief of comfort cooling, within sort of generally accepted tolerances for the operation of the equipment within that space at the time. The types of controls for instance would probably achieve plus or

¹⁷ Transcript - 163:1-3

minus 2 degrees. So if you had a set point of 24 degrees, some parts of the building might be 26, some parts might be 20.

Witness MacGregor: You can get a plus or minus 2 variation, but also could actually even have a greater variation when the sun is on that glazing. It could be even higher than the 2 degrees.

Her Honour: So then in the specification it says 'Design Conditions. Air conditioned spaces will be maintained at 24 degrees C DB *The systems have been designed to the following requirements.*

- (1) *Air conditioned spaces will be maintained at 24 degrees C DB and 40% to 50% relative humidity up to maximum outdoor summer conditions of 32 degrees C DB and 23 degrees C WB and a minimum of 20 degrees C DB down to minimum outdoor winter temperature of 7 degrees C DB.¹⁸*
- (2) *Minimum outside air requirements for air conditioned spaces have been assessed on the basis that the areas be naturally ventilated in accordance with the Building Code of Australia.*
- (3) *All sunlit windows shaded with internal venetian blinds or similar set at 45 degrees. The blinds should have the following performance:-*
 - (a) *Absorptivity 0.37.*
 - (b) *Reflectivity 0.51.*
 - (c) *Transmissibility 0.12.*
 - (d) *Solar shade 0.56.*

Q: What does that mean? What does that mean to you?

Witness Beeche: It means that you use those parameters to design the system. It tells you that there's sufficient capacity in the system to achieve that particular temperature at the control point under those ambient conditions....so you could set it up to make 24 degrees happen when it's 32 degrees outside. But the other words, and I don't use in my brief, the word 'will' is always – we're talking design conditions, but to some extent when you treat that on its own, to me it sort of – I use, 'the system shall be capable of achieving the 24 degrees in the space'. That's what you're really looking at. But it should also be outlined to people what that really means, and that's when we often sit down with a client outlining how that will be achieved in those conditions, and what the parameters will be. We often mention there it can be a plus or minus – like Geoff was saying there before, with the plus or minus 2 variation.

Q: Did those windows, had they been installed with venetian blinds?

Witness Beeche: I'm not sure. I think they're holland blinds, which are of a similar performance characteristic. The shade co-efficient that we use in the

¹⁸ 'C' refers to Celsius, 'DB' refers to Dry Bulb and 'WB' refers to Wet Bulb

calculation wouldn't change, depending on whether it was drapes, venetian blinds or holland blinds.

Witness MacGregor: Yes, they're an acceptable type.

Her Honour: The next question is did this system meet those design conditions? You've seen the design conditions in the specification. Did the system meet them?

Witness Beeche: Certainly. With the reselection of the unit – change from Uniair to Carrier Apack, it enhanced the capacity when it's installed. So that it more than met – and I did some check calculations myself – it more than met the required duty that I perceived that was required.

Witness MacGregor: Look, I have the same principle. It does, but I just don't think it really achieved what the intent would have been to provide comfortable conditions throughout the space.

81. The expert witnesses' attention then turned to the question of the commissioning of the system. Mr Beeche was of the view that the system had not been properly tested to prove that it did not work. He said:

Witness Beeche: If it's defective, you can't operate it properly, and if it hasn't been tested you've got empirical data on which to base that assertion. The fact that the system was perhaps not fully commissioned by the time the contractor left the site, it was operable when he turned it on, and found it wouldn't cool properly, and called a serviceman who discovered there were leaks in the system. Obviously, repairing those would have brought it back to an operable condition. You would then want to see how it goes. The final commissioning that you would expect you would hand over to the client would be to not only do the air balance according to your calculations, but do what we call a thermal balance. Which is the fine tuning the air quantities to particular parts of the building to suit the occupants, the way they've got their furniture arranged, et cetera. They might have you know greater needs for a slightly cooler temperature in one part of the building compared to another.

Her Honour: Whose job is that? Is it the installer's job or your job?

Witness Beeche: The installer's job.

Witness MacGregor: It's just not a satisfactory – certainly I don't think the place was commissioned properly. Unfortunately that's one of the greatest weaknesses we see these days, that sort of occurrence. But I still think it would have had the weaknesses that we've alluded to, because I don't think it was fully comprehended in the design.

82. Counsel for the plaintiff argued that the defendant was negligent in the advice that it provided and in breach of its retainer in that it designed an air conditioning system that was not capable of performing to its own specification. The failure to achieve the design parameters falls, it was said, on the location of the one temperature sensor that located in the return air duct. It does not measure the air space of the room and the temperature is merely averaged. The location of the one sensor in the return air duct does not balance the thermal load which is of particular significance when one takes

into account the proximity of the north facing glass on the three levels of the house, the different rooms sizes, the varying thermal loads for each level and the return air duct being located in the stairwell close to the southern side of the house on the lower level.

83. Mr Smith was cross-examined about it. He conceded that the single zone system that was designed had one temperature sensor located in the return air duct which was essentially in the middle of the house on the first floor.¹⁹ He agreed that it would not necessarily balance the thermal load on the northern aspect, but average the temperature for the whole of the house and he agreed that with the temperature sensor in one position it was not possible to maintain a consistency of temperature throughout the whole house.²⁰
84. At Transcript 131:10-20, Mr Smith explained what he meant by average temperature. He said if the control was set at 24, different areas in the room might measure temperatures of 26 degrees, 22 degrees and 23 degrees, but when it all comes back together, it averages 24. He said that was industry standard and everybody understands what that means. He also explained that there were three criteria to getting people comfortable: dry bulb temperature (the temperature we measure by the thermometer); the wet bulb temperature (that is the relative humidity); and the air movement in the space.
85. The plaintiff continued in its argument by referring to the evidence of the experts, Mr McGregor and Mr Beeche. It was submitted that they were of the opinion that the system itself had the capacity to do the job providing temperature control and there was no need to pull it out and start again. The system could be rectified either through the insertion of VAV boxes, or VAV diffusers.
86. In terms of damages, Mr Beeche was of the view that up to seven VAV boxes would need to be installed at an approximate cost of \$30,000.00 plus the cost of building works. The plaintiff submitted a nominal figure for building works which was between \$7,000.00 to \$10,000.00. Mr McGregor on the other hand, allowed an amount of between \$30,000.00 to \$41,500.00 if the proprietor paid for the diffusers.
87. The plaintiff conceded that the mid-line point of around \$55,000.00 would be the appropriate award for damages if liability was established.²¹

¹⁹ Transcript - 125:45-50

²⁰ Transcript - 126: 40-41

²¹ Transcript - 212:5-10

88. The defendant pointed out that the plaintiff's case against the defendant is for breach of a mechanical engineering agreement in that the defendant did not provide the plaintiff with an air conditioning system that would achieve consistent temperature zoning throughout the house. The defendant's case was that it was impossible to achieve such an outcome within the design parameters set by the plaintiff. Further, the defendant said that the experts agreed that it was not possible for such a system to have been installed at the plaintiff's house. Even if an appropriate system had been available in 2002 (about which there was significant dispute) it could not have been utilised in the plaintiff's house as it would not have been possible to comply with the development consent and refrigerant codes while using a 45 kilowatt unit.
89. The unchallenged evidence of Mr Beeche was that it would have been impossible to design a system that would maintain a constant temperature throughout the house using one air conditioning unit. Mr McGregor did not disagree with this. Mr McGregor's evidence, as detailed in his report of July 2010, is that in order to achieve a constant temperature in the house, multiple VRV units should have been installed. The evidence is clear that the plaintiff would and could not have accepted such an option because of the difficulty with obtaining development approval from Council and his reluctance to approach Council to amend the development approval.
90. It follows that the only air conditioning system that the defendant could have designed is the design that he prepared – an all air single zone system to operate within an acceptable industry tolerance of plus or minus 1.5 degrees. Mr Beeche said that had he been faced with the limited brief of designing an air conditioning system that would comply with the DA conditions, he would have designed the existing system.²²
91. Mr McGregor's evidence was that Mr Smith should have explained the advantages and disadvantages of the various systems on offer. The evidence however is that the defendant did provide such advice. He had initially proposed a two zone system, and explained its strengths and limitations. He offered a three unit system and explained that with a single unit system the plaintiff could expect temperature variances from floor to floor. Mr Laughton accepted that he understood that there could be temperature variances from floor to floor.

²² Transcript - 178:23-28.

92. Mr McGregor's evidence is that he would have utilised VAV diffusers as well so as to achieve comfort conditions ²³, but there is no evidence or no sufficient evidence that comfort cooling cannot be achieved with the current system.
93. One aspect of the matter is particularly troubling: the evidence that the air conditioning system has only been run for a maximum of 5 hours at any one time. In my view, that is an inadequate test to determine whether or not comfort cooling can be achieved. In any event, secondly, the difficulty with the VAV diffusers is the evidence of Mr Smith that it would have been impossible to accommodate them in the design of the house. That is consistent with the evidence of Mr Beeche that it would have been difficult to accommodate VAV diffusers²⁴.
94. The system has never been completed or fully commissioned. Mr McGregor – and the plaintiff to some extent – assert a belief that there could be a greater variation in temperature than +/- 1.5 degrees C but that assertion is not based on any empirical evidence, or any temperature testing. Mr McGregor accepted that in order for him to test the system properly, he would have to carry out tests over a period of one month.²⁵ This was not done. The evidence of Mr Beeche was the likely tolerance for the air conditioning system is unknown because it has not been tested.
95. In relation to complaints about the noise generated by the air conditioning, the evidence is that the system as designed by Mr Smith was not installed.²⁶ The design of the defendant in relation to air intake was changed and, in particular, instead of solid core plant room doors, the doors were louvred which had the effect of allowing noise to escape to the outside of the house. Further, the original duct work layout was changed, as was the size of the duct work. These were noted in the report of August 2007 of Mr Smith and were picked up and elaborated upon by Mr Beeche.

Findings

96. The matter is a particularly difficult one because I accept that each party – each witness – did his best to give truthful and relevant evidence. To a considerable extent there was little conflict in the evidence; rather the question became what meaning should be attributed to the evidence.

²³ Transcript - 178:32-34

²⁴ Transcript - 195:11-26

²⁵ Transcript - 186:45

²⁶ Transcript - 83:41 and 84:1-18

97. The initiating pleading asserted that the defendant was in breach of its retainer or its duty of care in that it failed to carry out the work to the standard of an ordinarily skilled engineer. That breach was particularized in a number of ways but in essence, the plaintiff said that the system was more suited to a commercial premises, that the system failed to ensure that there were individual controls available within it, that it failed to take into account the thermal load of the spaces to be conditioned, that it averaged the conditions occurring in each room such that it failed to adequately condition the spaces served, that it designed a system which caused excessive noise and designed a system that was inefficient in that no allowance was made to isolate or control individual rooms.
98. The problem that confronted the parties was that the plaintiff intended to construct (and did construct) a multi level house with many glazed walls and windows. In order to achieve development approval, the plaintiff had endured the difficult process of addressing at least nine objections. He was naturally reluctant to approach Council to seek an amendment to the consent to permit more than one air conditioning unit. Thus his specification to the defendant was to design a system that conformed to Council's requirements with respect to air conditioning.
99. I am satisfied that the defendant created several design possibilities and these were the subject of discussion with the architect, Ms Ramsay and the plaintiff himself.
100. I am satisfied that Mr Smith understood that he was required to work within the parameters of the Development Approval which incorporated an express limitation on air conditioning units in residential dwellings.
101. I am satisfied that the defendant approached the task with care and skill. It is plain from his evidence that he took into account the thermal load of the individual spaces to be air conditioned, making assumptions where necessary as to the location and effect of blinds and drapes.
102. I find that in the course of installation, some variations were made to the design prepared by the defendant. In particular, the location and size of some ductwork was changed. I am not satisfied on the evidence that the design prepared by the defendant created a system which generated excessive noise. The more likely scenario in my view is that the system's efficacy in terms of noise was compromised by the necessity of relocating the plant from the western side of the house to the eastern side, and the necessity of enclosing it in a plant room that had been excavated for the purpose. The

problems to which this gave rise were exacerbated by the changes made in the course of installation.

103. I am not satisfied that the defendant acted in breach of his retainer or in breach of his duty of care.
104. Further, given the views of Messrs McGregor and Beeche as to the state of air conditioning technology in 2001-2002, and the detailed specification provided by the defendant for the system, I am not satisfied on the balance of probabilities that the air conditioning system as designed by Mr Smith does not meet the design criteria, or that it does not operate within the accepted industry tolerances for temperature control to provide comfort cooling.
105. It follows that there must be a verdict for the defendant.

Remaining issues

106. The defendant pleaded the statutory time bar in its Amended Defence. For the avoidance of doubt, had I found that the defendant had been in breach of its retainer or in breach of its duty of care, it seems to me that time on the cause of action would begin to run either when the breach occurred (in the case of breach of contract) or when the damage was sustained (in the case of negligence). On the facts before me, the design would only appear to have been completed in the sense of being finalized, in or about May 2003 when installation was commenced because it was only then that the changes to the location of the plant were finalized. That being the case, the cause of action would have expired in May 2009. There may be differing views as to the point at which the damage was sustained but on balance, the date of handover of the property to the plaintiff would seem to be the point at which it crystallized because it is at that point that a builder warrants that the work is complete and able to be inhabited. The date of occupation was 16 October 2003. Accordingly, the cause of action in negligence would expire on or about 16 October 2009.
107. The plaintiff commenced his proceedings in the CTTT in August 2008. Therefore I find that the Limitation Act defence would not have succeeded.

Proportionate liability

108. Paragraph 14 of the Amended Defence pleaded that the proceedings involved an apportionable claim within the meaning of Part 4 of the Civil Liability Act (CLA) and

nominated the former first defendant and the architect Dianne Ramsay as concurrent wrongdoers.

109. s.34 (2) provides: *In this Part, a "concurrent wrongdoer", in relation to a claim, is a person who is one of two or more persons whose acts or omissions (or act or omission) caused, independently of each other or jointly, the damage or loss that is the subject of the claim.*
110. Part 4 is concerned with claims "in an action for damages, (whether in contract, tort or otherwise) arising from failure to take reasonable care." The plaintiff's claim falls within that definition. The onus rests with the defendant to establish the assertion that January Engineering and Ms Ramsay are concurrent wrongdoers: *Platt v Nutt* (1998) 12 NSWLR 231 and the defendant bears the burden of establishing a causal link between the conduct alleged against the name concurrent wrongdoers in the Amended Defence and the damage suffered by the plaintiff: *Reinhold v New South Wales Lotteries Corporation (No. 2)* [2008] NSWSC 18.
111. In *Reinhold* at [19] Barrett J said:

"19. It seems to me clear that a person will be a "concurrent wrongdoer" only if the court makes findings about the existence of "loss or damage" and about which acts or omissions "caused" the loss or damage. It is only when those findings are made that it is possible to identify, as contemplated by s 34(2), each person whose acts or omissions, as found, "caused" the "loss or damage", as found. At that point, and not before, a person can be seen to be a "concurrent wrongdoer".

20. The relevant "claim" – that is, the claim in relation to which the identified person is a "concurrent wrongdoer" - can only be the claim in respect of which the findings concerning loss or damage and causation are made. That claim is, of necessity, a claim already litigated, not a pending or foreshadowed claim. Its nature and content (and, therefore, its status under s 34(1)) will be discoverable by looking at the findings that cause it to be determined as it is determined. If, on those findings, it is seen that the loss or damage (as established in "an action for damages") arose from a failure to take reasonable care and did not arise out of personal injury, the case will be within s 34(1)(a); and if it is seen that there was a contravention of s 42 of the *Fair Trading Act*, the case will be within s 34(1)(b). In either such case, the already litigated "claim" will be an "apportionable claim" because of s 34(1) and, if, on the findings made, the acts or omissions of several persons "caused" the "damage or loss" as found, the persons will be "concurrent wrongdoers".

22. On this basis, the nature of a "claim", for the purposes of Part 4, will be determined by what the court has decided in the case, not by what might be prayed or pleaded in an initiating process or points of claim. In short, "claim" refers to a claim as proved and established, not a claim as made or advanced."

112. I have found that the plaintiff has not suffered loss and damage as alleged. Accordingly it is unnecessary to decide the question of whether and to what extent there were concurrent wrongdoers. However, had I been required to determine the matter, I would have found January Engineering partly responsible for the failure of the air conditioning system to perform to the standard specified by the design. The available evidence reveals that January Engineering altered some aspects of the defendant's design at or during the installation process. It is highly likely that such alterations were performed at the request and direction of the architect or after consultation with her. I have no reason to suppose that the changes were made solely to accommodate the air conditioning plant on the western side of the property and to improve the temperature control. It seems to have been an unfortunate result of that process that the size and location of the ductwork did not receive the attention it required and various other gaps and spaces were left, which had the effect of exacerbating the noise of the system as well as interfering with its efficacy in terms of heating and cooling.
113. I would have assessed January's contribution to have been 40% of the plaintiff's loss.
114. In any event, I accept that it would also be appropriate to have regard to the amount for which the plaintiff settled his claim against January and to make an allowance for that sum in calculating damages. That sum was \$10,000.00.
115. I am not satisfied on the evidence that Ms Ramsay would have been a concurrent wrongdoer although some questions remain about the manner in which the air conditioning subcontract was detailed and managed.
116. It is necessary that I consider the position on the basis that I am wrong about the finding of liability. Had I found that I was satisfied that the air conditioning system did not meet the design criteria, or that it did not operate within the accepted industry tolerances for temperate control to provide comfort cooling I would have found it liable for 60% of the plaintiff's damages. I am required to make an assessment of those damages. I accept the evidence of the experts, Beeche and MacGregor, that the system could be improved by the installation of VAV diffusers or VAV boxes. I accept the figure propounded by the plaintiff²⁷ at about \$55,000.00. 60% of \$55,000.00 is \$33,500.00. That sum would be the amount of damages I would assess had the plaintiff been successful. For the avoidance of doubt, I have included the amount of

²⁷ Transcript – 211-212.

the settlement with the first defendant in the percentage figure so no further off-set should be allowed.

117. Therefore, the orders will be:-

- (a) Verdict for the defendant.
- (b) The plaintiff to pay the defendant's costs.



I certify that this and the previous 25 pages are the reasons for judgment of Her Honour Judge Olsson SC

A handwritten signature in cursive script, appearing to read "Michelle Brown", is written over a horizontal dotted line.

Michelle Brown
Associate
Dated: 14/12/11