IN THE SUPREME COURT OF GRENADA
AND THE WEST INDIES ASSOCIATED STATES

HIGH COURT OF JUSTICE

CLAIM NO. GDAHCV 2007/0448

BETWEEN:

STEPHEN PRINCE

Claimant

and

GRAVEL, CONCRETE & EMULSION PRODUCTION CORPORATION

Defendant

Appearances:

Mr. Alban M. John with Ms. Patricia A. John for Claimant
Mr. Anselm Clouden with Ms. Sandina Date for Defendant

2012: March 12;
September 19; 20;
2016: February 25.

JUDGMENT

The Claim

[1] **PRICE FINDLAY, J.:** The Claimant Stephen Prince claims damage for loss and damages resulting to the Claimant, against the Defendant, for supplying defective or substandard concrete supplied to the Claimant in constructing his residence at Chantimelle in or about 2004.

[2] The Claimant claims that he ordered 40 cubic yards of a six (6) bag concrete mix at a total cost of $10,464.12, the said sum being paid to the Defendant on 11th

February 2004. It was by the standard of the Defendant itself that the mix when delivered and poured should have carried the weight of 3500 PSI.

[3] The claimant asserts that it was a condition of the order and purchase that the Defendant would transport and deliver the mix by truck to the construction site in four (4) separate loads. It was a condition of the purchase that the Defendant would have sole responsibility for pouring the concrete at the site.

[4] He further asserts that all four (4) batches were delivered and poured by the Defendant's employees or agents on or about 11th February 2004.

[5] The Claimant asserts that the Defendant's employees failed to deliver and pour in a timely manner the batch of mix for casting the slab to serve as the roof of the building, in consequence of which the Claimant states that the mix had begun to ossify and deteriorate by the time of the pour. It was by then defective in that it was not to the required standard and was not fit for the purpose intended.

Particulars of Defect

[6] The defects pleaded are as follows:

(a) By the time the said concrete mix was poured it was observed by the Claimant to be lumpy and smoking prior to pouring;

(b) The mix was further compromised by the employees, servants or agents of the Defendants when they poured water into it in an effort to soften it;

(c) The mix, when subsequently tested as solid concrete, gave a reading or measure of 2500 PSI instead of the 3500 PSI set or stipulated by the Defendant.

[7] The Claimant pleads that when he took up residence at his home in or about March 2004 he observed the slab leaking in both bedrooms, living room and kitchen.

[8] The Claimant reported the matter to the Defendant but that the Defendant has resisted all requests to rectify the problem, and the building has deteriorated.

[9] The Defendants in their defence assert that the 3500 PSI would be based on laboratory tests and that in order to achieve the requisite PSI the concrete would have to be correctly placed, vibrated and cured.

[10] They plead that the contract was for the delivery of concrete and nothing else. The pouring, placement, vibrating, compacting and curing of the mix was for the Claimant and his servants and/or agents. They plead that the Claimant admitted this in a letter which they exhibited to the defence.

[11] They deny that the concrete was not delivered in a timely manner. Further, they assert that the Claimant's workmen received the concrete, signed the delivery slips certifying that the concrete was acceptable, and raised no objection to the quality of the concrete.

[12] They also set out the schedule of casting in their defence:

TICKET NO.	DEPARTS PLANTS	ARRIVE ON SITE	DISCHARGE	COMPLETION
2825	3:25 p.m.	------	4:30 p.m.	5:02 p.m.
5149	3:41 p.m.	5:09	5:18 p.m.	6:04 p.m.
2826	4:00 p.m.	4:55	5:50 p.m.	7:00 p.m.
2827	7:39 p.m.	------	8:00 p.m.	8:45 p.m

[13] They plead that it was reasonable to discharge ticket number 5149 before batch 2826 even through 2826 arrived on site prior to 5149 because 5149 had come from St. George's and was batched before 2826. It was proper procedure to discharge the concrete in order of batching.

[14] They plead the delay in discharging the concrete lay with the Claimant's workmen who took lengthy periods of time to pour and place the concrete.

[15] They deny that the concrete began to harden or deteriorate or that it was in any way defective or failed to meet the required standard. They deny that the concrete was lumpy or smoking. They deny pouring water into the mix.

[16] They plead that if the concrete was defective it was as a result of the Claimant and his workmen in pouring, placing, vibrating and curing the concrete (improperly, my word).

[17] They deny the accuracy of the report on which the Claimant relies and question the methodology and accuracy of the report.

[18] They seek to rely on their own reports and further claim that the Claimant failed to use good construction practice in that despite advice, he failed to use a sealant to waterproof the concrete roof.

[19] They further assert that the Claimant had water from a nearby roof flowing directly onto the unsealed concrete roof.

[20] They deny responsibility for any damage or loss suffered by the Claimant.

[21] In the Reply to Defence, the Claimant denies that the PSI test could only be done in a laboratory and states that he was present when the rebound hammer test was carried out.

[22] The Claimant admits that the letter referred to when he stated that he was responsible for pouring and compacting the concrete was sent in error and that at all times it was for the Defendant to supply, pour and compact the concrete.

[23] The Claimant further pleaded that the concrete was delivered by the Defendant's specialized trucks, made for carrying, transporting and pouring concrete, driven and operated by the Defendant's employees.

[24] The Claimant further pleads that at no time at the site did his workers take over the control or operation of the trucks for the purpose of pouring and compacting the concrete. This was done by the Defendant's employees.

[25] The Claimant does not deny that his workmen signed the delivery slips but denies that this was either an acknowledgement or certification that the concrete was acceptable; it merely acknowledged delivery of the product.

[26] The Claimant further challenged the facts as set out in the defence relative to the testing procedures which the defence laid out.

[27] The Claimant questions the lack of evidence with regard to whether retarders were placed in the mix provided by the Defendant and asserts that this is a further sign of negligence on the part of the Defendant.

[28] The Claimant further complains of the time lapse between batching and offloading, claiming that the Defendant offloaded several batches of concrete past the

industry standard 90 minutes further compromising the quality of the product delivered to the Claimant.

The Evidence

[29] The Claimant Stephen Prince stated that he built his home over the period October 2003 to May 2004. The home is a single-storey 2-bedroom concrete structure with a kitchen, dining room and living room.

[30] He stated that his workmen were responsible for the concrete for the foundation of the building (with which he has had no problem) but the Defendant Company provided the concrete for the remainder of the building.

[31] The concrete provided by the Defendant was supposed to be a six (6) bag mix, and he provided the invoice and the listing of concrete products produced by the Defendant as exhibits.

[32] On or about February 12, 2004 at around 7:00 p.m. the concrete arrived at the construction site from the Defendant Company for pouring. He was present and observed that the first two trucks arrived about 15 minutes apart. One truck started pouring concrete while the other waited for over an hour before it could begin dispensing concrete.

[33] By the time the second truck started to pour, he observed that the concrete from that truck was smoking (his two workmen who testified on his behalf also observed this). He saw the Defendant Company's workers add water to the mix and he noticed that the mix was also lumpy.

[34] After the construction was complete, he and his family moved into the house in June 2004, but before moving in, when the support board was removed from the concrete ceiling, leaks were noticed in the said ceiling in the bedroom, kitchen and living room areas.

[35] This observation made in March 2004 was orally reported to the Defendant Company Manager, Ted Antoine, in March 2004. Mr. Antoine sent out Mr. Findley to see the problem.

[36] Mr. Findley poured water on the ceiling/roof and observed water leaking through the affected areas. The Claimant states that Mr. Findley having done and seen this, admitted that there was a problem with the concrete mix.

[37] A few days later the Claimant spoke with Mr. Antoine and he was told that he should write the Defendant Company with his requests. The Claimant did not do so because in his conversation with Mr. Antoine he said that Mr. Antoine told him that the Defendant Company would give him the blocks to enclose the second storey to allow him to put on a roof, which would protect the concrete slab from rain, but that the Claimant would have to pay to have this done. The Claimant found this solution unsatisfactory.

[38] The Claimant was of the view that the Defendant Company was evading its responsibility to him. The Claimant got expert advice and had James Parke look into the matter.

[39] Mr. Parke having been contacted by the Claimant, visited the building and produced a report.

[40] The Claimant had also had further opinions from several persons, all of whom did not give evidence in the matter.

[41] The Claimant asserts that the concrete supplied by the Defendant Company was defective and as a result he has suffered loss and damage and wants compensation and damages.

[42] In cross-examination the Claimant testified that it was not the first time that he had ordered concrete from the Defendant Company.

[43] He repeated the time line of the arrival of the first two trucks on the 12th February 2004 and stated that there was a third truck but could not recall the time that truck arrived. (The Court had the benefit of seeing the documentation setting out the arrival times of the deliveries).

[44] He stated that his workmen were responsible for setting the concrete once it was poured. He also indicated that there were a number of steps to be taken once the concrete had been poured. He denied that his workmen took too long a time to carry out these tasks, delaying the trucks that came after the initial pour.

[45] He repeated his observations about the concrete from the second truck being lumpy and smoking. He denied that it was his workmen who poured water on the concrete; he repeated that it was the Defendant Company's workmen who put water into the concrete mixture.

[46] He said that when one of his workers said that they poured water into the concrete, that worker was not speaking the truth or was mistaken. Mr. Henry was the employee charged with placing, compacting and vibrating the poured concrete on the day in question.

[47] He agreed that at the time of delivery of the concrete he did not complain but did so about 60 days after receipt.

[48] The Claimant stated that a test was conducted on the concrete about 90 days after delivery, and he was not aware of the time period for carrying out such a test, and he agreed that the concrete was exposed to the elements. He also agreed that it was for his workmen to finish the concrete.

[49] He denied that it was poor workmanship that caused the concrete to be porous. He was not familiar with how roofs should be treated to avoid porosity. He denied that it was poor workmanship that caused the cracking, but asserted it was the poor quality of the concrete that caused the cracks.

[50] He denied that the pipes in the concrete caused it to crack. He denied that the failure to seal or waterproof the concrete resulted in the cracking that took place.

[51] He stated that he had no knowledge as to whether 60 days was a long time for the curing of concrete.

[52] He stated that the concrete provided by the Defendant Company was not up to the required standard and the Defendant failed to provide the promised six (6) bag mix.

[53] That while the workmen did not have a vibrator, the concrete was vibrated but the non use of a vibrator did not result in the problems of the concrete.

[54] Water was added to the concrete in the truck not at the time of placing, and it was both his workmen and the Defendant's men who placed the concrete.

[55] He took no steps to stop the leaks neither did he fill the cracks in the concrete. He agreed that if a sealant was used that the leaks may have stopped. He agreed that he left everything just as it was, but he sought the assistance of Leslie Barry to remedy the problem.

[56] James Parke, a building contractor, stated that approximately 93 days after the slab was cast that he carried out a rebound hammer test on the slab, and having done so he was of the view that the concrete was defective in that he found PSI values varying between 1800 to 2000. He prepared a report of his findings which the Claimant had sight of.

[57] He concluded from the information on the delivery tickets that the time allowed for batching and pouring the concrete was not observed by the Defendant Company, and further, no retardants were used in the concrete mix delivered to the Claimant. This would have assisted in maintaining the integrity of the concrete from batching to delivery.

[58] The breach of standards by the Defendant Company is what caused the PSI readings that he got when he tested the concrete.

[59] Under cross-examination, he agreed that in order to get an accurate reading, an accurate H value reading the concrete should be 14 - 56 days old; this is stated by the manufacturer of the test hammer used for these tests.

[60] He agreed that he had carried out the test some 37 days after the stated period by the manufacturer but said that there are allowances made according to the American Association for Testing Materials (ASTM) in their standards, and the designation is C805-94.

[61] The designation gives one the ability to develop over a period of time a graph through testing with the hammer, and one can produce a different curve for testing beyond the prescribed 90-day period.

[62] He further stated that the curve on the instrument was developed for between 7-90 days, but that he had built an additional graph for 90 - 120 days and it is this graph that he used to determine the impact value of the hammer. He did not display that graph in his report.

[63] He spoke to Ted Antoine of the Defendant Company about the tests that he had carried out, and he admitted that he had told Mr. Antoine that he had made an error in reporting a 2500 PSI in his report because he had miscalculated. He did not attempt to correct the error in his report.

[66] He explained the PSI value is calculated based on a number that you get from the rebound hammer.

[64] Further, that the H value is the number that is registered on the scale of the rebound hammer. That value is compared on a graph on the rebound hammer that gives you the PSI value.

[65] In order to achieve an accurate PSI value you have to have 15 readings. These 15 readings must be conducted no less that 2 - 3 cm apart.

[66] He agreed that he did not state in his report that he did 15 readings but told the Court that this is what he did do prior to compiling his report.

[67] He could not recall telling Mr. Antoine that he had to adjust the PSI downward because the concrete was over 56 days old. He stated that he did not have to adjust the PSI.

[68] He stated further that he had three readings in his report and that he had carried out 45 rebound hammer tests (15 for each area tested).

[69] He agreed that the hammer by itself did not give a 100% accurate value and there are variables that could affect a reading, such as the density of the concrete, possibility of large aggregate close to the surface and the condition of the surface.

[70] He also agreed that the hammer test is not the most accurate test with respect to the PSI.

[71] He testified that he observed that the top of the concrete was poorly finished and it was rough and screed.

[72] He explained that screed meant taking a straight edge and pulling the concrete to a level line or the form work.

[73] He observed leaks but not cracking in the surface of the concrete, and he also observed leaking in the living room and on the cantilever slab.

[74] He testified that vibrating the concrete made the material more dense so that air pockets could be removed. The more dense the concrete the less likely it would honeycomb. Honeycombing arises where you have aggregate not having sufficient cement coverage. Lack of coverage may lead to porosity in the concrete. Vibrating and compacting would avoid these two things.

[75] He described that compacting could be done with a piece of board where you tamp the concrete.

[76] If the concrete is not dense enough, it could crack. You can have concrete which is dense enough because the quality is good and you can have concrete which is dense and the quality is poor.

[77] Density is determined at the placement of the concrete, and the responsibility for placement is the contractors.

[78] If there is tardiness in placing the concrete, the setting time of the concrete would be affected as the material would be in the truck for a longer period of time.

[79] If the concrete is in the truck for a long period of time this would result in smoking of the concrete. This smoking can result not only from tardiness in the placing of the material but also from the length of time it takes the concrete from the batch site to the construction site.

[80] The roof in this case was not covered, it was exposed to the elements, but it is not necessarily prudent to seal if you are going to build or continue with further construction.

[81] He stated that he would not necessarily have put sealant, but that when you place sealant on a concrete roof you do so to prevent leakage and to protect the life of the concrete.

[82] In re-examination he stated that there was no error in his report (somewhat confusing assertion) and went on to say that there was a specific requirement to carry out the ASTM 805-94 test, and he set out the requirement.

[83] They were: a smooth surface, age of the concrete not less than 14 days, material tested must be hard concrete made of gravel or stone as the layer size of the aggregate.

[84] Hugh Thomas, the Manager at the Grenada Bureau of Standards lab, was the next witness for the Claimant.

[85] He deponed that there are chemical additives that can be placed in concrete mix to either fasten the pace of the hardening of the concrete or retard the pace at which the material hardens.

[86] Conplast 423 and RP 264 are the additives. RP 264 is a retardant. It is usually added at the beginning to the water to slow down the setting time when the producer is aware that it would take a long time to deliver the concrete.

[87] Conplast 423 is a super plasticizer. It allows concrete to be more fluid, especially when pumping. It is better to use this additive than water because the addition of water weakens the concrete mix as it already has a water content.

[88] He further testified that he carried out a test of the strength of the concrete on the roof/upper floor of the claimant's residence.

[89] On 18th December 2007, the test was carried out and he prepared and tendered his report to the Court.

[90] In the report, the test clearly showed that of the two samples taken from an area over the verandah of the roof section, the concrete strength varied widely and one

sample was clearly below the PSI accepted in the industry. But he did not state what the industry PSI was.

[91] He was shown other areas of the roof but did not take core samples from those areas as he feared exposing the roof and inside of the house to flooding.

[92] He was requested to indicate whether there was a standard time in the construction industry between batching and discharge of concrete, and he confirmed a time of 90 minutes.

[93] In cross-examination he stated that they test materials to the standard laid out by the Bureau of Standards or to international standards, as the job may require.

[94] He did not know what an H value was, but he tested for the strength of the concrete.

[95] He stated that you can test the strength of concrete at any time. It was not true that the longer concrete is exposed to the elements, the weaker it gets. He testified that concrete strength grows but that 95% of concrete strength is achieved within 28 days of being laid.

[96] He further testified that the vibrating, placing and curing of concrete can have an effect.

[97] He opined that if water was added to the concrete while it was being poured, it would weaken the concrete. Further, if the concrete was in place and setting it can come to a stage where you could touch it and your hand would not go into it. If water is poured on it at this stage, it would assist in curing the concrete better.

[98] The variations he found in the concrete could be as a result of water being added to the concrete as it was being poured.

[99] There were a number of factors which, in his opinion, could result in porosity in concrete. He listed them as follows:

(a) Improper proportion of aggregate in the mix. The delivery slip from Defendant company only stated what materials went into the concrete mix, not how much was used, so he could not comment on the proportion;

(b) If too little water is present in the mix;

(c) Too much water would have the same effect;

(d) Not vibrating the concrete properly.

[100] The vibrating of the concrete in the contractor's responsibility. Improper vibrating could lead to weakening the concrete.

[101] He stated that he used the accepted method for testing concrete by coring the concrete, taking samples, and testing it in the lab.

[102] He was familiar with the rebound hammer test but stated that that test was not an accurate one. He was unfamiliar with the Windsor probe test, but stated that the test he used was accepted by both US and British testing facilities.

[103] He did not look for sealants in his testing.

[104] The 90-minute time frame between batching and pouring varies depending on conditions. If it is morning and the temperatures are lower, the setting time is longer, but if it is not, the concrete reaches a higher temperature faster and sets quicker.

[105] If when concrete is supposed to be setting it is still in the barrel of the truck, the bond that should be forming is not because the mixture is still moving so that when it is eventually placed you would have a weaker concrete. In the late stage of this happening, steam would start coming out of the concrete.

[106] Workmen have to work quickly with concrete as when there is delay there is the possibility of the concrete setting, and if concrete is not placed in a timely fashion, there is a porous aspect to it. Delay can have an adverse effect; the trick was in ascertaining what the setting time is.

[107] Leslie Barry, a civil engineer, gave evidence that he had been requested by the Claimant in or about December 2010 to prepare an estimate of the construction costs for the reconstruction of a reinforced concrete roof at the Claimant's residence in Chantimelle.

[108] He testified that he visited the property and made certain observations about the concrete slab that served as the roof to the structure.

[109] He spoke to observing sprawling to the concrete, that is, chunks of the concrete falling off from the ceiling. He observed this in several areas throughout the building, namely the living room, kitchen and bedroom areas.

[110] The concrete appeared brittle and of poor quality, and when he went onto the roof he further observed an appearance of porosity about the concrete. He then formed the opinion that the slab could not be repaired and could not be left in place. Demolition and reconstruction was the only reasonable means of repairing the structure.

[111] He so advised the Claimant and gave him an estimate to repair, including the plumbing and electrical installations that would have had to be done.

[112] He opined that demolition of the slab would affect portions of the internal and external walls and he made provision for these things in his estimate. (Estimate was tendered as an exhibit).

[113] He also included in his estimate a figure for the protection of the kitchen installations as well as the existing floor tiles.

[114] In cross-examination he stated that he did not prepare an estimate for repair and remedial work.

[115] Ernest Duncan was the foreman at the claimant's construction site in February 2004 when the concrete was delivered by the Defendant Company.

[116] He has worked in the construction industry as a carpenter and foreman from around 1994 and is still employed in the construction industry and says that though he is a carpenter, due to his experience in construction he knows what good concrete looks like.

[117] He was present when the concrete was delivered to the Claimant's site. The concrete was delivered in four batches, and at least one of those batches appeared difficult and problematic from the time of arrival.

[118] The batch appeared to be smoking and lumpy as it was poured. He observed the Defendant's employees adding water to the mix as it was pumped from the truck.

[119] He recalled telling one of the Defendant's employees that he did not like how the concrete was looking but was told that they would add water to the mix, and they did so to make it softer so that it could spread in place.

[120] He also asserted that the Defendant's employees were controlling the pump and the placement of the concrete.

[121] In cross-examination he stated that he told the Claimant at the time of the pouring the concrete that he was not satisfied with one of the batches of concrete. He said he did so in the presence of the Defendant's employees.

[122] He did not ask the Defendant to stop the pour, but he told the Claimant to relay to the Defendant's employees his dissatisfaction with the pour, but he is not aware whether this was done by the Claimant.

[123] He observed that the first batch was good but the second and third batches were lumpy. He had three men spreading the concrete and one of the Defendant's trucks was waiting for a period of time while another was pouring.

[124] He denied that he did not have sufficient men to spread the concrete and denied that it was his men who added water to the mix. Dave Henry was one of the men working with him on the project and he assisted in placing the concrete after it was poured. Henry did not add water to the concrete.

[125] He did not know that concrete was taken from Telescope factory in St. Andrew and brought to St. Patrick to the construction site, and he did not know that the distance between Telescope and St. Patrick was shorter than that between St. George's and St. Patrick.

[126] He said that he did speak to someone from the Defendant Company about the concrete and that his men were responsible for placing and vibrating the concrete.

[127] He did not agree that if concrete was not vibrated that it would be weakened. He stated that vibrating is not always necessary to strengthen concrete. He did not vibrate the foundation of the building. He denied that the problems arose because he did not vibrate the concrete.

[128] The Defendant's workers did assist during the pouring and placing of the concrete at his request, but it was not because he wanted more hands on deck that the concrete was not vibrated.

[129] David Henry was also employed by the Claimant to work on the construction site. He was a carpenter for the duration of the project. He is familiar with concrete and how it behaves and has been involved in construction since 1995. He too was present when the concrete was poured on 12th February 2004.

[130] He observed that the first batch of concrete was good and it was put in place easily but the second batch was hot, hard to settle and stiff so that "we" had to add water to it to try and make it work. This batch was difficult to handle and spread. He recalled the foreman saying that the concrete was not good. The other batches also had problems.

[131] He recalled in cross-examination that there were about four or five workers besides Mr. Duncan spreading the concrete that evening. Some of those helping were not employees of the Claimant.

[132] Persons from the Defendant's Company helped place the concrete and, unlike Duncan, he asserted that they did vibrate the concrete, not with a machine. He

said it was part of his duties to vibrate the concrete, that the foreman did not tell him to do so. He stated that Duncan knew that he had done so.

[133] He was familiar with the vibrator machine, but while there was no such machine on site, the concrete was vibrated using a stick.

[134] He denied that a hose was used on any of the batches which were poured that afternoon and he could recall water being poured into the batches of concrete.

[135] He explained that the "we" he referred to was the entire workforce present that day. He stated that the Defendant had a foreman on the deck and it was this man who gave the instructions to add water to the concrete mix.

[136] He was unaware if sealant had been used on the concrete, and though he had some experience as a mason, he had never used sealant in his work.

[137] The case for the Defendant began with Dr. Robin Osborne. He is a Civil Engineer having a BSc as well as a PhD in the field from the University of the West Indies, St. Augustine, his main area being construction material technology and practice with a particular expertise in concrete technology.

[138] He provided an opinion at the request of the Defendant on the quality of concrete provided by the Defendant at the Claimant's premises. He carried out his investigations and he submitted a report. He stated that he had 40 years' experience in testing concrete. His findings were:

"(a) It appeared to me that the top of the concrete was poorly finished, which may have resulted in the porosity observed by the Claimant,

(b) There did not appear to be any unusual level of porosity present;

(c) Concrete for roofs is typically waterproofed by mastic asphalt or other systems because concrete alone cannot be depended on to provide water tightness and freedom from leaks;

(d) Porosity of concrete is caused by any one of a number of factors, but unless severe, does not generally lead to major structural problems; and

(e) Cracking as present on the Claimant's property is not a reflection on the quality of the concrete supplied by is more likely attributable to the conditions under which it was cured or the positioning of conduct pipes. In any event, the cracking is of little structural or safety significance."

[139] He did not visit the premises but was given photographs of the premises and the concrete slab as it had been cast.

[140] He opined that the levels of leakage that he saw in the photos were neither excessive nor unusual and he saw no cause for concern. Further, that if the concrete was porous, widespread weeping would be evident throughout the slab and not leaks in one or two isolated places as shown in the photos.

[141] He agreed that looking at photos had limitations. He opined that the top of the concrete appeared to be poorly finished and the rough open textured finish may cause the Claimant to think this was porosity, but he saw nothing to suggest unusually high porosity of the concrete.

[142] He noted that concrete roofs are usually waterproofed by the application of mastic asphalt or some sealant as it is known that concrete alone cannot in general be depended on to provide long-term water tightness and complete freedom from leaks.

[143] With respect to the cracking, he testified that if the concrete was not protected from early drying out, that this was very easy to happen.

[144] He stated that the cracks could also have been caused by the conduit pipes for the electrical wiring and plumbing being installed too close to the surface or if the pipes floated upwards towards the surface in the fresh concrete, especially if the pipes were not tied down properly. He further stated that this could also result if the concrete was of high workability.

[145] He agreed that the Defendant had a contractual obligation to deliver concrete in accordance with the stated specifications and that specifications in this sense meant quality.

[146] In order to get excess air out of the concrete mix there should be compaction or consolidation. In order to achieve this, the following action should be carried out after discharge:

(a) Vibration - to fix spaces and get out the air. A mechanical device is used for this process.

(b) Rodding - the old-fashioned way of doing it by hand, but this is not as satisfactory as vibrating.

[147] The lack of a proper finishing operation and a lack of adequate framework could reduce the quality and performance of concrete.

[148] He opined that the addition of a small amount of water to the mix while it is in the pump is not detrimental to the quality of the concrete to be delivered but admitted that he was not on the scene and was not aware if the amount added to the mix in question was small. But he stated the addition of a small amount was industry practice if certain conditions were met.

[149] If a batch of concrete required 100 measures of water, all may not be added at the mixing plant so that there would be room to add up to that specified amount prior to discharge with no adverse effect on the quality. Again he admitted that he saw no reference to any measuring equipment for the addition of water in any of the batches in this case.

[150] A spray says nothing about quantity, as a spray for a small amount of concrete left in the hopper and a spray for a batch of concrete are two different things.

[151] He stated that there are a number of methods for testing concrete strength, some more reliable than others. Core testing is one of those methods and would take precedence over looking at a photo when it came to testing the strength of concrete.

[152] Frederick Antoine is the Manager and CEO of the Defendant Company. He has held these positions since May 2002. He is a professional accountant.

[153] For over 15 years the Defendant Company has been selling ready mix concrete to the general public. The service involves batching (aggregate, cement and water) for delivery to the customer. It is the client who chooses the mix appropriate to their project and to their pocket.

[154] He was aware of the Claimant having placed an order for 40 cubic yards of six (6) bag concrete mix, for which the Claimant paid $10,464.12. The sum was paid on 12th February 2004, and the Claimant indicated he intended to use the concrete to construct the decking on the second floor of his home.

[155] Sometime after the delivery the Claimant complained that he found the concrete to be porous.

[156] The Defendant hired Kenny's Trucking to assist with the job due to the short notice for the concrete as the Claimant wanted concrete delivered on the said day that order was made.

[157] The concrete was delivered in four (4) batches:–

(a) Batch 1, ticketed 2825, departed from the Telescope batch plant at 3:25 p.m. it is reasonable to assume, given the distance between Telescope and Chantimelle, and the hour of the day, that the truck arrived at Chantimelle about half an hour later, give or take a few minutes. The ticket shows that discharge commenced at about 4:30 p.m. and was completed at about 5:02 p.m.;

(b) Batch 2, ticketed 5149, departed from St. George's at about 3:41 p.m., and arrived at Chantimelle at about 5:09 p.m. The ticket shows discharge started at 5:18 p.m. and was completed at about 6:04 p.m.

(c) Batch 3, ticketed 2826, departed from Telescope at about 4:00 p.m. and arrived at Chantimelle at 4:55 p.m. Ticket shows discharge started at 5:50 p.m. and ended at 7:00 p.m.

(d) Batch 4, ticketed 2827, departed from Telescope aforesaid at 7:39 p.m. and arrived at Chantimelle in record time because by 8:00 p.m., its discharge had been commenced; completed at 8:45 p.m.

[158] Mr. Antoine goes on to give evidence-in-chief of matters that he could have no personal knowledge of.

[159] He speaks to the concrete as having complied with the design for six bag mixes and states that it was of satisfactory quality when poured, but he was not the

person who prepared the concrete nor was he present when it was poured. He alleges that the Claimant never complained to the Defendant's men at the site but again, he was not present.

[160] He received a letter of complaint from the Claimant weeks after about the Claimant's dissatisfaction with the product he received.

[161] Mr. Antoine then instructed Joseph John, a Civil Engineer, to provide the Defendant Company with an opinion on the issues raised by the Claimant, and he produced a report.

[162] He also instructed Dr. Osborne to provide the Defendant Company with an opinion, and he produced a report. Once he received the opinion from Dr. Osborne he wrote to the Claimant and advised him of Dr. Osborne's opinion. Again, in the letter he speaks of matters that he had no knowledge of.

[163] He became aware of the tests done by James Parke and by the Grenada Bureau of Standard. He was advised of these reports by the Claimant.

[164] He then proceeded to analyze and critique the rebound hammer test carried out by Mr. Parke as well as that carried out by the representative of the Bureau of Standards.

[165] The basis for him analyzing these reports is not known to the Court as he is an accountant by profession and not an engineer. No evidence was led that he had any expertise in the field and the Court can attach little or no weight to this evidence. Merely having witnessed a test being conducted does not clothe one with the necessary expertise to critique.

[166] He further gives evidence on facts which were not in his own knowledge but must be hearsay and in some instances pure conjecture.

[167] In cross-examination he agreed that the purchaser would only get concrete to the strength of 3500 PSI if the proper procedures were followed for the placing, compacting and curing of the concrete. The correct mix was also a factor, as well as time.

[168] He agreed that concrete has a certain shelf life and that if left without placing for an extended period of time without Conplast, the concrete would start to deteriorate. He was not comfortable in giving an estimate of the shelf life of concrete. He asserted that with Conplast in the mix, concrete could last for days without being poured or placed.

[169] He further stated that from the delivery slips tendered that the Claimant would not have known what exactly he was getting by looking at the slips, that the slips all lacked some information.

[170] He said that Conplast is sometime given as a gift to the customer depending on the distance the Defendant had to travel to deliver the concrete. There was nothing on the delivery slip in this case to indicate that Conplast was used in the concrete mix delivered to the Claimant.

[171] Of the batches delivered to the Claimant, only one came from St. George's, the others came from Telescope, St. Andrew.

[172] He stated that some of the loads would have been discharged within the 90-minute period prescribed between batching and delivery, and others not so, but he was not aware of the 90-minute period himself.

[173] The crew on the truck would be in charge of dispensing and would work the pump to ensure it was not blocked. The crew would direct the hose to where the product is to be dispensed.

[174] He had seen water added to concrete immediately prior to its discharge but he had never witnessed concrete smoking prior to placing, but he had heard of it.

[175] He agreed that he was not present when the concrete was poured at the Claimant's site and agreed that there was nowhere on the delivery slip where a complaint about the quality of the concrete could be recorded.

[176] Joseph John was the next witness. He has a diploma in Structural Engineering and post graduate degree in Sanitary Engineering. He received his diploma in 1965 and the post graduate diploma in 1979. He has had many years experience in the field of construction both in the public and private sector.

[177] He stated that he was requested by the Defendant to provide an opinion on the quality of the concrete provided by the Defendant to the Claimant.

[178] He carried out investigations and submitted a report dated 26th April 2004, which was tendered in evidence.

[179] In his report he stated that he visited the premises on 17th April 2004, some two months after the delivery of the subject concrete.

[180] He inspected the reinforced concrete that was poured, observed cracks in the soffit of the slab. It was raining at the time and he observed leaking through the slab.

[181] The concrete slab did not have honeycomb and the general appearance was good.

[182] It is interesting that he made no finding that the conduits for electric and plumbing were poorly laid, or were too close to the surface (a possible cause of the problem postulated by Dr. Osborne).

[183] He opined that concrete ought to be well compacted to remove air and adhere securely to the reinforcing steel. He stated that without proper compacting, air spaces remain and the resulting member would be porous.

[184] Bonding of the concrete to the steel would not be effective, moisture can penetrate the reinforced concrete member resulting in corrosion of the reinforcement, and major structural problems can occur.

[185] He recommended the following at the end of his report:

"(1) From my experience several builders do not vibrate concrete when pouring to make reinforced concrete members.

I would recommend that Gravel & Concrete advise all users of their concrete to vibrate the concrete when pouring.

(2) Have a nondestructive strength test of the structural member to determine the actual strength of the reinforced concrete member.

(3) If the result of (2) is acceptable then the top of the slab can be treated with a concrete sealant to stop the leaks. There are many suitable sealants on the market."

[186] He made no factual findings about whether there would be major structural problems or whether the porous nature of the concrete was caused or contributed to by a poor quality of concrete or poor workmanship in dealing with the concrete.

[187] He did say in his witness statement that he had asked the Claimant if he had vibrated or compacted the concrete and the Claimant had said he did not. Secondly, he stated that the Claimant did not seal the concrete even though he had sealant in his possession.

[188] He said that compacting or vibrating the cement made it dense and that it takes the air out of the concrete. The mechanical vibrators agitate the concrete and expel the air.

[189] The use of the rod to vibrate concrete is not widespread but it is used and could be effective. Before the modern era, rods were used to achieve the compacting.

[190] He agreed that the observation he made in paras 6(a) and (b) of his witness statement were not in his report (about Claimant not vibrating or sealing the concrete).

[191] He was aware of the ingredients that made up concrete and that these ingredients had to be proportionate to one another. It is good practice to add water to the mix when you get close to the site, but it was not good practice to add water when pouring the concrete, because as soon as you add the water, a chemical process starts.

[192] Once that chemical reaction starts it would not improve the quality of the product. Once the chemical reaction starts the concrete would start setting, that is, getting hard. There is an initial set within the first half hour, after which the final set begins.

[193] From batching to placement, an hour between these two processes is not bad as the concrete is being agitated, and this agitation has a minimal effect on the concrete.

[194] Concrete can lose strength if not poured between the initial half hour to one hour period. Retardants can be used but this does not affect the quality of the concrete; all it does is slow down the setting process. The retardant would not stop the concrete from setting for days, that was impossible.

[195] You cannot look at concrete and tell whether it had been vibrated or not, and you cannot ascertain whether a certain amount of air has remained in it by looking at it but you can do so by observing whether moisture goes through it or not.

[196] Henry Marryshow is the head of the concrete division of the Defendant, a position he has held for over 15 years.

[197] The Defendant Company batches or mixes the concrete, they deliver it, they pour it. The placing, compacting and curing of the concrete is to the owner or his workmen.

[198] During his time at the Defendant Company he has acquired hands-on experience with concrete but has also pursued formal training at the University of the West Indies and has attended World Trade Conference shows on concrete.

[199] He testified that the Claimant ordered 40 cubic yards of concrete and that this was to be used for decking between floors to his home in Chantimelle.

[200] He testified that Chantimelle is approximately under one hour drive from St. George's by car, but with the concrete truck, about one and-a-half hours.

[201] Concrete consists of four components: gravel, sand, cement and water. The Defendant had different mixes for different functions but the type agreed is whatever the client wants.

[202] The concrete is mixed at the Defendant's premises to the satisfaction of a technician and operator according to our standard mix designs. The operator does the first check to ensure that the mix is proper and the technician does a confirmation check. Further thereto, the truck driver is also trained to assess the mix quality before setting off and he does a final check before departing the batch or mixing plant.

[203] As noted, one of the components of concrete is water, and when the mixer has to travel long distances to deliver the concrete mix, there will be some evaporation of water from the concrete which would make the concrete a bit stiff. One of the things we usually do is add an add mixture to the mix – this acts as a retardant to delay the setting of the concrete. Also, at delivery and just before pumping, small amount of water may be added to the mix to make the concrete workable for the worker placing the concrete. This does not compromise the quality of the concrete.

[204] Six-bag concrete mix with the additive is good for about three (3) hours, temperature being capable of affecting the life; the hotter the weather, the faster you should pour it. After three hours the concrete may become lumpy and smoky because it would have already started to set. If concrete stays for that period, merely adding water to it is not a practical remedy for making it workable as the result of doing so would be to make the mixture sticky.

[205] I pause here to note that there is no evidence before the Court that any additive was placed in the mix delivered to the Claimant except the evidence of Ronald Redhead, which I will deal with later in the judgment.

[206] In relation to ready-mix concrete, as it has to be pumped from the truck's mixer, concrete that has become lumpy and smoky in quality will not be able to pump as it would not be able to get off the shoot or spread while being poured. In order for concrete to be capable of pumping, it must be of a certain quality; it must contain a minimum ratio of cement to aggregate to water ratio.

[207] The PSI of concrete may be obtained by testing with a rebound hammer, that is, an instrument which, when pressed against the hard surface, gives a reading referred to as an H value, which value is then used to arrive at the PSI.

[208] In or about the month of February 2004, when the Defendant was ready for delivery of the concrete that he ordered, I gave batch instructions for the batches that left from the Queen's Park, St. George's batch plant, including that the additive be used, and I am satisfied that the ratio of cement to aggregate to water used were according to our designs for the six-bag concrete mix.

[209] There is no evidence before the Court that this witness personally tested or examined the concrete in question or had any hand in the preparation of the concrete.

[210] In cross-examination, he stated that there were factors which might affect the quality of the mix delivered. He set them out as follows:

(a) Too much water

(b) Too much sand, too fine an aggregate

(c) Too little or too much cement content

(d) Too much long hours, if you specify a mix and a certain amount of time elapses.

[211] Distance the concrete has to travel after batching is a major factor.

[212] The retardant RP 264 is sometimes added to the mix, but this is done at the discretion of the Defendant Company when considering the distance they have to travel to deliver the mix. From looking at the delivery slips he could not tell whether retardant was used in mix delivered to the Claimant.

[213] He stated that the Defendant would place water in the mix just before the pour if this was necessary, and also testified that you could also add water while pouring and still have a good mix. It depended on how much water you added.

[214] He stated that he gave instructions for the admixture to be added to the concrete delivered to the Claimant because of the distance.

[215] He too postulated that if the admixture is applied to concrete, the concrete would last as long as you want, even a week. This assertion I find astonishing. This is so even though he admitted that he had never experienced concrete lasting that long but for the most 24 hours. This is so even though once you add the water to the gravel, sand and cement, the setting process starts.

[216] He admitted that batch 2826 was made to wait at the Claimant's site while batch 5149 was allowed to discharge its mix even though that batch (5149) arrived after 2826.

[217] Leon Williams, a truck driver with the Defendant, next gave evidence. He had been employed with the Defendant for over 11 years.

[218] "As a truck driver of one of my employer's concrete mixers, I am trained and experienced in assessing the quality of ready-mix concrete as I have been doing this for about 16 years. I usually inspect the concrete before taking a batch out for delivery. Once I am able to deliver a batch of ready-mix concrete within two (2) hours of its batching, it is generally of good quality and able to pump and pour. It may become stiff just a little bit depending on how hot the sun is or how long we take to get to the site because some of the water would have evaporated from it during its journey. To rectify this problem, we would add a little bit of water (a spray) and spin the barrel at 15 to 16 RPM to get it back to the desired softness, but this has never, in my experience, affected the quality of the concrete."

[219] "On or about the 12th day of February 2004, my employer ordered me to attend at the Defendant's batch plant at St. George's with one of our trucks to batch, transport and deliver ready-mix concrete to the Claimant at his home in Chantimelle, St. Patrick's. The practice of providing the Claimant with this service was the nature of our business."

[220] "My truck was batched just before 3:41 p.m. We inspected it, and being satisfied that it was of expected quality and consistency for six-bag mix, I left St. George's and arrived in Chantimelle in 1 hour and 28 minutes. When we arrived at Chantimelle, the Claimant and his workman were present who had the responsibility to place, vibrate, compact and cure the concrete. Before we started to pump concrete we added a spray of water to make the concrete more manageable."

[221] "Myself and the conductor with me and the pump crew, started to pump and pour the concrete at about 5:18 p.m. and finished at 6:09 p.m. I left the site at about 6:09 p.m. The Claimant had at least five workers to accept the concrete. His

workers were stating that the concrete was stiff. When the concrete is soft, they like to take their boots and spread it. They asked for more water. I told them that if they want to add water to this concrete they have to sign the slip to take responsibility for it. They were not placing the concrete properly as far as I was concerned. At one time me and my conductor demonstrated to them how to pull and spread the concrete."

[222] "My truck was the second truck to arrive on site. When we arrived the only other truck on site was the first truck that was about to finish. I waited a few minutes (8 or 9). I did not "jump the line". There was no other truck ahead of me. When I was leaving the site I saw the third truck under the gap, lower down by the junction, waiting to go and pour."

[223] "The Claimant's men did not vibrate the concrete as they were supposed to. They had only the rake to pull the concrete and the rod to screen the concrete. They did not ram the concrete to get out the air voids. From my experience, you must ram the concrete to get out the air void. If they don't have the electrical vibrator you use a rod and ram it, but they did not do that."

[224] The assertion made by this witness is disputed by David Henry, one of the Claimant's employees, who says that he did vibrate the concrete.

[225] He stated that once he could deliver a batch of concrete within two hours, it is usually good. He also said that he had experienced concrete that was lumpy after one hour and-a-half after batching. He never had the experience of pouring concrete after two hours.

[226] On the day in question when he got to the Claimant, there was a truck already there at the pump. Nine minutes after he arrived he started pumping, and when he was leaving, there was another truck waiting to pour.

[227] He stated that you sometimes spray a little water when the concrete comes out the chute.

[228] He testified that the truck has a water tank with a gauge and the gauge would tell you how much water to add to the mix in the barrel, but it is the person who is operating the gauge who determines in their judgment how much water is to be added to the mix.

[229] It was the conductor who added water to the mix and not him on the day in question. He was on the decking, that is how he heard the Claimant's workmen complaining that the concrete was stiff. There was no vibrator but he did observe one person with a piece of wood, and as the concrete was poured they were prodding certain areas. Persons had rakes and rods on the decking.

[230] Kensol Mason had worked at the Defendant Company for 10 years as a conductor and pump operator. He had attended a course conducted by Dr. Osborne and learnt about the quality of concrete from his experience on different jobs over a period of time.

[231] He recalled delivering concrete to the Claimant on 12th February 2004. He looked in the barrel before they left the plant as he wanted to make sure that the mix was okay, that is, it was workable.

[232] When they arrived at Chantimelle, they had a short wait as there was another truck offloading.

[233] The quality of the concrete from the truck he was in was good. It had no lumps and he heard no one complain about the quality. The Claimant had a full team of workmen on site, about 5 - 6 workers.

[234] In cross-examination he stated that you could look in the barrel and see if the mix is workable, even without placing it. He could tell if the concrete is proper by looking at the aggregate in the barrel. He could tell how much sand and water went into the mix just by looking at it.

[235] He saw no smoke and no lumps in the concrete but he was told that the concrete was not workable, but he and the driver went and showed them the correct way to spread the concrete to work it.

[236] Water was added to the barrel to make the concrete workable. Leon Williams added about 1 gallon of water to the mix, a sprinkle.

[237] Lastly, Ronald Redhead testified. He was the assistant batcher and he recalled batching the truck to deliver concrete to the Claimant.

[238] He testified that Mr. Marryshow told him not to forget to put "the chemical" into the concrete. This is the retardant to ensure the concrete does not set before it is properly poured. The formula was 1 litre per cubic yard.

[239] He stated that the RP 264 is for the purchaser's protection, and as the Claimant did not request it, it would not appear on the delivery slip.

[240] Suffice it to say that I am hard pressed to believe that the Defendant would add the retardant to a batch of concrete and not put this on the delivery slip.

[241] This is not only protection for the customer, it is protection for the company as it safeguards the Company from claims such as the one before the Court.

[242] Further, the Defendant had not pleaded any fact in relation to placing retardants in any of the batches of concrete and only adduced this evidence in the witness statements of some of its witnesses.

Findings of Fact

[243] I find as a fact that the Defendant was to supply concrete to the Claimant with a PSI of 3500, a 6 bag mix of ready mix concrete made with red gravel.

[244] I also find as a fact that neither the Defendant nor its workmen had contracted with the Claimant for the Defendant's workmen to place, vibrate, compact or cure the concrete; that was the responsibility of the Claimant's contractor and his workmen.

[245] I find as a fact that based on the times stated in the schedule with respect to the delivery of the concrete, that the deliveries were made as follows:-

Ticket No. 2825 started discharging concrete at 4:30 p.m. and finished at 5:02 p.m.

Ticket No. 5149 started discharging at 5:18 p.m. and finished at 6:04 p.m.

Ticket No. 2826 started discharging at 5:50 p.m. and finished at 7:00 p.m.

[246] I pause here to observe that from the times given on the delivery slips, it appears that tickets 2826 and 5149 were at some point being discharged at the same time.

[247] Ticket No. 2827 started discharging at 8:00 p.m. and finished at 8:45 p.m.

[248] It is also a fact that ticket No. 5149 was discharged before Ticket 2826 as 5149 had come from St. George's, a greater distance than that of 2826 which came from Telescope.

[249] That there was leaking through the roof in several areas of the buildings is not in dispute.

[250] Further, the Court finds that the retardant RP 264 was not added to any of the batches of concrete mix delivered to the Claimant.

[251] I accept that the Claimant wrote to the Defendant Company on 24th March 2004, indicating to them that there was a problem with the concrete supplied to him on 12th February 2004, and that the Defendant responded on 26th April 2004, denying the allegations made by the Claimant.

Issues

[252] The issues to be determined are as follows:

(a) Whether the contract between the parties was a contract to supply concrete to the Claimant only, or to supply, pour, vibrate and compact.

(b) Whether the concrete supplied to the Claimant by the Defendant was fit for the purpose and was of merchantable quality or otherwise defective.

(c) If the concrete was defective, did the defective concrete result in loss and damage to the Claimant.

(d) Whether the Claimant has taken steps to mitigate such loss and damage.

[253] As I have already indicated, I find that the Defendant was only contracted to supply concrete to the Claimant. There is nothing in the evidence to suggest that the contract terms went beyond that.

[254] Further, the Claimant himself in cross-examination stated that that was the extent of the contract that he had with the Defendant.

[255] Further though, the Defendant was to supply specifically ready mix concrete – red gravel, a 6 bag mix 3500 PSI.

[256] Even though on the evidence the Defendant's employees may have assisted with the pouring and spreading of the concrete, this was not within the scope or contemplation of the contract entered into between the parties.

[257] With respect to the 3500 PSI requirement, there was expert testimony on this issue.

[258] James Parke, a building contractor, used the rebound hammer test, and while his report lacked certain details, he gave those details in his oral testimony. He claimed that he did the 15 tests per area and he found the following:

On the cantilever beam - 2000 PSI
On the cantilever slab - 1800 PSI
On the slab over the living room - 2500 PSI

[259] He agreed that he did these tests when the concrete was 93 days old, but stated that he adjusted his calculations to take this into account. He agreed that the appropriate time to do this test would have been between 14-56 days of the concrete being laid.

[260] Hugh Thomas, Manager of the Material Lab at the Grenada Bureau of Standards, also carried out tests on the subject concrete.

[261] The test he conducted was the destruction method test.

[262] He took two samples from the area covering the Claimant's verandah. The samples were cored and removed and brought to the Bureau lab where they were tested.

[263] In the area from which the two samples were taken, he found that:

Core No. 1 had a PSI of 2828; and

Core No. 2 had a PSI of 3684.

[264] These results represent a fairly wide variation for samples taken close to each other and from the same area on the slab.

[265] He agreed that the rebound hammer test was prone to be inaccurate but that the test he carried out was the standard industry test and was therefore more reliable.

[266] Mr. Frederick Antoine, an accountant, sought challenge the two tests carried out by these individuals, but admitted that he had no expertise in this area, and little or no weight can be given to his testimony in that regard.

[267] The Defendant's expert witness was Dr. Robin Osborne. Dr. Osborne is a Civil Engineer with a PhD in that discipline, his area of expertise being construction material technology.

[268] Photographs of the concrete slab were sent to him and he produced a report based on his observations after studying the photos. He did not carry out any tests on the concrete himself nor did he come to Grenada to examine the slabs.

[269] He opined "the levels of leakage evident in the photographs is neither excessive nor unusual, and at first examination do not provide me with cause for concern. The bottom of the concrete appears reasonably well compacted throughout. Were the concrete porous as alleged, widespread seeping would be evident throughout most of the concrete slab and not leaks in one or two isolated areas as shown in the photographs".

[270] Interestingly and most telling, in the following paragraph of his report he states "While it is not possible to speak definitively because of the limitation of the photographs" … It appears that the witness realized that his opinion was given not on seeing or testing the actual concrete and was in some way limited and could not be a definitive disposition.

[271] While Dr. Osborne is more qualified than either Thomas or Parke, I am not satisfied that he was in a position to render a reliable opinion on the quality and strength of the concrete in question by merely reviewing photographs and not examining the actual concrete himself.

[272] Further, he accepted that the test conducted by Thomas is one of the accepted methods of testing the strength of concrete in the industry.

[273] The wide fluctuations between the strengths evidenced by the tests of Parke and Thomas lead the Court to find that the concrete provided did not in all batches live up to the promised PSI of 3500.

Whether the Concrete Supplied to the Claimant by the Defendant was Fit for the Purpose and was of Merchantable Quality or Otherwise Defective.

[274] Four batches of concrete mix were delivered to the Claimant. The evidence is that the first batch was good and the Claimant's workmen had no difficulty in spreading that batch of concrete.

[275] The evidence is that the second batch was smoking and lumpy at the time of delivery.

[276] Evidence led suggested that there was an ideal time of 90 minutes between batching and pouring of concrete.

[277] From the evidence led, it is shown that the batches departed the Defendant Company and the pour started as follows:

(a) Ticket 2827 - Left Defendant Company at 7:39 p.m., started pour at 8:00 p.m.

(b) Ticket 2825 - Left Defendant Company at 3:25 p.m., started pour at 4:30 p.m.

(c) Ticket 5149 - Left Defendant Company at 3:41 p.m., started pour at 5:18 p.m.

(d) Ticket 2826 - Left Defendant Company at 4:00 p.m., started pour at 5:50 p.m.

[278] With the exception of ticket Nos. 2827 and 2825, the other batches were poured well beyond the 90-minute industry standard period.

[279] Given these times and given the finding of fact already made with respect to the use of retardants, the Court accepts that at least two of the batches of concrete delivered to the Claimant that day were already setting and smoking by the time they were being poured at the Claimant's construction site.

[280] Further the Court accepts the evidence of the Claimant and his witnesses that this was pointed out to the Defendant's employees.

[281] The Court further accepts that it was as a result of this complaint that water was added to the concrete mixture, either by the Defendant's employees or on their instructions, to make the concrete more easily spreadable.

[282] Given the evidence of Dr. Osborne, Hugh Thomas and Henry Marryshow, all of whom agreed that adding water to an already mixed batch of concrete could compromise the quality of the end product, the fact that water was added to some of the batches would have led to the final product being compromised.

[283] It was stated by more than one witness that concrete mix with too high a water content would be more porous and prone to leakage.

[284] Hugh Thomas specifically testified that the variations in strength that he found in his testing could have resulted from the addition of water to the concrete mix while it was being poured.

[285] It was suggested that the Claimant's workmen had a hose running water at the site where the concrete was being poured. I do not believe that this happened.

[286] It was also suggested that the concrete was not vibrated with a vibrator or at all. The evidence was that prior to vibrators, sticks were used to vibrate concrete and this was done satisfactorily.

[287] I accept the evidence of Dave Henry who stated he and others vibrated the concrete with sticks, and I find nothing in the evidence to suggest that this

vibrating was not done. Mr. Henry stated that it was his duty to vibrate the concrete.

[288] I do no find that there is any credible evidence before the Court to conclude that the state of the concrete was due to the tardiness of the workmen on the site at the time in question.

[289] The evidence shows that the concrete was setting and smoking (the batches delivered after the first batch) and these batches were difficult to spread. This would have caused some delay in the pouring of subsequent batches but cannot be reasonably attributed to the Claimant's workmen.

[290] I agree with the position of Salmon LJ in **Bartlett v Sidney Marcus Ltd**[1] where he stated the question to be asked as;

> "Is the article of such a quality and in such a condition that a reasonable man acting reasonably after full examination, accept it under the circumstances of the case ..."

[291] Here I think the important aspect is "the circumstances of the case".

[292] The Claimant and his workmen were informed that by adding water to the mix the concrete would be easier to manoeuvre and spread. The water was added to the mix at the urging of the Defendant's workmen. Neither the Claimant nor his workmen would have known that adding water to the lumpy, smoking mixture would have compromised it.

[293] Clearly, at the end of the day, the concrete mix provided by the Defendant to the Claimant fell short of the quality expected. The evidence shows that shortly after the construction was completed, there was leaking in the said concrete, with Leslie

[1] [1965] 1 WLR 1013

Barry observing pieces of fallen concrete which appeared to be brittle and of poor quality. Further, Joseph John spoke to seeing leaks from several places in the roof.

[294] The Claimant has raised the issue of warranty and I will deal with that issue here. The Defendant warranted that they would produce a 6 bag mix of red concrete for the Claimant with a 3500 PSI.

[295] Lord Denning in **Dick Bentley Productions v Harold Smith (Motors) Ltd**[2] stated:

> "If a representation is made in the course of dealing for a contract for the very purpose of inducing the other party to act on it, and actually inducing him to act on it, by entering into the contract, that is primia facie ground for inferring that it was intended as a warranty …"

[296] Here the Defendant warranted that they would produce a 6 bag mix of 3500 PSI. The evidence leads the Court to believe that they failed to deliver that which they promised.

[297] The concrete produced was not of the quality agreed to in that at the time of delivery it was compromised. It was lumpy and smoking. The Defendant through its employees sought to rectify the situation by the addition of water. This course of action, according to the experts, further compromised the product.

[298] The effects of this were not visible until later when the roof started to leak and cracks appeared in the slab. The concrete was brittle and of poor quality. The Claimant complained once this came to light.

[299] The quality of the concrete was poor, it was not to the required standard and was not fit for the intended purpose.

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[2] [1965] 1 WLR 623

[300] The Claimant is entitled to depend on the expertise of the Defendant for the correct production, batching, transporting and delivery of the concrete mix.

[301] The Defendant promised a certain mix and strength of concrete, and on the basis of the evidence proffered, they have failed to do so.

If the Concrete was Defective, did the Defective Concrete Result in Damage to the Claimant

[302] The short answer to this question is yes. For reasons already stated, I find that the concrete supplied by the Defendant was defective and it did result in the damage suffered by the Claimant.

Whether the Claimant Took Steps to Mitigate Loss

[303] It is trite law that any Claimant claiming loss and damage has a duty to take all reasonable steps to mitigate his loss.

[304] The Claimant in cross-examination stated that he took no steps to stop the leaking and admitted that if he had used a sealant, the leaking may have stopped.

[305] Further, he admitted that he had taken no steps to fill the cracks he had observed in the concrete, he just left everything as it was.

[306] He stated that he sought the assistance of Mr. Leslie Barry but no one else.

[307] Maybe the use of a sealant may have helped to alleviate some of the damage suffered by the Claimant, and there is some evidence before the Court that the damage suffered may have been lessened if a sealant was applied after the concrete was poured and spread.

[308] In the circumstances, the Court will take this factor into account and discount the amount of damages awarded as a result.

[309] I find that on a balance of probabilities that the Claimant has made out his claim, and I make the following Orders:

(1) Damages in the sum of $120,000.00 discounted for the failure to mitigate.

(2) The sum of $200.00 being the cost of the report from the Grenada Bureau of Standards.

(3) Interest to run on the sum of $120,000.00 at the rate of 3% per annum from the date of filing to the date of payment.

(4) Prescribed costs in the amount of $18,000.00.

[310] I thank Counsel for their insightful submissions.

Margaret Price Findlay
High Court Judge