

C & B CONSTRUCTION CO. ET AL *v.* NASHVILLE
SCHOOL DISTRICT NO. 1

5-5730

484 S.W. 2d 519

Opinion delivered September 18, 1972

1. DAMAGES—PROXIMATE CAUSE OF INJURY—WEIGHT & SUFFICIENCY OF EVIDENCE.—Testimony of witnesses experienced in roof construction that moisture in the material at the time of installation caused the roof failure *held* sufficient to sustain the findings of the trial court sitting as a jury that subcontractor's negligence in installing the roof was the proximate cause of damages.
2. DAMAGES—VERDICT & FINDINGS—WEIGHT & SUFFICIENCY OF EVIDENCE.—Judgment of the trial court, sitting as a jury, in favor of the school district against the prime contractor and its surety, award of judgment over in favor of prime contractor and its surety on the cross-complaint against subcontractor, and dismissal of other complaints and cross-complaints, *held* supported by substantial evidence.

Appeal from Howard Circuit Court, *Bobby Steele*, Judge; affirmed.

Anderson & Slagle and Barber, Henry, Thurman, McCaskill & Amsler and John M. Loftin Jr. and Thurman & Safly, for appellants.

Don Steel and Royce S. Weisenberger Jr. and Graves & Graves, for appellees.

J. FRED JONES, Justice. This is an appeal by a prime contractor, C & B Construction Co. and its insurance carrier, National Surety Corporation, as well as its subcontractor, George Garrison Co., Inc. from a judgment of the Howard County Circuit Court for \$37,077 in favor of the plaintiff-appellee, Nashville School District No. 1, in a suit for damage from a breach of warranty in the construction of the roof on a new school building. The original complaint filed by the school district alleged damages in the amount of \$60,000 for removing and repairing the built-up roof on the school building and in the amount of \$5,000 for water damage to the interior of the building. The original complaint was later amended by alleging damages in the amount of \$32,077 for replacing

the roof and praying judgment for \$37,077 rather than \$65,000.

The facts necessary to this opinion appear as follows: On May 2, 1966, the Nashville School District No. 1 entered into an agreement with an incorporated architectural firm to design a high school building with the additional duties of assisting in procuring construction contractors, conducting inspections to determine the dates of substantial and final completion, and issuing final certificate of payment to the contractors.

On June 13, 1967, the District entered into a contract with C & B Construction Co. for the construction of the building for the contract price of \$566,603. C & B then entered into a subcontract with George Garrison Co. whereby Garrison undertook to install all roofing, sheet metal, skylights and aluminum siding as per plans and specifications, and as set out in the prime contract, for the sum of \$28,154. C & B, as prime contractor, installed a metal roof deck as a part of the building and apparently as called for in the amended plans and specifications. Subcontractor Garrison then installed a two-ply built-up asphalt roof on the metal decking.

The work was completed on or about April 26, 1968, and a few days later a severe hailstorm occurred in the area and some damage to school property was then noted. In September, 1968, the prime contractor was notified by telephone that there were leaks in the roof of the school building and in December, 1968, the prime contractor was notified in writing by the architect that the roof had been leaking and had been damaged by the hailstorm. Subcontractor Garrison attempted to repair the roof damage caused by the hail and in doing so found that the roof had cracked at the juncture of the covered walkways and classroom areas, and over areas where the metal decking had changed directions. Mr. Garrison was directed to sweep back the gravel and apply a flood coat of asphalt on the entire roof. This was done and paid for by the insurance company. The entire building was completed and accepted by the District upon recommendation of the architect in October, 1968. In the summer of 1969 the

roof began to blister over its entire surface and it continued to leak.

The District sued the prime and subcontractors on express and implied warranties in connection with the services rendered in constructing the roof, and also joined material manufacturers as well as the architect as parties defendant. The District alleged that the architect was negligent in that it specified an inadequately designed roofing system which was unfit for the purpose intended and that it failed to properly supervise the construction. Each of the defendants filed answers of general denial and cross-complaints against each other.

By agreement of the parties a jury was waived and the case was tried before the trial judge as a jury. The court found that the new facility was substantially complete on July 30, 1968, and final payment on the contract price was made by the District on February 26, 1969. The court further found that the roof was a total failure; that the cost of replacement would amount to \$32,077 and that damage to the interior of the facility because of leakage amounted to \$5,000. The court further found that the failure of the roof was caused by the presence of moisture at the time of construction and because of defective workmanship. The court found that moisture existed between the layers of felt at the time of application and, therefore, a good bond could not be obtained between the materials; that this condition caused blistering when heat was subsequently applied; that this in turn caused ply separation and by reason thereof, the roof ultimately became a total failure.

The trial court awarded judgment in favor of the District against C & B Construction Co. and its surety for \$37,077 and cost on the original complaint. After finding that subcontractor Garrison carelessly and negligently installed and constructed the roof, and that such negligence was the proximate cause of the roof failure, the trial court awarded judgment over in favor of C & B Construction Co. and National Surety Corporation on their cross-complaint against the subcontractor Garrison for \$37,077. The complaint and cross-complaints were dismissed as to the other parties to the litigation.

On its appeal to this court the appellants rely on the following points for reversal:

“The court’s findings and conclusions that the roof failure and the damages allegedly sustained by the District were solely and proximately caused by the negligence and carelessness of Garrison in the application and installation of the roof is contrary to the law and the evidence in the instant case.

The trial court erred in dismissing the complaint of the Nashville School District and the respective cross-complaints of appellants as against the architects.”

The question on this appeal is not whether we would have rendered the same judgment the trial court rendered if we had been sitting in his place as the trier of facts in this case. The only real question on this appeal is the fact question of whether there is substantial evidence to support the judgment reached by the trial court in this case, and we are of the opinion there was.

It is clear from the evidence that in constructing the roof, the prime contractor built the deck upon which the roof was to be constructed by the subcontractor Garrison. In constructing the roof, in this case, rigid pieces of insulating material were first stuck to the steel roof deck with hot asphalt mopped onto the deck. Asphalt was then mopped onto the insulation and then 37 inch wide felt was rolled onto the hot asphalt. Another coat of asphalt was applied to the surface of the first layer of felt and another layer of felt was applied. This was covered with another coat of asphalt to which gravel was then applied. The prime and subcontractors blame the architect and each other for the failure of the roof, and they offered some evidence in support of their contentions. There is substantial evidence in the record, however, in support of the trial court’s view as above set out.

Mr. Gouge, the roofing superintendent for Garrison Co., testified that the steel decking was improperly designed and installed without provisions or allowances for

expansion joints. He testified that he observed splits in the roof and attributed them to the lack of expansion joints in the decking. He testified that all the leaks he observed started at places where expansion joints should have been, but that in some instances the water could get on the metal decking then run 21 feet before coming through. He testified that the blistering is a separate problem from splitting and the causes are different. He testified that the blistering was caused by moisture between the felts but that in his opinion the moisture got between the felts following the hailstorm soon after the roof was finished, and that when asphalt was applied following the hailstorm, it sealed the moisture in. He testified that in his opinion the leaks were caused by the breaks in the roof and that the breaks were not caused by the blistering. This witness testified that it was his opinion as early as August, 1968, following the hail on April 27, 1968, that it would be necessary to install a new roof on the building. He testified that in his opinion the hail caused punctures which in turn eventually caused air pockets, but that air pockets did not cause leakage, consequently, none of the leakage was caused by the hail.

Mr. Theodore W. Holowchak, a construction consultant from Birmingham, Michigan, called by the architect, testified that he examined the roof on September 23 and that in his opinion the roof was a total failure. He testified that a blister or ply separation may occur because of any one of several conditions. He said that moisture in the materials at the time of application will cause blisters. He said that the materials may absorb moisture by improper storage or by coming in contact with moisture when the roofing is applied. He said that blisters in a roof will occur when moppings are not continuous or where the felts are not groomed in. He said that blisters may also occur when the bitumen is not warm enough. This witness then testified in part as follows:

"Q. Mr. Holowchak, if you will, tell the Court what you found when you inspected that roof.

A. Well, the general walk-over of the roof indicated that there were numerous blisters in all areas of the roof which were not located in any specific area. In

addition, there was a rupture that was noted in one area. There was also a ridging which coincided with the over-hang area in the classrooms. This was just a visual observation that was made at that time. Because of the occurrence of the blisters or the ply separations, three roof probes were made in various locations. The first probe indicated that when the top aggregate surfacing and the top ply was removed that the blister was occurring between the top and the bottom ply, and it was caused because there was a dry spot on the bottom ply or the top ply, or the first ply on the roof. The mopping was not continuous of bitumen, and as a result of the dry spot, the ply separates. In the second location, another roof probe was made. The areas were selected at random because there were so many. The roof probe indicated that the ply separation occurred between the top ply and the bottom ply, and the moppings on the bottom ply was continuous; however, the top ply had not been firmly seated, and there was a dry spot there, and this was the cause of that blister. We felt that since the blisters that were probed were typical, we decided to take a look at a good area, or an area that appeared from the surface to be perfectly flat and firm. When this was done, we didn't find any blisters. There wasn't any ply separation. However, there was a dry spot, which means that there wasn't any bitumen, or mopping was not continuous on the edge of the roof probe. And we put the probes back.

Q. Now, you inspected the entire roof?

A. Yes, sir.

Q. In your expert opinion is it a total failure?

A. Yes, sir.

* * *

Q. . . . As I understand it, your expert opinion is that the leakage of this roof was caused by blisters or separation of the plys. Is that correct?

A. Yes, sir.

Q. Now, in what manner would these blisters allow leakage?

A. Punctures and things of that sort. Mechanical breaks.

Q. Ruptures in the air pockets?

A. Right.

Q. Which would cause holes, would it not?

A. Yes."

Ray Parker, one of the architects, testified that moisture caused the separation of the bond; that when the temperature goes up to 160° the moisture changes to water vapor and pulls the plys apart causing blisters, then at higher and lower temperatures the moisture condenses to water and the blisters continue to grow. He said that moisture may occur as a result of wet insulation; that it may be trapped during application; that it may occur as a result of vapor migration from the bottom side and various other reasons. He testified that he found some minor conditions of separating and wrinkling on the roof involved. He said that the weakest area in the roof was at the joints in the insulation and he agrees that the roof is a total failure because of the numerous blisters on the surface. Parker testified that the splits he observed in the roofing did not go completely through to the deck. He said that the weakest places in the entire system were over the insulation joints and that when a split occurs it follows the joint. He testified that the cracks in the roof occurred in a direct line with the felt runs and not across.

Dietrick Neyland, another architect, testified that he helped design the building involved; that he did not consider structural expansion joints necessary when the plans were changed from concrete slab to steel in the decking. He said that four expansion joints were inadvertently left in the plans, and while they were not necessary they did no harm. He agreed with the other witnesses that the

roof was a total failure because moisture had gotten between the plies of the roof.

Mr. Van Elder, a general contractor familiar with built-up asphalt roofs, testified that he examined the roof in July, 1970, and found numerous blisters, separation of felt and cracking conditions. He testified that in his opinion moisture caused the condition and that it could not be repaired without replacing the roof. He testified that he was of the opinion that the moisture was trapped in the roof at the time of its installation rather than following a hailstorm after the roof was completed.

Mr. Arthur Corbell, also a general contractor with experience in built-up asphalt roof construction, testified that he examined the roof in the latter part of July and concluded that the roof was a total failure. He testified that he thought two or three things entered into the cause of the failure, the primary one being moisture in the material prior to its application to the roof. He testified that he was of the opinion that hail could have contributed to the damage, but that it did not cause the condition he found. This witness examined the building along with Mr. Van Elder and he agreed with Van Elder that the total damage because of water leakage amounted to \$5,721.

Mr. Clarence H. Jones, a roofing contractor from Hot Springs, testified that the cost of replacing the roof would be \$32,077. He testified that he inspected the roof in October and that in his opinion, the entire roof would have to be replaced. He testified that he did not think hail could cause the type of damage he found in the roof. He said that hail might cause a roof to leak but that water getting into a roof wouldn't cause air pockets unless the hole is sealed off with water left in.

Mr. A. E. Montgomery, a roof consultant and expert from North Little Rock, testified that he examined the roof in September, 1970; that he made pictures of the roof and took cut out samples from the roof and analyzed them. He testified in part as follows:

"A. . . . Let me say this, these blisters that I am discussing here are blisters that are running almost con-

tinuous across the roof, as shown in the pictures. They are spaced approximately 17 to 19 inches apart. This has to be a factor in the sample cutting.

Q. First, before you go to your cutting, what does the fact that you have blisters every 17 to 19 inches denote to you as a roof expert?

A. It denotes that the problem is occurring, for some reason or another, at the lap, because the felts are lapped 19 inches over the preceding felt—

Q. All right, sir.

A. It would indicate that the moisture was coming at the insulation joint, or at the joint of the second ply.”

This witness testified that his first sample taken from the roof was 12 inches wide and 16 inches long cut from across a blister. He testified that the blister extended the entire width of a classroom, and that similar blisters occurred every 17 to 19 inches consistently throughout the entire roof. He said that the first sample showed that the insulation was dry and that the coated felts were firmly bonded to the insulation. He said that no insulation joint occurred at the point from which this particular sample was cut. He said that in the second sample there was a considerable amount of free water found in the blistered area and that “the blister occurred at the joint where the coated felt edge joined the insulation, but the separation was between the coated felts. Both layers of the coated felts were firmly bonded to the insulation.” He said that this sample showed a sufficient amount of asphalt and actual bonding with the exception of this separation. He testified that the next cut or sample was taken at the joint of the classroom and corridor wall, but not directly over an area that had leaked. He said this sample showed approximately one-fourth inch joint opening between the thick and thin insulations on the roof and corridor deck. He said the insulation was dry and that the separation between the coated felts was approximately seven inches wide. He said the sample had a crack in the blistered area

and that "the crack in the top sheet did not show in the bottom sheet." This witness testified that one of the samples showed that the two layers of felt had bonded together but were pulled apart in the blister caused by moisture. He said the moisture, in his opinion, was in the felt at the time it was placed on the roof. This witness pointed out that the felt used in this roof was a "coated" felt rather than a soft treated felt and he testified in part as follows:

"A. In my opinion, the moisture was trapped into the coated felt, between the coatings into the felt area, and it was applied that way. And then, of course, as the sun hit it and the heat came up, it caused the blisters. In other words, it began to escape out the lower edge of the felt.

Q. How could this moisture have been trapped into these felts?

A. Actually there's only two ways that it could basically have been trapped in the felts. One of them was in the manufacturing process itself, and the other one would have been improper storage on the job, or improper storage not necessarily on the job, it could have been anywhere."

This witness testified that in a two-ply roof almost perfect conditions are necessary to satisfactory installation. He testified that the blisters appearing consistently along the edge of the felt indicated to him that the moisture had been absorbed in one end of the rolls of felt. He explained this as a "wick" type of procedure.

Q. How would it pick up moisture?

A. Wicking in between the coatings. See, you have a saturated felt, and then your coatings on each side, and this gives you a wicking effect it it's exposed to moisture sitting on the ground or elsewhere."

This witness then testified as to splits in the roof as follows:

Q. And there were some splits in this roof, were there not?

A. Yes.

Q. And they were probably caused by the movement, were they not?

A. Well, again, and I will have to qualify this opinion, the fact that the joint that I did cut, the bottom ply of felt was not cracked, but only the top part of the blister was cracked, which would indicate the cracking was coming from the top rather than from the bottom.

Q. And that could very well be, couldn't it?

A. Yes.

Q. I mean, if you had something weaker at the top, for example.

A. Correct. When it blistered it was weaker."

We conclude that the trial court's findings and judgment are supported by substantial evidence in the record and the judgment of the trial court must be affirmed.

Judgment affirmed.
