NO. 10-0775

In the Supreme Court of Texas

SUSAN ELAINE BOSTIC, INDIVIDUALLY AND AS PERSONAL REPRESENTATIVE OF THE HEIRS AND ESTATE OF TIMOTHY SHAWN BOSTIC, DECEASED; HELEN DONNAHOE; AND KYLE ANTHONY BOSTIC,
Petitioners,

v.

GEORGIA-PACIFIC CORPORATION,
Respondent

Petition for Review Arising From the Court of Appeals
For the Fifth Judicial District
Dallas, TX
No. 05-08-01390-CV
(Hon. Robert M. Fillmore)

PETITION FOR REVIEW

Respectfully submitted,

BARON & BUDD, P.C.
Denyse F. Clancy, Esq.
State Bar No. 24012425
John Langdoc
State Bar No. 24044583
3102 Oak Lawn Ave., Suite 1100
Dallas, Texas 75219
(214) 521-3605
(214) 521-1181 (fax)
dclancy@baronbudd.com

ATTORNEYS FOR PETITIONERS

IDENTITIES OF PARTIES AND COUNSEL

Petitioners' Counsel

Denyse F. Clancy
John L. Langdoc
BARON & BUDD, P.C.
3102 Oak Lawn, Suite 1100
Dallas, Texas 75219
214-521-3605 (telephone)
214-520-1181 (facsimile)

Appellee Counsel
SUSAN ELAINE BOSTIC, INDIVIDUALLY AND AS PERSONAL REPRESENTATIVE OF THE HEIRS AND ESTATE OF TIMOTHY SHAWN BOSTIC, DECEASED; HELEN DONNAHOE; AND KYLE ANTHONY BOSTIC

Respondent's Counsel

Deborah G. Hankinson
Rick Thompson
Katherine Ross
HANKINSON LEVINGER LLP
750 N. St. Paul St., Suite 1800
Dallas, Texas 75201

Appellant Counsel
GEORGIA-PACIFIC CORPORATION

Mel D. Bailey
BAILEY CROWE & KUGLER, L.L.P.
4600 Bank of America Plaza
901 Main Street
Dallas, Texas 75202

James B. Greer
KANE RUSSELL COLEMAN & LOGAN, P.C.
1601 Elm Street, Suite 3700
Dallas, Texas 75201

Trial Counsel
GEORGIA-PACIFIC CORPORATION

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Susan Elaine Bostic, Helen Donnahoe, & Kyle Bostic (Petitioners) . . . . . Plaintiffs

Georgia-Pacific Corporation . . . . . Georgia-Pacific or Defendant

Record References

Cites to the Reporter's Record are in the form of ([vol #] RR [page #]).

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STATEMENT OF THE CASE

Nature of the Case:	Wrongful death lawsuit based on exposure to asbestos.
Trial Court:	The trial court judge was the Honorable Sally Montgomery, County Court at Law No. 3, Dallas County.
Trial Court Judgment:	In the first jury trial in this case, the jury returned a verdict on March 14, 2005 for $9,327,000 ($3,127,000 in compensatory damages, and $6,200,000 in punitive damages), allocating 100% to Georgia-Pacific. Based on an error in the verdict form, a new trial was granted. In the second jury trial in this case, the jury rendered a verdict of $13,593,917 ($7,554,917 in compensatory damages, $6,038,910 in punitive damages) and found that Georgia-Pacific was 75% responsible. Georgia-Pacific filed a motion to recuse Judge Montgomery, which was granted. Georgia-Pacific filed a Motion for Mistrial, which was granted by Judge Russell Roden, County Court at Law No. 1, Dallas County. Plaintiffs filed a Motion to Vacate Judge Roden's Order and Enter Judgment, which was granted by Judge D'Metria Benson, the new presiding judge of County Court at Law No. 1, Dallas County. On October 22, 2008, Judge Benson entered the First Amended Final Judgment against Georgia Pacific for $12,126,637.15 (App. A.)
Court of Appeals:	Georgia-Pacific appealed the judgment to the Fifth District Court of Appeals on July 29, 2009.
Court of Appeals Panel:	Justices David Bridges, Kerry Fitzgerald, and Robert Fillmore.
Court of Appeals Opinion:	*Georgia-Pacific Corp. v. Bostic*, 320 S.W.3d 588 (Tex. App. - Dallas, 2010) (App. B.) Justice Fillmore authored the opinion.
Court of Appeals Holding:	The court of appeals reversed and rendered the judgment of the trial court, finding that there was legally insufficient evidence of causation.

STATEMENT OF JURISDICTION

This Court has jurisdiction over this appeal because the court of appeals decision conflicts with prior decisions of this Court. TEX. GOV'T CODE ANN. §§ 22.001(a)(2). Specifically:

a. The court of appeals held that in order to meet the substantial factor causation standard in an asbestos case, the plaintiffs must show that each product at issue was a "but for" cause of the plaintiff's asbestos disease. Consequently, the court of appeals' decision conflicts with this Court's holding in *Borg-Warner Corp. v. Flores*, 232 S.W.3d 765, 773 (Tex. 2007) (holding that in an asbestos case, while plaintiffs must show frequent-regular-proximate causation in order to prove substantial factor causation, they are not required to "demonstrate that fibers from the defendant's product were the ones, or among the ones, that *actually* produced the malignant growth.")(App. C.)

b. The court of appeals discredited the evidence of Timothy Bostic's exposure to asbestos from Georgia-Pacific asbestos joint compound, and instead relied on contradictory evidence elicited by defendant on cross-examination. Consequently, the court of appeals holding conflicts with this Court's holdings in *Merrell Dow v. Havner*, 953 S.W.2d 706, 711 (Tex. 1997)(in determining whether there is no evidence of probative force to support a jury's finding, all the record evidence must be considered in the light most favorable to the party in whose favor the verdict has been rendered, and every reasonable inference deducible from that evidence is to be indulged in that party's favor) and *City of Keller v. Wilson*, 168 S.W.3d 802, 810 (Tex. 2005). ("No evidence" points may only be sustained when the record discloses one of the following situations: "(a) a complete absence of evidence of a vital fact; (b) the court is barred by the rules of law or of evidence from giving weight to the only evidence offered to prove a vital fact; (c) the evidence offered to prove a vital fact is no more than a mere scintilla; (d) the evidence establishes conclusively the opposite of a vital fact.").

c. The court of appeals failed to recognize that proof of substantial factor causation in an asbestos case may vary depending on the type of product and the type of disease at issue. Consequently, the court of appeals' decision conflicts with this Court's holding in *Borg-Warner Corp. v. Flores*, 232 S.W.3d 765, 773 (Tex. 2007) (instructing that the requirements for frequent-proximate-regular exposure may differ depending on the type of asbestos product and the type of asbestos disease).

d. The court of appeals held that in order to prove substantial factor causation, one must calculate the dose of asbestos inhaled from the defendant's product. Consequently, the court of appeals' decision conflicts with this Court's holding in *Borg-Warner Corp. v. Flores*, 232 S.W.3d 765, 772 (Tex. 2007) (holding that calculation of dose, or minimum threshold of exposure, is only required in cases where it is disputed as to whether asbestos caused the plaintiff's disease in the first instance).

This Court has jurisdiction over this appeal, because the court of appeals has committed an error of law of such importance to the state's jurisprudence that it should be corrected. *See* TEX. GOV'T CODE ANN. § 22.001(a)(6). The continual misinterpretation of this Court's decision in *Borg-Warner Corp. v. Flores*, 232 S.W.3d 765, 772 (Tex. 2007) has made it nearly impossible for plaintiffs to hold an asbestos judgment on appeal. Since this Court handed down the *Flores* decision in 2007, every asbestos judgment in Texas for plaintiffs has been reversed and rendered, and every judgment for defendant affirmed. *See Smith v. Kelly-Moore Paint Co., Inc*., 307 S.W.3d 829 (Tex. App. - Fort Worth 2010, no pet.); *Georgia-Pacific Corp. v. Stephens*, 239 S.W.3d 304 (Tex. App. - Houston [1st Dist.] 2007, pet. denied); *Georgia-Pacific Corp. v. Bostic*, 320 S.W.3d 588 (Tex. App. -Dallas, 2010). Moreover, each different court of appeals has imposed standards on asbestos plaintiffs that are not scientifically possible, and thus present a complete bar of litigation to these claims - such as requiring that plaintiffs prove which fibers caused the disease, or that plaintiffs calculate the amount of asbestos inhaled by the injured party despite the fact that these injuries occurred decades ago. The court of appeals decision in *Bostic* perpetrates the confusion. In order to rectify the confusion this decision has created, and allow plaintiffs who have been wrongfully injured to have their fair day in court with a clear understanding of the law, the court of appeals' erroneous decision should be corrected.

ISSUES PRESENTED FOR REVIEW

Issue 1: In *Borg-Warner Corp. v. Flores*, 232 S.W.3d 765, 773 (Tex. 2007), this Court held that in an asbestos case plaintiffs are not required to "demonstrate that fibers from the defendant's product were the ones, or among the ones, that *actually* produced the malignant growth." *Id*. at 773.

Did the court of appeals err in holding that in an asbestos case, where multiple exposures combine to cause the plaintiff's disease, the plaintiff must prove that defendant's individual product was the "but for" cause of plaintiff's disease in order to show substantial factor causation?

Issue 2: In *Merrell Dow v. Havner*, 953 S.W.2d 706, 711 (Tex. 1997), this Court held that in determining whether there is no evidence of probative force to support a jury's finding, all the record evidence must be considered in the light most favorable to the party in whose favor the verdict has been rendered, and every reasonable inference deducible from that evidence is to be indulged in that party's favor.

Did the court of appeals, in finding no evidence of frequent, proximate, and regular exposure to asbestos, apply the wrong evidentiary standard of review by disregarding all evidence favorable to plaintiff and giving weight only to contradictory evidence elicited by defendant on cross-examination?

Issue 3: In *Borg-Warner*, 232 S.W.3d at 773, this Court held that the requirements for frequent-proximate-regular exposure in an asbestos case may differ depending on the type of asbestos product and the type of asbestos disease at issue.

Did the court of appeals err in failing to recognize that lower levels of exposure to defendant's asbestos product may be necessary to prove substantial factor causation where the defendant's product is friable, and not encapsulated, and the plaintiff has mesothelioma, for which there is no known safe level of exposure?

Issue 4: In *Borg-Warner*, 232 S.W.3d at 772, this Court held that calculation of dose, or minimum threshold of exposure, is only required in cases where it is disputed as to whether asbestos caused the plaintiff's disease in the first instance.

In a case in which all parties agree that the plaintiff's mesothelioma was caused by asbestos exposure, did the court of appeals err in holding that the plaintiff must calculate the dose inhaled from the defendant's product in order to show substantial factor causation?

STATEMENT OF FACTS

Timothy Bostic was diagnosed with mesothelioma, an asbestos cancer, on October 31, 2002, at the age of 40. 7 RR 154; 7 RR 166. He died on September 5, 2003. 8 RR 66. He was survived by his wife of eighteen years, Susan, his eighteen year-old son, Kyle, his father, Harold Bostic, and his mother, Helen Donnahoe. 7 RR 167-8. Georgia-Pacific does not dispute that Timothy's mesothelioma was caused by exposure to asbestos.

Timothy Bostic's primary exposures to asbestos were from ten years working with and around Georgia-Pacific asbestos joint compound from 1967 to 1977; three months working in the "hot section" at a glass plant ("Knox Glass") in the early 1980's; six months exposure to gaskets and insulation as a welder's helper at Palestine Contractors in 1977-78; household exposure to his father when he was a child; and limited use of brake products. 7 RR 176-77; 8 RR 21-22; 7 RR 186-88; 12 RR 28-29; 7 RR 18-19; DX-33.

The court of appeals misstates the facts in stating that Timothy was exposed to asbestos for three full summers at Knox Glass, from 1980 to 1982. *Bostic*, 320 S.W.3d at 594, note 7. In fact, Timothy had two different responsibilities at Knox Glass: in the "cold end" of the plant he made boxes, packed glass, and performed janitor work; and in the "hot end" he was exposed to asbestos while he performed mechanic work and clean-up. 7 RR 172. Of the three summers he worked at Knox Glass, Timothy estimated that he spent an aggregate of only three months in the hot end. 8 RR 42.[1]

[1]Dr. Richard Kronenberg, a pulmonary physician who performed a study of workers at Knox Glass, testified that Timothy Bostic's work at the plant "would be really the extreme low end of the exposure for the folks out at the glass plant." 15 RR 218.

The court of appeals also misstates the evidence in concluding that there is "limited" evidence of Timothy Bostic's exposure to Georgia-Pacific's asbestos joint compound. *Bostic*, 320 S.W.3d at 588. In fact, Harold Bostic, Timothy Bostic's father, testified that he worked with his son just about every day from when he was five until the age of ten, and then every weekend after that.[2] 12 RR 136. During this period, Harold testified that Timothy used Georgia-Pacific asbestos joint compound "many, many times." 12 RR 137. Harold testified that "between the time Timmy was five years old until about 15 or 16 years old, he could "see him sand . . . that joint compound and breathing in that dust." 12 RR 141. In 1977, the Consumer Products Safety Commission ("CPSC") banned asbestos-joint compound for use by consumers as an "unacceptable risk." 5 RR 145; 6 RR 11; PX-26.

SUMMARY OF THE ARGUMENT

The interpretation by the lower courts of this Court's decision in *Borg-Warner Corp. v. Flores,* 232 S.W.3d 765, 773 (Tex. 2007) has made it nearly impossible for plaintiffs in asbestos cases to survive "no evidence" challenges to causation in the courts of appeal. *See Smith v. Kelly-Moore Paint Co., Inc.*, 307 S.W.3d 829 (Tex. App. - Fort Worth 2010, no pet.)(upholding summary judgment based on "no evidence" of causation); *Georgia-Pacific Corp. v. Stephens*, 239 S.W.3d 304 (Tex. App. - Houston [1st Dist.] 2007, pet. denied) (reversing and rendering asbestos judgment based on this Court's holding in *Flores*); *Georgia-Pacific Corp. v. Bostic*, 320 S.W.3d 588 (Tex. App. -Dallas, 2010) (reversing and rendering asbestos judgment based on this Court's holding in *Flores*). Indeed, every judgment in an asbestos case since *Flores* has

[2]When Harold and his wife divorced, Timothy was ten years old. 12 RR 26. From that point on, Harold got Timothy every weekend and during the summer. 12 RR 26.

been reversed and rendered. The court of appeals decision in *Bostic* continues to perpetrate the confusion surrounding the *Flores* decision, and hence the unfair application of this Court's jurisprudence.

In this case, the court of appeals erred by holding that Plaintiffs must in essence trace the Defendant's asbestos fiber to Timothy Bostic's disease in order to show "but for" causation, which is not only scientifically impossible, but also contrary to this Court's holding in *Flores*. The court of appeals further erred by ignoring this Court's admonishment in *Flores* that the level of proof necessary to prove frequent-proximate-regular exposure in an asbestos case may vary based on the type of product and disease at issue. Here, in contradiction to *Flores*, the court of appeals failed to modify the level of proof necessary to show substantial factor causation, where Timothy Bostic was exposed to highly friable asbestos from joint compound, and where Timothy's disease - mesothelioma - is caused by extremely low levels of exposure to asbestos. Further, the court of appeals incorrectly required that Plaintiffs calculate the dose of asbestos inhaled from Defendant's product in order to show substantial factor causation, even though this is (i) not scientifically possible; and (ii) not required under *Flores*. Finally, the court of appeals erred in failing to apply the well-settled standard for "no evidence" review, and instead discredited all evidence favorable to Plaintiffs, and adopted only those points elicited by Georgia-Pacific on cross-examination.

The erroneous interpretation of this Court's holding in *Flores* will continue to place an insurmountable bar to plaintiffs in asbestos litigation, which the plain language of *Flores* reveals that this Court did not intend. Plaintiffs pray that this Court grant this Petition for Review, order full briefing on the merits, and reverse the decision of the court of appeals.

ARGUMENT

1. The court of appeals erred in holding that "substantial factor" causation in an asbestos case requires that Plaintiffs prove the Georgia-Pacific joint compound was a "but for" cause of Timothy Bostic's mesothelioma.

The court of appeals erred in holding that this Court requires that a plaintiff in an asbestos case must prove "but for" causation in proving that an asbestos product is a "substantial factor" in causing the plaintiff's disease. *See Bostic*, 320 S.W.3d at 597. In fact, the court of appeals misquotes this Court by adding "but for" language to a sentence from *Flores*: "'In asbestos cases, then, we must determine whether the asbestos in the defendant's product was a substantial factor in bringing about the plaintiff's injuries' and without which the injuries would not have occurred." *Id.* (quoting from *Flores* as to substantial factor, but adding the additional language "and without which the injuries would have occurred.").

In *Flores*, this Court concluded that exposure to "some" respirable fibers is not sufficient to show that asbestos was a substantial factor in causing asbestosis. *Flores*, 232 S.W.3d at 766. Plaintiff Arturo Flores, a mechanic, was alleged to suffer from asbestosis, a disease which this Court recognized is "usually observed in individuals who have had many years of high-level exposure, typically asbestos miners and millers, asbestos textile workers, and asbestos insulators." *Id.* at 771. While this Court understood that Mr. Flores was exposed to "some asbestos," there was no quantification of his total amount of asbestos exposure sufficient to conclude whether he had enough exposure to cause his asbestosis, nor was there evidence of what percentage of his exposure came from Borg-Warner products, the defendant in the case. *See id.* at 771-72. Indeed, it was hotly contested at trial whether Mr. Flores even suffered from

asbestosis. *See id.* at 766. (Mr. Flores, who had a 50-pack year smoking history, had a chief medical complaint at the time of trial of shortness of breach, which he testified manifested itself after he had been mowing the lawn for 35-40 minutes. *See id.* at 768).

In *Flores*, this Court concluded that the plaintiff in an asbestos case must show substantial factor causation by the frequency-regularity-proximity test established by *Lohrmann v. Pittsburgh Corning Corp*., 782 F.2d 1156 (4th Cir. 1986). *Id.* at 773. Further, when it is not clear that there was sufficient exposure to asbestos to produce an asbestos disease in the first instance, this Court held that the *Lohrmann* test is not enough: "[i]mplicit in that test, however, must be a requirement that asbestos fibers were released in an amount sufficient to cause Flores' asbestosis, or the *de minimus* standard *Lohrmann* purported to establish would be eliminated, and the *Union Pump* causation standard would not be met." *Id.*, referencing *Union Pump Co. v. Allbritton*, 898 S.W.2d 773, 775-77 (Tex. 1995). In other words, this Court held that the plaintiff must show frequent, regular, and proximate exposure to the defendant's product, in accord with the *Lohrmann* standard, and where it is contested that asbestos caused the disease, must also show that the plaintiff was exposed to enough asbestos in total to have caused his disease.

The court of appeals errs by holding every asbestos case, regardless of whether it is undisputed that the plaintiff has an asbestos disease, the plaintiff is required to show that each defendant's product was sufficient in and of itself to cause the plaintiff's asbestos related disease. *See Bostic*, 320 S.W.3d at 597, citing *Ford Motor Co. v. Ledesma*, 242 S.W.3d 32, 46 (Tex. 2007). Indeed, by applying this Court's language from *Ledesma* in an asbestos case, the

court of appeals ignores this Court's carefully delineated asbestos causation standard as set forth in *Flores*, and instead applies the standard adopted by this Court in a car wreck case. *See id.* By so doing, the court of appeals imposes requirements on asbestos plaintiffs that were neither adopted by this Court nor scientifically possible.

The court of appeals holds that plaintiffs in an asbestos case must in effect trace the fibers from the defendant's product to the plaintiff's disease, in order to show that "but for" the plaintiff's exposure to defendant's product he would not have developed the disease. This ignores this Court's plain language in *Flores* admonishing against just such a requirement, and also the basic principles of medicine and science, which state that it is not currently knowable which fibers in a neoplastic process ultimately cause the cancer. In *Flores*, this Court recognized the "the proof difficulties accompanying asbestos claims. The long latency period for asbestos-related diseases, coupled with the inability to trace precisely which fibers caused disease and from whose product they emanated, make this process inexact." *Flores*, 232 S.W.3d at 773, citing *Rutherford v. Owens-Illinios, Inc.*, 16 Cal. 4th 953, 67 Cal. Rptr.2d 16, 941 P.2d 1203, 1219 (Cal. 1997). This Court quotes favorably from the California Supreme Court's decision in *Rutherford*, which explicitly states that substantial factor causation does not require that the plaintiff prove which fibers were the ones that actually produced the harm, but rather instead requires that the plaintiff show that the exposure to defendant's product contributed to the risk of the disease:

> Plaintiffs cannot be expected to prove the scientifically unknown details of carcinogenesis, or trace the unknowable path of a given asbestos fiber . . . [W]e can bridge this gap in the humanly knowable by holding that plaintiffs may prove causation in asbestos-related cancer cases by demonstrating that the plaintiff's

> exposure to defendant's asbestos-containing product in reasonable medical probability was a substantial factor in contributing to the aggregate dose of asbestos the plaintiff or decedent inhaled or ingested, and hence to the risk of developing asbestos-related cancer, without the need to demonstrate that the fibers from the defendant's particular product were the ones, or among the ones, that actually produced the malignant growth.

Flores, 232 S.W.3d at 773, quoting *Rutherford*, 941 P.2d. at 1219 (emphasis added).[3]

Thus in *Flores*, this Court recognized the scientific impossibility of proving that asbestos fibers from a particular product were the "but for" nexus for the plaintiff's disease. *See id.* This accords with the evidence in this case. Dr. Samuel Hammar, Plaintiffs' expert in pathology, is the co-author of the text ASBESTOS: RISK ASSESSMENT, EPIDEMIOLOGY, AND HEALTH EFFECTS (Ronald F. Dodson and Samuel P. Hammar, eds. 2005). He has published over forty articles in the peer-reviewed literature on the issue of asbestos or mesothelioma. 11 RR 21. As a scientist, he testified that it is impossible to determine which asbestos exposures were the actual cause of an individual's mesothelioma. 11 RR 40. Therefore, Dr. Hammar explained that in a person with exposure to different asbestos product, one cannot say without which exposure he would not have developed mesothelioma:

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[3] This Court's recognition that "but for" causation is not required in an asbestos case where multiple products may combine to cause a Plaintiff's disease, and where it is unknowable which fiber was "the one" that produced the malignant growth, is affirmed by the Restatement (Third) of Torts. The comments to the Restatement explain that factual causation may be satisfied when multiple actors combine together to produce a harm, even when the actions of each individual actor are not sufficient in and of themselves to have caused the harm:

> Able, Baker, and Charlie, acting independently but simultaneously, each negligently lean on Paul's car, which is parked at a scenic overlook at the edge of the mountain. Their combined force results in the car rolling over the edge of a diminutive curbstone and plummeting down the mountain to its destruction. The force exerted by each of Able, Baker, and Charlie would have been insufficient to propel Paul's car past the curbstone, but the combined force of any two of them is sufficient. Able, Baker, and Charlie are each a factual cause of the destruction of Paul's car.

Restatement (Third) of Torts, § 27, cmt f, Illus. 3.

Q. Is joint compound an exposure in this case you can say without it he would never have developed mesothelioma?

A. No, I don't think you can do that. I don't think you can do that for probably any exposure that was a legitimate exposure.

11 RR 139.

The court of appeals errs by taking this quote, and concluding that Plaintiffs cannot prove causation because they cannot show"but for" causation as to Georgia-Pacific. *See Bostic*, 320 S.W.3d at 597, citing *Flores*, 232 S.W.3d at 770. In so holding, the court of appeals ignores this Court's careful admonishment that "substantial factor" causation in an asbestos case does not require that a plaintiff show that the fibers from a particular product were "the ones, or among the ones, that actually produced the malignant growth." *Flores*, 232 S.W.3d at 773. Instead, this Court stated that a plaintiff "must prove that the defendant's product was a substantial factor in causing the alleged harm." *Id.*, citing *Union Pump*, 898 S.W.2d at 775. In a case such as this, where the parties do not dispute that there was sufficient exposure to asbestos to overcome the threshold *de minimus* exposure question, the plaintiff must only satisfy the *Lohrmann* frequency, proximity, and regularity requirements, and not "but for" causation on a product-by-product basis.

2. <u>The court of appeals errs by failing to apply the proper "no evidence" standard of review.</u>

In holding that there is "insufficient evidence of Timothy's frequent and regular exposure to Georgia-Pacific's asbestos-containing joint compounds during the relevant time period," and thus insufficient evidence of causation, the court of appeals errs by disregarding the evidence showing Timothy's significant exposure to Georgia-Pacific asbestos joint compound. In

determining whether there is no evidence of probative force to support a jury's finding, all the record evidence must be considered in the light most favorable to the party in whose favor the verdict has been rendered, and every reasonable inference deducible from that evidence is to be indulged in that party's favor. *Merrell Dow v. Havner*, 953 S.W.2d 706, 711 (Tex. 1997). "No evidence" points may only be sustained when the record discloses one of the following situations: "(a) a complete absence of evidence of a vital fact; (b) the court is barred by the rules of law or of evidence from giving weight to the only evidence offered to prove a vital fact; (c) the evidence offered to prove a vital fact is no more than a mere scintilla; (d) the evidence establishes conclusively the opposite of a vital fact." *City of Keller v. Wilson*, 168 S.W.3d 802, 810 (Tex. 2005). None of these situations apply here.

The court of appeals recognized that Harold Bostic testified to using Georgia-Pacific asbestos joint compound with Timothy "many times" over a ten year period, and that Timothy's work history sheets show that he was exposed to Georgia-Pacific asbestos joint compound as a co-worker of Harold Bostic and through household exposure. *Bostic*, 320 S.W.3d at 600. Nonetheless, in contradiction to the "no evidence" principles set forth by this Court, the court of appeals does not view the evidence in the record in a light most favorable to Plaintiffs, and instead chooses to credit competing evidence that the court of appeals states "belies" Harold Bostic's testimony and Timothy's work history sheets. *Id*. By so doing, the court of appeals does not apply the proper evidentiary standard of review. Without explanation, the court of appeals summarily states: "[o]n this record, there is insufficient evidence of Timothy's frequent and regular exposure to Georgia-Pacific's asbestos-containing joint compound during the

relevant time period." *Id.* Presumably, the court of appeals is giving great deference to the points elicited by Georgia-Pacific on cross-examination of Harold Bostic, in which Harold was pressed to recall the specific part-time jobs on which he used Georgia-Pacific with Timothy over forty years ago. *Id.* at 593. What the court of appeals discredits entirely is Harold Bostic's testimony that in his lifetime of work as a handyman, he used Georgia-Pacific asbestos joint compound with Timothy for 98 percent of the time, or more, and that between the time that Timothy was five years old to 15 or 16 years old, he used Georgia-Pacific asbestos joint compound on a continual basis and "many, many times." 12 RR 39; 137. Timothy testified that he worked around asbestos joint compound with his father his "whole life." 7 RR 178. Harold testified that he "always had an extra job working for the family," and that he "worked about six hours a day after my regular job." 12 RR 22-23. Given that Harold testified that 98 percent of that time he used Georgia-Pacific asbestos joint compound, and that he worked with Timothy on a continual basis, the reasonable inference to be made is that during the ten year period form 1967 to 1977, Timothy was exposed to asbestos from Georgia-Pacific joint compound on a regular, frequent, and proximate basis.

The court of appeals also ignores Harold's explanation that although he could no longer remember thirty or forty years ago which job he performed on a particular house, there was no doubt in his mind that he used Georgia-Pacific joint compound continuously, and on far more than the eight jobs he was able to recall:

> Q. Harold, all of these houses, I mean this is 20, 30 years ago. Is there any doubt in your mind that you worked on other places other than this, these seven or eight, that you just can't recall?

A. Oh yeah. I worked on more.

. . .

Q. Did Timmy use Georgia-Pacific joint compound?

A. Many, many, many times.

12 RR 136-37.

Harold Bostic explained that of the eight jobs he was able to remember, it is incorrect to say that Timothy did or did not work on them: "I don't think I ever said that he didn't or did work on some place. He could have worked on all of them. He could have worked on half of them. I never said that he did or didn't that I recall, that I say he did or didn't." 12 RR 131.

The court of appeals errs in viewing the evidence in a light most favorable to Georgia-Pacific, rather than viewing Harold Bostic's testimony in a light most favorable to Plaintiffs. The jury found that Georgia-Pacific was 75% responsible, and clearly did not believe that the eight jobs that Harold was able to recall were the only jobs that he and Timothy worked on. Instead of following the requisite "no evidence" standard of review, the court of appeals instead finds that the evidence "belies" that Harold Bostic worked with Georgia-Pacific joint compound "many, many, many times" with Timothy. *Bostic*, 320 S.W.3d at 599.

The court of appeals, in discrediting all the evidence above, and in applying an incorrect standard of review, then compounds its error by refusing to acknowledge Dr. Hammar's testimony that Timothy's exposure to asbestos joint compound was sufficient in and of itself to cause his mesothelioma:

Q. Was Timothy Bostic exposed at high enough levels, to your knowledge, in doing this drywall work, in mixing, sanding, and cleaning up of drywall materials sufficient to cause the disease mesothelioma?

A. Yes.

11 RR 49.

Instead, the court of appeals insists, contrary to the evidence, that Plaintiffs proved substantial factor causation based on the "each and every exposure" theory. *Bostic*, 320 S.W.3d at 599.

3. The court of appeals fails to apply this Court's qualification that the "frequency, regularity, and proximity" test may differ depending on the type of disease and product.

The court of appeals also ignores this Court's qualification that proof of causation, and hence the amount of frequency, proximity, and duration of exposure, may differ depending on the product at issue and the disease at issue, and thereby applies too high a burden to Plaintiffs. First, this Court recognized that "it is generally accepted that one may develop mesothelioma [in contrast to asbestosis] from low levels of asbestos exposure." *Id.* at 771. This is confirmed by the record in this case. Dr. Arnold Brody, professor of cell biology at medical school Tulane University, testified: "[T]here's no safe level for mesothelioma. In other words, no one's ever been able to show a level that will prevent everyone from getting mesothelioma. Now, you can do that for asbestosis, and you can get pretty close probably for most lung cancer cases, but for mesothelioma, no one's ever shown a safe level." 4 RR 92. Further, every expert, including Georgia-Pacific's experts, agreed that in Timothy's case, lower levels of asbestos than normal were required to cause his mesothelioma, because children are more susceptible to disease from breathing asbestos fibers. 4 RR 149-50; 5 RR 101; 14 RR 29-30; 13 RR 216.

The court of appeals errs by not recognizing that extremely low levels of exposure to asbestos can cause mesothelioma, and therefore in order to meet the legal standard of frequent,

proximate, and regular exposure, the causation standard is somewhat less rigid. *See Tragarz v. Keene Corp*, 980 F.2d 411, 421 (7th Cir. 1993) (holding that the frequency, regularity, and proximity test becomes "even less rigid" when dealing with mesothelioma, which can develop after only minor exposures to asbestos fibers).

The court of appeals also does not recognize, as does this Court in *Flores*, that the nature of the asbestos product will change the analysis required for proof of causation. *Flores*, 232 S.W.3d at 773. In *Flores*, the asbestos fibers were embedded in brake pads, and often "destroyed by the heat of friction and therefore [are] not released released to the public as asbestos fiber." *Id.* at 767. This Court cautioned that proof of exposure may differ where a friable product is at issue: "We note too, that proof of causation may differ depending on the product at issue; '[i]n some products, the asbestos is embedded and fibers are not likely to become loose or airborne, [while] [i]n other products, the asbestos is friable.'" *Id.* at 773 (citations omitted). Asbestos fibers in joint compound are neither embedded nor "destroyed" by the heat of friction. Dr. William Longo testified that persons who mixed, sanded, and cleaned-up Georgia-Pacific asbestos joint compound were exposed to levels of asbestos many times greater than the current OSHA permissible exposure limit of .1 fiber cc, and thousands of time higher than average background of asbestos in the air of .0005 fibers per cc. 10 RR 136; 95. Dr. Longo calculated that a twenty-five pound bag of Georgia-Pacific joint compound contains five percent asbestos, which equals 11.4 quadrillion asbestos fibers. 10 RR 108-10. Dr. Longo measured 16 billion asbestos structures on the clothing of the worker who sanded Georgia-Pacific asbestos Ready-Mix joint compound. 10 RR 239-40. The peer-reviewed,

published literature shows that exposures to asbestos from joint compound work is comparable to the asbestos exposures of asbestos insulators, with a mean exposure to asbestos of 10 fibers per cc. 5 RR 129, 139-40. The court of appeals, in rejecting Plaintiffs' evidence of frequent, proximate, and regular exposure in favor of some unknown, unattainable standard, errs by failing to consider the extremely friable nature of the individual product at issue in this case.

4. The court of appeals errs in holding that this Court requires Plaintiffs to calculate the dose of asbestos inhaled by Timothy Bostic.

Finally, the court of appeals errs by holding that "appellees' evidence is insufficient to provide quantitative evidence of Timothy's exposure to asbestos fibers from Georgia-Pacific's asbestos-containing joint compound . . ." *Bostic*, 320 S.W.3d at 601. The court of appeals disregards Dr. Longo's quantification of the asbestos fibers released from Georgia-Pacific joint compound, by stating that he failed to establish a "dose" for Timothy. *Bostic*, 320 S.W.3d at 601. Therefore, lacking an exact "dose" of the airborne fibers which Timothy inhaled, the court of appeals finds no evidence of quantification. *See id.*

The court of appeals errs in concluding that this Court requires an exact dose of exposure to satisfy the *Flores* quantification standard. In *Flores*, this Court required quantification because there was a legitimate question as to whether there was enough exposure to asbestos to cause Mr. Flores' disease in the first instance: "In a case like this, proof of mere frequency, regularity, and proximity is necessary but not sufficient, as it provides none of the quantitative information necessary to support causation under Texas law." *Flores*, 232 S.W.3d at 773 (emphasis added). In other words, this Court held in *Flores* that (i) the plaintiff must show frequent, regular, and proximate exposure to the defendant's product, in accord with the

Lohrmann standard, and, (ii) where causation of the disease itself is in question, must show that the plaintiff was exposed to enough asbestos in total to have caused his disease in the first instance. "Defendant-specific evidence relating to the approximate dose to which the plaintiff was exposed, coupled with evidence that the dose was a substantial factor in causing the asbestos-related disease, will suffice." *Id.* Here, it is undisputed that Timothy Bostic's mesothelioma was caused by his exposure to asbestos. Thus, the threshold quantification required by this Court in *Flores* to show that the total asbestos exposure could cause the disease is not necessary in Timothy Bostic's case. Rather, pursuant to *Flores*, Plaintiffs must show Timothy Bostic's exposure to Georgia-Pacific's asbestos joint compound was frequent, regular, and proximate, in order to "separate the speculative from the probable," and thereby prove substantial factor causation. *Id.* at 773. Plaintiffs met this standard in this case.

CONCLUSION

For the reasons set forth above, Plaintiffs pray that this Court grant this Petition for Review, order full briefing on the merits, and reverse the decision of the court of appeals, and for such other relief for which Plaintiffs may be entitled.

Respectfully submitted,

BARON & BUDD, P.C.

BY: _____

Denyse F. Clancy
State Bar No. 24012425
3102 Oak Lawn Ave., Suite 1100
Dallas, Texas 75201
(214) 521-3605 (telephone)
(214) 520-1181 (facsimile)
dclancy@baronbudd.com

ATTORNEY FOR PETITIONERS

Certification by Counsel

I certify that I have reviewed the petition and concluded that every factual statement in the petition is supported by competent evidence included in the appendix or record.

_____

Denyse F. Clancy
Attorney for Petitioners

CERTIFICATE OF SERVICE

I certify that pursuant to the Texas Rules of Civil Procedure, I have served a true copy of the foregoing Petition for Review by certified mail, return receipt requested on November 9, 2010:

Deborah G. Hankinson
Rick Thompson
Katherine Ross
Hankinson, Levinger LLP
750 N. St. Paul Street, Suite 1800
Dallas, Texas 75201

_____
DENYSE F. CLANCY

APPENDIX

TAB A

NO. CC-03-01977-A

SUSAN ELAINE BOSTIC, Individually and as Personal Representative of the Heirs and Estate of TIMOTHY SHAWN BOSTIC, Deceased; HELEN DONNAHOE; and KYLE ANTHONY BOSTIC,	§	IN THE COUNTY COURT
Plaintiffs,	§	AT LAW # 1
VS.	§	
GEORGIA-PACIFIC CORPORATION,	§	
Defendant.	§	DALLAS COUNTY, TEXAS

FIRST AMENDED FINAL JUDGMENT

CAME ON FOR TRIAL BY JURY in the County Court at Law No. 3 for Dallas County, Texas, the claims of Plaintiffs **SUSAN ELAINE BOSTIC, Individually and as Personal Representative of the Heirs and Estate of TIMOTHY SHAWN BOSTIC, Deceased; HELEN DONNAHOE; and KYLE ANTHONY BOSTIC** against Defendant **GEORGIA-PACIFIC CORPORATION**. All claims of these Plaintiffs against all other Defendants have been severed or settled and dismissed before verdict.

After a jury was impaneled and sworn, it heard the evidence and arguments of counsel. In response to the jury charge, the jury made findings that the Court received, filed, and entered of record. The questions submitted to the jury and the jury's findings are attached as Exhibit 1 and incorporated herein by reference. After due deliberation, the jury returned a verdict awarding a total of $7,554,907.00 in compensatory damages and $6,038,910.00 in exemplary damages on or about June 8, 2006. The case was transferred to this Court on August 10, 2006. Plaintiffs filed a motion for judgment on the verdict.

The Court hereby RENDERS judgment for Plaintiffs as against Defendant GEORGIA-PACIFIC CORPORATION.

Based on the verdict of the jury, the Court's rulings during trial, the applicable law, and taking into account the prior settlements received by Plaintiffs it is

ORDERED, ADJUDGED and DECREED:

WITH REGARD TO COMPENSATORY DAMAGES:

1. That Plaintiff **SUSAN ELAINE BOSTIC**, as Personal Representative of the Estate of **TIMOTHY SHAWN BOSTIC**, shall have and recover from Defendant **GEORGIA-PACIFIC CORPORATION**, after an offset for settlements in the amount of $275,994.12 calculated pursuant to *Battaglia v. Alexander*, 177 S.W.3d 893 (Tex. 2005), compensatory damages in the amount of **$1,240,005.88.**

2. That Plaintiff **SUSAN ELAINE BOSTIC**, Individually, shall have and recover from Defendant **GEORGIA-PACIFIC CORPORATION**, after an offset for settlements in the amount of $219,863.33 calculated pursuant to *Battaglia v. Alexander*, 177 S.W.3d 893 (Tex. 2005), compensatory damages in the amount of **$2,799,591.67.**

3. That Plaintiff **KYLE ANTHONY BOSTIC** shall have and recover from Defendant **GEORGIA-PACIFIC CORPORATION**, after an offset for settlements in the amount of $164,809.43 calculated pursuant to *Battaglia v. Alexander*, 177 S.W.3d 893 (Tex. 2005), compensatory damages in the amount of **$1,646,860.57.**

4. That Plaintiff **HELEN DONNAHOE** shall have and recover from Defendant **GEORGIA-PACIFIC CORPORATION**, after an offset for settlements in the amount of $110,104.80 calculated pursuant to *Battaglia v. Alexander*, 177 S.W.3d 893 (Tex. 2005), compensatory damages in the amount of **$1,097,677.20.**

WITH REGARD TO PUNITIVE DAMAGES:

5. That Plaintiff **SUSAN ELAINE BOSTIC**, Individually, shall have and recover from Defendant **GEORGIA-PACIFIC CORPORATION** punitive damages in the amount of **$3,019,455.00**.

6. That Plaintiff **KYLE ANTHONY BOSTIC** shall have and recover from Defendant **GEORGIA-PACIFIC CORPORATION** punitive damages in the amount of **$1,811,673.00**.

WITH REGARD TO PREJUDGMENT INTEREST:

7. That Plaintiff **SUSAN ELAINE BOSTIC**, as Personal Representative of the Estate of **TIMOTHY SHAWN BOSTIC**, shall have and recover from Defendant **GEORGIA-PACIFIC CORPORATION**, after offsets for settlements calculated pursuant to *Battaglia v. Alexander*, 177 S.W.3d 893 (Tex. 2005), prejudgment interest on past damages pursuant to TEX. FIN. CODE ANN. Ch. 304 at the rate of FIVE PERCENT (5.0%) per annum, simple, already accrued from February 19, 2003 (the day this lawsuit was filed) through October 21, 2008 (the day before this judgment was signed) in the amount of **$183,122.97**.

8. That Plaintiff **SUSAN ELAINE BOSTIC**, Individually, shall have and recover from Defendant **GEORGIA-PACIFIC CORPORATION**, after offsets for settlements calculated pursuant to *Battaglia v. Alexander*, 177 S.W.3d 893 (Tex. 2005), prejudgment interest on past damages pursuant to TEX. FIN. CODE ANN. Ch. 304 at the rate of FIVE PERCENT (5.0%) per annum, simple, already accrued from February 19, 2003 (the day this lawsuit was filed) through October 21, 2008 (the day before this judgment was signed) in the amount of **$145,894.95**.

9. That Plaintiff **KYLE ANTHONY BOSTIC** shall have and recover from Defendant **GEORGIA-PACIFIC CORPORATION**, after offsets for settlements calculated pursuant to *Battaglia v. Alexander*, 177 S.W.3d 893 (Tex. 2005), prejudgment interest on past damages pursuant

to TEX. FIN. CODE ANN. Ch. 304 at the rate of FIVE PERCENT (5.0%) per annum, simple, already accrued from February 19, 2003 (the day this lawsuit was filed) through October 21, 2008 (the day before this judgment was signed) in the amount of **$109,434.00**.

10. That Plaintiff **HELEN DONNAHOE** shall have and recover from Defendant **GEORGIA-PACIFIC CORPORATION**, after offsets for settlements calculated pursuant to *Battaglia v. Alexander*, 177 S.W.3d 893 (Tex. 2005), prejudgment interest on past damages pursuant to TEX. FIN. CODE ANN. Ch. 304 at the rate of FIVE PERCENT (5.0%) per annum, simple, already accrued from February 19, 2003 (the day this lawsuit was filed) through October 21, 2008 (the day before this judgment was signed) in the amount of **$72,921.91**.

AND IT IS FURTHER ORDERED:

11. That post-judgment interest on all amounts owed by Defendant **GEORGIA-PACIFIC CORPORATION** to Plaintiffs shall accrue at the rate of FIVE PERCENT (5.0%) per annum, compounded annually, from the day this Judgment is signed until satisfaction of Judgment, pursuant to TEX. FIN. CODE ANN. Ch. 304.

13. That costs of suit shall be taxed against Defendant **GEORGIA-PACIFIC CORPORATION**, and that Plaintiffs are entitled to post-judgment interest on such court costs at the rate of FIVE PERCENT (5.0%) per annum, compounded annually, pursuant to TEX. FIN. CODE §§ 304.003(a), 304.006.

14. This judgment is final, disposes of all claims and all parties, and is appealable.

The Court orders execution to issue for this judgment.

SIGNED this 22nd day of October, 2008.

THE HONORABLE JUDGE BENSON PRESIDING

APPROVED AS TO FORM AND SUBSTANCE:

DENYSE CLANCY
State Bar No. 24012425
JED J. BORGHEI
State Bar No. 24059473

ATTORNEYS FOR PLAINTIFFS

BARON & BUDD, P.C.
3102 Oak Lawn, Suite 1100
Dallas, Texas 75219
214-521-3605 (telephone)
214-520-1181 (facsimile)

APPROVED AS TO FORM ONLY:

DEBORAH G. HANKINSON
State Bar No. 00000020
RICK THOMPSON
State Bar No. 00788537

ATTORNEYS FOR DEFENDANT GEORGIA-PACIFIC CORPORATION

HANKINSON LEVINGER LLP
2305 Cedar Springs Road, Suite 230
Dallas, Texas 75201
214-754-9190 (telephone)
214-754-9140 (facsimile)

NO. CC-03-01977-C

SUSAN ELAINE BOSTIC, Individually and as Personal Representative of the Heirs and Estate of TIMOTHY SHAWN BOSTIC, Deceased; HELEN DONNAHOE; and KYLE ANTHONY BOSTIC,	§	IN THE COUNTY COURT
Plaintiffs,	§	AT LAW # 3
VS.	§	
GEORGIA-PACIFIC CORPORATION,	§	
Defendants.	§	
	§	DALLAS COUNTY, TEXAS

COURT'S JURY INSTRUCTIONS

LADIES AND GENTLEMEN OF THE JURY:

This case is submitted to you by asking questions about the facts, which you must decide from the evidence you have heard in this trial. You are the sole judges of the credibility of the witnesses and the weight to be given their testimony, but in matters of law, you must be governed by the instructions in this charge. In discharging your responsibility on this jury, you will observe all the instructions which have previously been given you. I shall now give you additional instructions which you should carefully and strictly follow during your deliberations.

1. Do not let bias, prejudice or sympathy play any part in your deliberations.

2. In arriving at your answers, consider only the evidence introduced here under oath and such exhibits, if any, as have been introduced for your consideration under the rulings of the Court, that is, what you have seen and heard in this courtroom, together with the law as given you by the Court. In your deliberations, you will not consider or discuss what is not represented by the evidence in this case.

EXHIBIT 1

3. Since every answer that is required by the charge is important, no juror should state or consider that any required answer is not important.

4. You must not decide who you think should win, and then try to answer the questions accordingly. Simply answer the questions, and do not discuss nor concern yourselves with the effect ofyour answers.

5. You will not decide the answer to a question by lot or by drawing straws, or by any other method of chance. Do not return a quotient verdict. A quotient verdict means that the jurors agree to abide by the result to be reached by adding together each juror's figures and dividing by the number of jurors to get an average. Do not do any trading on your answers; that is, one juror should not agree to answer a certain question one way if others will agree to answer another question another way.

6. You may render your verdict upon the vote of five or more members of the jury. The same five or more of you must agree upon all of the answers made and to the entire verdict. You will not, therefore, enter into an agreement to be bound by a majority or any other vote of less than five jurors. If the verdict and all of the answers therein are reached by unanimous agreement, the presiding juror shall sign the verdict for the entire jury. If any juror disagrees as to any answer made by the verdict, those jurors who agree to all findings shall each sign the verdict.

These instructions are given you because your conduct is subject to review the same as that of the witnesses, parties, attorneys and the judge. If it should be found that you have disregarded any of these instructions, it will be jury misconduct and it may require another trial by another jury; then all of our time will have been wasted.

The presiding juror or any other who observes a violation of the court's instructions shall immediately warn the one who is violating the same and caution the juror not to do so again.

When words are used in this charge in a sense that varies from the meaning commonly understood, you are given a proper legal definition, which you are bound to accept in place of any other meaning.

Answer "Yes" or "No" to all questions unless otherwise instructed. A "Yes" answer must be based on a preponderance of the evidence unless otherwise instructed. If you do not find that a preponderance of the evidence supports a "Yes" answer, then answer "No." The term "preponderance of the evidence" means the greater weight and degree of credible evidence admitted in this case. Whenever a question requires an answer other than "Yes" or "No," your answer must be based on a preponderance of the evidence unless otherwise instructed.

A fact may be established by direct evidence or by circumstantial evidence or both. A fact is established by direct evidence when proved by documentary evidence or by witnesses who saw the act done or heard the words spoken. A fact is established by circumstantial evidence when it may be fairly and reasonably inferred from other facts proved.

"NEGLIGENCE" means failure to use ordinary care, that is, failing to do that which a person or entity of ordinary prudence would have done under the same or similar circumstances or doing that which a person or entity of ordinary prudence would not have done under the same or similar circumstances.

"ORDINARY CARE" means that degree of care that would be used by a person or entity of ordinary prudence under the same or similar circumstances.

"PROXIMATE CAUSE" means that cause which, in a natural and continuous sequence, produces an event, and without which cause such event would not have occurred. In order to be a proximate cause, the act or omission complained of must be such that a person or entity using ordinary

care would have foreseen that the event, or some similar event, might reasonably result therefrom. There may be more than one proximate cause of an event.

"SOLE PROXIMATE CAUSE." There may be more than one proximate cause of an event, but if an act or omission of any person not a party to the suit was the "sole proximate cause" of an occurrence, then no act or omission of any other person could have been a proximate cause.

"PRODUCING CAUSE" means an efficient, exciting, or contributing cause that, in a natural sequence, produces the injury. There may be more than one producing cause.

QUESTION NO. 1:

Did the negligence, if any, of those named below proximately cause the asbestos-related injury, if my, to TIMOTHY SHAWN BOSTIC that resulted in his death?

Answer "YES" or "NO."	YES	NO
Allied-Signal	___	X
Borg-Warner	___	X
Bondex International	___	X
Celotex	___	X
Certainteed Corporation	___	X
Daimler Chrysler Corporation	___	X
Ford Motor Company	___	X
Garlock	___	X
General Motors Corporation	___	X
Georgia Pacific	X	___
H. K. Porter	___	X
Ingersoll-Rand	___	X
Johns-Manville	___	X
Kaiser Aluminum And Chemical	___	X
Knox Glass	X	___
Narco	___	X
Pneumo Abex Corporation	___	X
Union Carbide Company	___	X
Uniroyal	___	X

QUESTION NO. 2:

Was there a defect in the marketing of the asbestos-containing products at the time they left the possession of those named below that was a producing cause of the injury, if any, to TIMOTHY SHAWN BOSTIC that resulted in his death?

A "marketing defect" with respect to the product means the failure to give adequate warnings of the product's dangers that were known or by the application of reasonably developed human skill and foresight should have been known or failure to give adequate instructions to avoid such dangers, which failure rendered the product unreasonably dangerous as marketed.

"Adequate" warnings and instructions mean warnings and instructions given in a form that could reasonably be expected to catch the attention of a reasonably prudent person in the circumstances of the product's use; and the content of the warnings and instructions must be comprehensible to the average user and must convey a fair indication of the nature and extent of the danger and how to avoid it to the mind of a reasonably prudent person.

An "unreasonably dangerous" product is one that is dangerous to an extent beyond that which would be contemplated by the ordinary user of the product with the ordinary knowledge common to the community as to the product's characteristics.

Answer "YES" or "NO".	YES	NO
Allied-Signal	___	X
Borg-Warner	___	X
Bondex International	___	X
Celotex	___	X
Certainteed Corporation	___	X
Daimler Chrysler Corporation	___	X
Ford Motor Company	___	X
Garlock	___	X
General Motors Corporation	___	X

Georgia Pacific	X	
H. K. Porter		X
Ingersoll-Rand		X
Johns-Manville		X
Kaiser Aluminum And Chemical		X
Narco		X
Pneumo Abex Corporation		X
Union Carbide Company		X
Uniroyal		X

If you have answered Question Nos. 1 or 2 "YES" with respect to more than one company, then answer Question No. 3 as to those Companies only; otherwise, do not answer Question No. 3.

QUESTION 3:

For each of those named below found by you to have caused the injury to TIMOTHY SHAWN BOSTIC that resulted in his death, find the percentage of responsibility.

The percentages you find must total 100 percent. The percentages must be expressed in whole numbers. The percentage of causation attributable to those named below is not necessarily measured by the number of acts, omissions, or product defects found.

Assign a percentage only to those Companies you have answered "Yes" to in Question No. 1 or 2:

a. Allied-Signal	Ø %
b. Borg-Warner	Ø %
c. Bondex International	Ø %
d. Celotex	Ø %
e. Certainteed	Ø %
f. Daimler Chrysler	Ø %
g. Ford Motor	Ø %
h. Garlock	Ø %
i. General Motors	Ø %
j. Georgia Pacific	75 %
k. H. K. Porter	Ø %
l. Ingersoll-Rand	Ø %
m. Johns-Manville	Ø %

n. Kaiser Aluminum And Chemical	Ø	%
o. Knox Glass	25	%
p. Narco	Ø	%
q. Pneumo Abex	Ø	%
r. Union Carbide	Ø	%
s. Uniroyal	Ø	%
TOTAL:	100	%

If you have answered Question No. 1 or 2 "YES" with respect to any one or more Companies, answer Question No. 4 as to those Companies; otherwise, do not answer Question No. 4.

QUESTION 4:

Do you find by clear and convincing evidence that the injury resulting in the death of TIMOTHY SHAWN BOSTIC resulted from malice?

"Clear and convincing evidence" means the measure or degree of proof that produces a firm belief or conviction of the truth of the allegations sought to be established.

"Malice" means an act or omission by the Defendant,

(i) which, when viewed objectively from the standpoint of the Defendant at the time of its occurrence, involved an extreme degree of risk, considering the probability and magnitude of the potential harm to others; and

(ii) of which the Defendant had actual, subjective awareness of the risk involved, but nevertheless proceeded with conscious indifference to the rights, safety, or welfare of others.

Answer "YES" or "NO".	YES	NO
Georgia Pacific	X	

If you have answered Questions Nos. 1 or 2 "YES" with respect to any one or more Defendants, then answer Question No. 5; otherwise, do not answer Question No. 5.

QUESTION NO. 5:

What sum of money would have fairly and reasonably compensated TIMOTHY SHAWN BOSTIC for his asbestos-related injuries from the time of his injury until his death?

Consider the elements of damages listed below and none other. Consider each element separately. Do not award any sum of money on any element if you have otherwise, under some other element, awarded a sum of money for the same loss. That is, do not compensate twice for the same loss, if any. Do not include interest on any amount of damages you find.

a. Pain and Mental anguish.

"Pain and mental anguish" means the conscious physical pain and emotional pain, torment, and suffering experienced by TIMOTHY SHAWN BOSTIC before his death as a result of his asbestos-related injuries.

Answer in dollars and cents for damages, if any.

Amount $ 753,000.00

b. Disfigurement.

"Disfigurement" means that which, as a result of his asbestos-related injuries, impaired the beauty, symmetry, or appearance of TIMOTHY SHAWN BOSTIC and that rendered him unsightly, misshapen, imperfect, or deformed in some manner.

Answer in dollars and cents for damages, if any.

Amount $ 251,000.00

c. Physical impairment.

"Physical impairment" means the restriction of physical activities experienced by TIMOTHY SHAWN BOSTIC as a result of his asbestos-related injuries. Loss of enjoyment of life is a factor to consider in determining physical impairment. The effect of any physical impairment must be substantial and extend beyond any pain, suffering, or mental anguish.

Answer in dollars and cents for damages, if any.

Amount $ 251,000.00

d. Medical expenses.

"Medical expenses" means the reasonable expense of the necessary medical and hospital care received by TIMOTHY SHAWN BOSTIC for treatment of injuries sustained by him as a result of his asbestos-related injuries.

Answer in dollars and cents for damages, if any.

Amount $ 251,000.00

e. Funeral and burial expenses.

"Funeral and burial expenses" means the reasonable amount of expenses for funeral and burial of TIMOTHY SHAWN BOSTIC reasonably suitable to his station in life.

Answer in dollars and cents for damages, if any.

Amount $ 10,000.00

If you have answered Questions Nos. 1 or 2 "YES" with respect to any one or more Defendants, then answer Question No. 6; otherwise, do not answer Question No. 6.

QUESTION NO. 6:

What sum of money, if paid now in cash, would fairly and reasonably compensate SUSAN ELAINE BOSTIC for her injuries, if any, that resulted from the death of TIMOTHY SHAWN BOSTIC?

Consider the elements of damages listed below and none other. Consider each element separately. Do not award any sum of money on any element if you have otherwise, under some other element, awarded a sum of money for the same loss. That is, do not compensate twice for the same loss, if any. Do not include interest on any amount of damages you find.

a. Pecuniary loss.

"Pecuniary loss" means the loss of the care, maintenance, support, services, advice, counsel, and reasonable contributions of a pecuniary value, excluding loss of addition to the estate, that SUSAN ELAINE BOSTIC, in reasonable probability, would have received from TIMOTHY SHAWN BOSTIC had he lived.

Answer in dollars and cents for damages, if any, that —

were sustained in the past;	Answer	$ 409,594.00
in reasonable probability will be sustained in the future.	Answer	$ 409,594.00

b. Loss of companionship and society.

"Loss of companionship and society" means the loss of the positive benefits flowing from the love, comfort, companionship, and society that SUSAN ELAINE BOSTIC, in reasonable probability, would have received from TIMOTHY SHAWN BOSTIC had he lived.

Answer in dollars and cents for damages, if any, that —

were sustained in the past;	Answer	$ 409,594.00
in reasonable probability will be sustained in the future.	Answer	$ 409594.00

c. Mental anguish.

"Mental anguish" means the emotional pain, torment, and suffering experienced by SUSAN ELAINE BOSTIC because of the death of TIMOTHY SHAWN BOSTIC.

Answer in dollars and cents for damages, if any, that -

were sustained in the past; Answer $ 402,594.00

in reasonable probability will be sustained in the future. Answer $ 402,594.00

In determining damages for elements b and c, you may consider the relationship between SUSAN ELAINE BOSTIC and TIMOTHY SHAWN BOSTIC, their living arrangements, any extended absences from one another, the harmony of their family relations, and their common interests and activities.

d. Loss of addition to the estate.

"Loss of addition to the estate" means the loss of the present value of assets that the deceased, in reasonable probability, would have added to the estate existing at the end of his natural life and left to SUSAN ELAINE BOSTIC.

Answer in dollars and cents for damages, if any.

Answer $ 603,891.00

If you have answered Questions Nos. 1 or 2 "YES" with respect to any one or more Defendants, then answer Question No. 7; otherwise, do not answer Question No. 7.

QUESTION NO. 7:

What sum of money, if paid now in cash, would fairly and reasonably compensate KYLE ANTHONY BOSTIC for his injuries, if any, that resulted from the death of his father TIMOTHY SHAWN BOSTIC?

Consider the elements of damages listed below and none other. Consider each element separately. Do not award any sum of money on any element if you have otherwise, under some other element, awarded a sum of money for the same loss. That

is, do not compensate twice for the same loss, if any. Do not include interest on any amount of damages you find.

a. Pecuniary loss.

"Pecuniary loss" means the loss of the care, maintenance, support, services, advice, counsel, and reasonable contributions of a pecuniary value that KYLE ANTHONY BOSTIC, in reasonable probability, would have received from TIMOTHY SHAWN BOSTIC had he lived.

Answer in dollars and cents for damages, if any, that -

were sustained in the past;	Answer	$ 301,945.00
in reasonable probability will be sustained in the future.	Answer	$ 301,945.00

b. Loss of companionship and society.

"Loss of companionship and society" means the loss of the positive benefits flowing from the love, comfort, companionship, and society that KYLE ANTHONY BOSTIC, in reasonable probability, would have received from TIMOTHY SHAWN BOSTIC had he lived.

Answer in dollars and cents for damages, if any, that -

were sustained in the past;	Answer	$ 301,945 00
in reasonable probability will be sustained in the future.	Answer	$ 301,945.00

c. Mental anguish.

"Mental anguish" means the emotional pain, torment, and suffering experienced by KYLE ANTHONY BOSTIC because of the death of TIMOTHY SHAWN BOSTIC.

Answer in dollars and cents for damages, if any, that -

were sustained in the past;	Answer	$ 301,945.00
in reasonable probability will be sustained in the future.	Answer	$ 301,945.00

In determining damages for elements b and c, you may consider the relationship between TIMOTHY SHAWN BOSTIC and his son KYLE ANTHONY BOSTIC, their living arrangements, any extended absences from one another, the harmony of their family relations, and their common interests and activities.

QUESTION NO. 8:

What sum of money, if paid now in cash, would fairly and reasonably compensate HELEN DONNAHOE for her injuries, if any, that resulted from the death of TIMOTHY SHAWN BOSTIC, her son ?

Consider the elements of damages listed below and none other. Consider each element separately. Do not award any sum of money on any element if you have otherwise, under some other element, awarded a sum of money for the same loss. That is, do not compensate twice for the same loss, if any. Do not include interest on any amount of damages you find.

a. Pecuniary loss.

"Pecuniary loss" means the loss of the care, maintenance, support, services, advice, counsel, and reasonable contributions of a pecuniary value that HELEN DONNAHOE in reasonable probability, would have received from TIMOTHY SHAWN BOSTIC had he lived.

Answer in dollars and cents for damages, if any, that -

were sustained in the past: Answer $201,297.00

that in reasonable probability will be sustained in the future: Answer $201,297.00

b. Loss of companionship and society.

"Loss of companionship and society" means the loss of the positive benefits flowing from the love, comfort, companionship, and society that HELEN DONNAHOE in reasonable probability, would have received from TIMOTHY SHAWN BOSTIC had he lived.

Answer in dollars and cents for damages, if any, that -

were sustained in the past:	Answer	$201,297.00
that in reasonable probability will be sustained in the future:	Answer	$201,297.00

c. Mental anguish.

"Mental anguish" means the emotional pain, torment, and suffering experienced by HELEN DONNAHOE because of the death of TIMOTHY SHAWN BOSTIC.

Answer in dollars and cents for damages, if any, that -

were sustained in the past:	Answer	$201,297.00
in reasonable probability will be sustained in the future:	Answer	$201,297.00

In determining damages for elements b and c, you may consider the relationship between TIMOTHY SHAWN BOSTIC and his mother, their living arrangements, any extended absences from one another, the harmony of their family relations, and their common interests and activities.

If you have answered Question No. 4 "YES" with respect to any one or more Defendants, then answer Question No. 8 as to those Defendants; otherwise, do not answer Question No. 8.

QUESTION NO. 8:

What sum of money, if any, should be assessed against the Defendant as exemplary damages for the death of TIMOTHY SHAWN BOSTIC?

"Exemplary damages" means any damages awarded as a penalty or by way of punishment. Exemplary damages includes punitive damages.

In determining the amount of exemplary damages, you shall consider evidence, if any, relating to --

a. The nature of the wrong.

b. The character of the conduct involved.

c. The degree of culpability of the wrongdoer.

d. The situation and sensibilities of the parties concerned.

e. The extent to which such conduct offends a public sense of justice and propriety.

f. The net worth of the defendant.

Answer in dollar and cents, if any.

Georgia Pacific Answer: $ 6,038,910 00

If, in your answer to Question No. 8, you have entered any amount of exemplary damages as to any Defendant, then answer Question No. 9. Otherwise, do not answer Question No. 9.

QUESTION NO. 9:

How do you apportion the exemplary damages between SUSAN ELAINE BOSTIC, KYLE ANTHONY BOSTIC and HELEN DONNAHOE?

Answer by stating a percentage for each person named below. The percentages you find must total 100 percent.

SUSAN ELAINE BOSTIC	50 %
KYLE ANTHONY BOSTIC	30 %
HELEN DONNAHOE	20 %
Total	100 %

After you return to the jury room, you will select your own presiding juror. The first thing the presiding juror will do is to have this complete charge read aloud and then you will deliberate upon your answers to the questions asked.

It is the duty of the presiding juror --

1. to preside during your deliberations,
2. to see your deliberations are conducted in an orderly manner and in accordance with the instructions in this charge,
3. to write out and hand to the bailiff any communications concerning the case that you desire to have delivered to the judge,
4. to vote on the questions,
5. to write your answers to the questions in the spaces provided, and
6. to certify to your verdict in the space provided for the presiding juror's signature or to obtain the signatures of all the jurors who agree with the verdict if your verdict is less than unanimous.

You should not discuss the case with anyone, not even with the other members of the jury, unless all of you are present and assembled in the jury room. Should anyone attempt to talk to you about the case before the verdict is returned, whether at the courthouse, at your home, or elsewhere, please inform the judge of this fact.

When you have answered all the questions you are required to answer under the instructions of the judge and your presiding juror has placed your answers in the spaces provided and signed the verdict as presiding juror or obtained the signatures, you will inform the bailiff at the door of the jury room that you have reached a verdict, and then you will return into Court with your verdict.

JUDGE PRESIDING

We, the jury, have answered the above and foregoing questions as indicated, and return these answers to the Court as our verdict.

(To be signed by the Presiding Juror only, if unanimous).

David J Jones
PRESIDING JUROR.

(To be signed by the five or more jurors who agree to the answers, if not unanimous).

_____ MEOCHA BERRYMAN

_____ SUSIE BARBOSA

_____ LOLA MOSLEY

_____ DIANNA WOITAS

_____ TESSIE BROWN

David J Jones DJ DAVID JONES

TAB B

320 S.W.3d 588
(Cite as: 320 S.W.3d 588)

H

Court of Appeals of Texas,
Dallas.
GEORGIA-PACIFIC CORPORATION, Appellant,
v.
Susan Elaine **BOSTIC**, Individually and as Personal Representative of the Heirs and Estate of Timothy Shawn **Bostic**, Deceased; Helen Donnahoe; and Kyle Anthony **Bostic**, Appellees.
No. 05-08-01390-CV.

Aug. 26, 2010.

Background: Drywall worker's family brought wrongful death, negligence, and strict products liability actions against drywall joint compound manufacturer alleging worker's death was cause by asbestos. After a second jury trial, the County Court at Law No. 1, Dallas County, D'Metria Benson, J., entered judgment for family. Manufacturer appealed.

Holdings: The Court of Appeals, Fillmore, J., held that:
(1) evidence existed that worker was exposed to asbestos-containing joint compound made by manufacturer, but
(2) evidence was legally insufficient to establish substantial-factor causation.

Reversed and rendered.

West Headnotes

[1] Appeal and Error 30 ⚿1001(3)

30 Appeal and Error
30XVI Review
30XVI(I) Questions of Fact, Verdicts, and Findings
30XVI(I)2 Verdicts
30k1001 Sufficiency of Evidence in Support
30k1001(3) k. Total failure of proof. Most Cited Cases
When an appellant attacks the legal sufficiency of an adverse finding on an issue on which it did not have the burden of proof, it must demonstrate that no evidence supports the finding.

[2] Evidence 157 ⚿597

157 Evidence
157XIV Weight and Sufficiency
157k597 k. Sufficiency to support verdict or finding. Most Cited Cases
The final test for legal sufficiency must always be whether the evidence at trial would enable reasonable and fair-minded people to reach the verdict under review.

[3] Appeal and Error 30 ⚿930(1)

30 Appeal and Error
30XVI Review
30XVI(G) Presumptions
30k930 Verdict
30k930(1) k. In general. Most Cited Cases
On a legal sufficiency challenge, appellate court reviews the evidence in the light most favorable to the verdict, crediting favorable evidence if reasonable jurors could and disregarding contrary evidence unless reasonable jurors could not.

[4] Products Liability 313A ⚿201

313A Products Liability
313AIII Particular Products
313Ak201 k. Asbestos. Most Cited Cases

Products Liability 313A ⚿380

313A Products Liability
313AIV Actions
313AIV(C) Evidence
313AIV(C)4 Weight and Sufficiency of Evidence
313Ak380 k. In general. Most Cited Cases
Evidence existed that drywall worker was exposed to asbestos-containing joint compound made by manufacturer, supporting family's wrongful death claims against manufacturer following worker's contraction of mesothelioma; worker and his father testified that

worker used manufacturer's joint compound from the age of five, worker's work history sheets asserted exposure to asbestos fibers from manufacturer's joint compound as a result of household exposure to father's clothing, father testified he used manufacturer's joint compound 98% of the time that he did drywall work, and father identified one specific project where manufacturer's joint compound was used.

[5] Negligence 272 ⚿404

272 Negligence
272XIII Proximate Cause
272k404 k. Dangerous instrumentalities and substances. Most Cited Cases

Products Liability 313A ⚿147

313A Products Liability
313AII Elements and Concepts
313Ak146 Proximate Cause
313Ak147 k. In general. Most Cited Cases

Products Liability 313A ⚿217

313A Products Liability
313AIII Particular Products
313Ak217 k. Chemicals in general. Most Cited Cases
In a toxic tort case, the plaintiff must show both general and specific causation.

[6] Negligence 272 ⚿404

272 Negligence
272XIII Proximate Cause
272k404 k. Dangerous instrumentalities and substances. Most Cited Cases

Products Liability 313A ⚿147

313A Products Liability
313AII Elements and Concepts
313Ak146 Proximate Cause
313Ak147 k. In general. Most Cited Cases

Products Liability 313A ⚿217

313A Products Liability
313AIII Particular Products
313Ak217 k. Chemicals in general. Most Cited Cases
In toxic tort context, "general causation" is whether a substance is capable of causing a particular injury or condition in the general population, while "specific causation" is whether a substance caused a particular individual's injury.

[7] Products Liability 313A ⚿147

313A Products Liability
313AII Elements and Concepts
313Ak146 Proximate Cause
313Ak147 k. In general. Most Cited Cases

Products Liability 313A ⚿149

313A Products Liability
313AII Elements and Concepts
313Ak146 Proximate Cause
313Ak149 k. Warnings or instructions. Most Cited Cases
In products liability case, causation is an essential element of a claim for negligence and product marketing defect.

[8] Products Liability 313A ⚿147

313A Products Liability
313AII Elements and Concepts
313Ak146 Proximate Cause
313Ak147 k. In general. Most Cited Cases

Products Liability 313A ⚿217

313A Products Liability
313AIII Particular Products
313Ak217 k. Chemicals in general. Most Cited Cases
In products liability toxic tort case, proximate cause is an element of a negligence claim, while producing cause is an element of a strict liability claim.

[9] Negligence 272 ⚿404

272 Negligence
272XIII Proximate Cause
272k404 k. Dangerous instrumentalities and

substances. Most Cited Cases

Products Liability 313A ⚿147

313A Products Liability
313AII Elements and Concepts
313Ak146 Proximate Cause
313Ak147 k. In general. Most Cited Cases

Products Liability 313A ⚿217

313A Products Liability
313AIII Particular Products
313Ak217 k. Chemicals in general. Most Cited Cases

In toxic tort case, both producing and proximate cause contain the cause-in-fact element, which requires that the defendant's act be a substantial factor in bringing about the injury and without which the harm would not have occurred.

[10] Negligence 272 ⚿380

272 Negligence
272XIII Proximate Cause
272k374 Requisites, Definitions and Distinctions
272k380 k. Substantial factor. Most Cited Cases

To establish substantial-factor causation, a plaintiff must prove that the defendant's conduct was a cause-in-fact of the harm.

[11] Products Liability 313A ⚿147

313A Products Liability
313AII Elements and Concepts
313Ak146 Proximate Cause
313Ak147 k. In general. Most Cited Cases

Products Liability 313A ⚿201

313A Products Liability
313AIII Particular Products
313Ak201 k. Asbestos. Most Cited Cases

In asbestos cases, court must determine whether the asbestos in the defendant's product was a substantial factor in bringing about the plaintiff's injuries and without which the injuries would not have occurred.

[12] Evidence 157 ⚿571(9)

157 Evidence
157XII Opinion Evidence
157XII(F) Effect of Opinion Evidence
157k569 Testimony of Experts
157k571 Nature of Subject
157k571(9) k. Cause and effect. Most Cited Cases

Products Liability 313A ⚿201

313A Products Liability
313AIII Particular Products
313Ak201 k. Asbestos. Most Cited Cases

Products Liability 313A ⚿390

313A Products Liability
313AIV Actions
313AIV(C) Evidence
313AIV(C)4 Weight and Sufficiency of Evidence
313Ak389 Proximate Cause
313Ak390 k. In general. Most Cited Cases

Evidence was legally insufficient to establish substantial-factor causation necessary for maintaining negligence and product liability action against joint compound manufacturer regarding drywall worker's alleged asbestos exposure; plaintiffs' sole expert testified that he could not opine that worker would not have developed mesothelioma absent exposure to manufacturer's asbestos-containing joint compound, work history sheets did not tell the time or intensity of worker's exposure, and plaintiff's expert testimony did not establish an exposure level or dose to quantify worker's exposure to asbestos fibers from manufacturer's joint compound.

[13] Products Liability 313A ⚿147

313A Products Liability
313AII Elements and Concepts
313Ak146 Proximate Cause
313Ak147 k. In general. Most Cited Cases

Products Liability 313A ⚿201

313A Products Liability
313AIII Particular Products
313Ak201 k. Asbestos. Most Cited Cases
Each-and-every-exposure theory of causation was insufficient to establish substantial-factor causation in negligence and product liability action arising out of drywall worker's contraction of mesothelioma allegedly due to exposure to manufacturer's joint compound; plaintiff was instead required to prove that manufacturer's product was a substantial factor in causing the alleged harm.

*590 Deborah G. Hankinson, Hankinson Levinger LLP, Dallas, TX, for Appellant.

Denyse Ronan Clancy, Dallas, TX, for Appellees.

Before Justices BRIDGES, FITZGERALD, and FILLMORE.

OPINION

Opinion By Justice FILLMORE.

Appellant Georgia-Pacific Corporation appeals the final judgment of the trial court in favor of appellees Susan Elaine Bostic, Individually and as Personal Representative of the Heirs and Estate of Timothy Shawn Bostic, Deceased, Helen Donnahoe, and Kyle Anthony Bostic. In three issues, Georgia-Pacific contends (1) there is legally insufficient evidence that Georgia-Pacific's joint compound caused Timothy Bostic's mesothelioma, (2) there is no evidence to support the jury's finding of gross negligence against Georgia-Pacific, and (3) the trial court abused its discretion by denying Georgia-Pacific's motion for mistrial and by vacating the order granting Georgia-Pacific a new trial.

Concluding there is legally insufficient evidence of causation, we reverse the trial court's judgment and render judgment that appellees take nothing on their claims against Georgia-Pacific.

PROCEDURAL BACKGROUND

In February 2003, Timothy Bostic's wife, son, father, and mother brought wrongful death claims and a survival action against Georgia-Pacific and numerous other entities alleging Timothy's death was caused by exposure to asbestos. At the time of trial, Georgia-Pacific was the sole remaining defendant, the other named defendants having settled or been dismissed. Appellees alleged Georgia-Pacific was negligent, strictly liable for a product marketing defect, and grossly negligent.

In 2005, Judge Sally Montgomery presided over the trial of this lawsuit in Dallas County Court at Law No. 3. After the jury verdict awarding appellees actual and punitive damages, Judge Montgomery ordered appellees to either elect a new trial on all issues or agree to remit a misallocated*591 award of future lost wages and the award of punitive damages. Appellees elected a new trial. The lawsuit was tried for the second time before a jury in 2006. [FN1] The jury returned a verdict in favor of appellees, finding Georgia-Pacific seventy-five percent liable and Knox Glass, Inc., a non-party former employer of Timothy, twenty-five percent liable for Timothy's death. The jury awarded $7,554,907 in compensatory damages and $6,038,910 in punitive damages.

FN1. Harold Bostic, Timothy's father, died while the case was being retried.

Georgia-Pacific filed a motion to recuse Judge Montgomery. Judge M. Kent Sims granted the motion to recuse, and the lawsuit was transferred to Judge Russell H. Roden, Dallas County Court at Law No. 1. In December 2006, the trial court granted Georgia-Pacific's motion for mistrial and ordered a new trial.

In January 2007, Judge D'Metria Benson became the presiding judge of Dallas County Court at Law No. 1. In February 2008, appellees filed a motion to vacate Judge Roden's order granting a new trial and for entry of judgment. In July 2008, Judge Benson granted appellees' motion to vacate the order for new trial and signed a judgment based on the jury's June 2006 verdict. In October 2008, Judge Benson signed the amended final judgment awarding appellees $6,784,135.32 in compensatory damages and $4,831,128.00 in punitive damages. Georgia-Pacific appealed.

LEGAL SUFFICIENCY OF THE EVIDENCE

In its first issue, Georgia-Pacific asserts there is legally insufficient evidence that Georgia-Pacific asbestos-containing joint compound [FN2] caused Timo-

thy's mesothelioma, a form of cancer usually linked to asbestos exposure. Georgia-Pacific asserts there is no evidence Timothy was exposed to Georgia-Pacific asbestos-containing joint compound, and even if there was evidence of exposure, there is no evidence of dose. Further, Georgia-Pacific asserts that even if there was evidence of exposure and dose, the record contains no epidemiological studies showing that persons similar to Timothy with exposure to asbestos-containing joint compound had an increased risk of developing mesothelioma. Georgia-Pacific also asserts that appellees' experts' theory that "each and every exposure" to asbestos caused Timothy's mesothelioma was rejected by the Texas Supreme Court in *Borg-Warner Corp. v. Flores*, 232 S.W.3d 765 (Tex.2007).[FN3] Georgia-Pacific asserts that for each of these reasons, appellees' negligence and defective marketing claims against Georgia-Pacific fail as a matter of law.

FN2. Joint compound, sometimes called "drywall mud," is used to connect and smooth the seams of adjoining pieces of drywall, also called sheetrock, and to cover nail heads on sheets of drywall. Joint compound is spread in a thin coat and then smoothed. After it dries, uneven areas are further smoothed by sanding. This process is sometimes carried out multiple times in further refining the surface.

FN3. Prior to the 2008 final judgment in this case, the Texas Supreme Court issued its *Flores* opinion on toxic tort law in asbestos cases, including specific causation. Like the instant appeal, in *Georgia-Pacific Corp. v. Stephens*, 239 S.W.3d 304 (Tex.App.-Houston [1st Dist.] 2007, pet. denied), issued after *Flores*, the asbestos trial occurred before the *Flores* decision, but the appellate court was bound by *Flores*. *Stephens*, 239 S.W.3d at 321; *see also Smith v. Kelly-Moore Paint Co.*, 307 S.W.3d 829, 834 (Tex.App.-Fort Worth 2010, no pet.) (appellate court bound by *Flores* as supreme court precedent); *Lubbock Cnty. v. Trammel's Lubbock Bail Bonds*, 80 S.W.3d 580, 585 (Tex.2002) (once supreme court announces proposition of law, that proposition is binding precedent and may not be modified or abrogated by court of appeals).

*592 [1][2][3] When, as here, an appellant attacks the legal sufficiency of an adverse finding on an issue on which it did not have the burden of proof, it must demonstrate that no evidence supports the finding. *Croucher v. Croucher*, 660 S.W.2d 55, 58 (Tex.1983). "The final test for legal sufficiency must always be whether the evidence at trial would enable reasonable and fair-minded people to reach the verdict under review." *Del Lago Partners, Inc. v. Smith*, 307 S.W.3d 762, 770 (Tex.2010) (quoting *City of Keller v. Wilson*, 168 S.W.3d 802, 827 (Tex.2005)). We review the evidence in the light most favorable to the verdict, crediting favorable evidence if reasonable jurors could and disregarding contrary evidence unless reasonable jurors could not. *Del Lago Partners*, 307 S.W.3d at 770.

Asbestos Exposure

[4] In 2002, Timothy was diagnosed with mesothelioma at the age of forty. He died in 2003. Appellees claim Timothy's mesothelioma was caused by his exposure to asbestos-containing joint compound manufactured by Georgia-Pacific. Georgia-Pacific acknowledged there is some evidence that Timothy used or was present during the use of joint compound between 1967 and 1977, but contends there is no evidence of exposure to Georgia-Pacific asbestos-containing joint compound. *See Gaulding v. Celotex Corp.*, 772 S.W.2d 66, 68 (Tex.1989) (fundamental principle of products liability law is plaintiff must prove defendant supplied product which caused injury).

Georgia-Pacific manufactured and sold joint compound products that included chrysotile asbestos [FN4] fibers from the time it acquired Bestwall Gypsum Company in 1965 until 1977, when Georgia-Pacific ceased marketing asbestos-containing joint compound. Those Georgia-Pacific joint compounds were offered in a dry mix formula and a pre-mixed formula.[FN5] The parties do not dispute that any exposure of Timothy to a Georgia-Pacific asbestos-containing joint compound would have occurred between 1967 and 1977. Evidence regarding Timothy's work with or around Georgia-Pacific asbestos-containing joint compound in this ten-year period came from Timothy's and Harold Bostic's deposition testimony read and played by videotape at trial and Timothy's work history sheets.

FN4. Chrysotile is the most abundant type of asbestos fiber and is a serpentine fiber consisting of "pliable curly fibrils which resemble scrolled tubes." *Flores*, 232 S.W.3d at 766 n. 4 (citing Lee S. Siegel, Note, *As the Asbestos Crumbles: A Look at New Evidentiary Issues in Asbestos Related Property Damage Litigation*, 20 HOFSTRA L.REV. 1139, 1149 (1992)); *Smith*, 307 S.W.3d at 832 n. 3. The remaining commercial types of asbestos fibers are amphiboles, which include amosite and crocidolite. *Smith*, 307 S.W.3d at 832, 837; *Bartel v. John Crane, Inc.*, 316 F.Supp.2d 603, 606 (N.D.Ohio 2004), *aff'd*, 424 F.3d 488 (6th Cir.2005).

FN5. Dust containing asbestos fibers could be released by sanding or sweeping either formula and by mixing the dry formula.

Timothy testified he had been around drywall work his entire life, and he recalled that before the age of ten, he observed his father performing drywall work. He stated he mixed and sanded joint compound from the age of five. He testified he recalled at a young age helping his father "mud the holes" with joint compound. While he did not provide any more specifics of drywall work he performed with his father before 1977, he believed he used and was exposed to Georgia-Pacific joint compound before he graduated from high school in 1980. Timothy's work history sheets also indicate he worked with and ***593** around other brands of asbestos-containing joint compounds.

Timothy's work history sheets also assert exposure to asbestos fibers from Georgia-Pacific joint compound as a result of household exposure to Harold's clothing. This alleged exposure would have occurred prior to his parents' divorce in 1972, when he was ten years old, and thereafter when he stayed with his father on weekends, holidays, and at times in the summer.

Harold testified he used Georgia-Pacific joint compound ninety-eight percent of the time that he did drywall work. He testified he tried one or two other brands of joint compound, but he always returned to Georgia-Pacific's product. With one exception listed below, Harold said he could not positively associate Georgia-Pacific's product with any specific drywall job. He stated he knew he had used Georgia-Pacific's product on several jobs, but he could not recall exactly where. Harold testified that Timothy began to accompany him on remodeling jobs in 1967 when Timothy was the age of five. Timothy helped mix joint compound, applied and sanded joint compound to the height Timothy could reach, and breathed in the dust from sanded joint compound.

According to his testimony, Harold worked part-time on only one remodeling or construction job at a time for a family member or friend. Each project took a lengthy period of time to complete. Although he testified there was no doubt in his mind that he and Timothy used Georgia-Pacific joint compound "many, many times" between 1967 and 1977, he identified and described work performed on eight remodeling projects for the relevant period. Harold identified only one specific project where Georgia-Pacific joint compound was used, and he could not recall whether Timothy performed drywall work or was present during drywall work on that project. Only three projects were identified in which Harold and Timothy may have performed drywall work together or Timothy may have been present when Harold performed drywall work. Following is a summary chronology of the remodeling or construction jobs Harold recalled for this relevant period:

• In the house he lived in with his wife and Timothy, Harold performed drywall work while remodeling a utility room. Timothy was four or five years of age at the time and may have played in the joint compound "mud" or sanded drywall to the height he could reach.

• During the course of a three-month project, Harold built a ten foot by ten foot bathroom and dressing room in his brother's house. Harold performed drywall work as part of the project. He could not recall the brand of joint compound he utilized. Timothy performed sewer work on this project. Timothy was six or seven years of age.

• Harold remodeled the interior of his sister's service station. The project lasted a year in 1968 or 1970. Harold performed drywall work on an eight foot by seven foot room and the ceiling of the room. Timothy was between the ages of six and eight.

• Harold built living quarters in a friend's garage and car dealership. This year-long project included dry-

wall work. He has no memory of Timothy working with drywall on this project.

• In connection with the construction of the interior of a friend's prefabricated home, Harold performed drywall work. The construction project took a year to complete. Harold recalled utilizing Georgia-Pacific joint compound, but he did not recall whether Timothy performed drywall work or whether Timothy was present when Harold performed drywall work. Timothy dug the septic *594 tank on this project. Timothy was between the ages of ten and twelve.

• In finishing a room in his sister's newer home, Harold could not recall utilizing drywall. Timothy was eleven or twelve years of age.

• During a year-long construction project, Harold performed drywall work in his sister's five hundred square foot older home.

• In building partitions in his mother's home, Harold recalled that he may have patched some cracks, but he did not perform drywall work and he could not recall using joint compound. Timothy was thirteen or fourteen years of age.

Evidence at trial substantiated Timothy was exposed to asbestos other than through use of or presence during the use of Georgia-Pacific asbestos-containing joint compound. In addition to Georgia-Pacific joint compound, the evidence established and appellees acknowledge that Timothy was exposed to numerous asbestos products and asbestos-containing products, both occupationally and through household and bystander exposure.

Timothy was exposed to asbestos utilized at Knox Glass. Harold was employed as a welder at Knox Glass from around 1960 until the plant closed in 1984. Asbestos and asbestos-containing products were used throughout the glass container factory, particularly to insulate against heat. Harold was exposed to asbestos fibers, which were inadvertently brought home on his clothing, thereby exposing Timothy. These household exposures to asbestos occurred consistently from Timothy's birth until his parents were divorced when he was ten years old, from time spent with Harold on weekends, holidays, and in the summers between the ages of ten and fifteen, and from the ages of fifteen to eighteen when Timothy lived with Harold.

Timothy was further exposed to asbestos utilized at Knox Glass in connection with his janitorial and mechanical work at Knox Glass in the summer months of 1980 through 1982.[FN6] He worked in both the hot end of the plant, where glass bottles were manufactured and where asbestos was more likely prevalent, and in the cold end of the plant.[FN7] The evidence indicated that asbestos or asbestos-containing items in the work environment at Knox Glass included refractory cements, fireproofing, asbestos cloth, pumps, packing (braided rope made from asbestos), valves, furnaces, blow heads, gaskets, and firebrick mortar. Timothy's work responsibilities included cutting raw asbestos cloth, sweeping up asbestos-containing dust, cleaning up after asbestos pipe coverings were repaired, removing flaking asbestos from machines and replacing it with asbestos he cut, and wearing asbestos gloves or mittens.

> FN6. In 1988, Timothy and Harold underwent testing to determine whether they had contracted an asbestos-related disease as a result of working at Knox Glass. A bronchial alveolar lavage (BAL) was performed on each of them to determine what type of fiber exposures had occurred. Two chrysotile and two amosite asbestos fibers were found in Timothy's BAL. There were additional fibers that were not asbestos that could not be identified. Three amosite asbestos fibers were found in Harold Bostic's BAL.
>
> FN7. Timothy testified he worked summer months at Knox Glass in 1980, 1981, and 1982. Appellees seek to narrow the time period of exposure to asbestos and asbestos-containing products to three months by asserting that to be the cumulative amount of time Timothy worked in the hot end of the plant.

Timothy also had occupational exposure to asbestos during 1977 and 1978, when he worked for approximately six months as a *595 welder's assistant for Palestine Contractors. There he was exposed to asbestos while removing gaskets and asbestos pipe insulation three to four times each week.

Timothy was also exposed to asbestos fibers as a result of mechanical work Harold performed on automobiles, including brake work. Timothy was exposed in the household to asbestos fibers on Harold's clothing and as a bystander and assistant to his father with respect to the automotive repairs. In addition, when he was older, Timothy performed mechanical work on vehicles resulting in exposure to a number of asbestos-containing products, including clutches, brake pads and linings, friction products, and gaskets. He testified that he performed approximately four brake jobs a year and fewer than ten clutch jobs in his lifetime. Timothy identified a number of manufacturers of asbestos-containing products he was exposed to in connection with the mechanical work he performed.

After his graduation from high school, Timothy began remodeling homes on his own. According to the evidence, he was exposed to a number of asbestos-containing products in his remodeling work, including roofing shingles, floor tiles, and ceiling tiles. Timothy identified several manufacturers and marketers of asbestos-containing products he utilized in addition to Georgia-Pacific joint compounds. It is not disputed that Timothy used Georgia-Pacific products after his graduation from high school in 1980. However, these uses occurred after Georgia-Pacific joint compounds no longer contained asbestos.

Albeit limited, the record contains evidence through the lay testimony of Timothy and Harold, and Timothy's work history sheets, of Timothy's use or presence during the use of Georgia-Pacific's asbestos-containing joint compound. On this record, we disagree with Georgia-Pacific's argument that there is no evidence Timothy was exposed to Georgia-Pacific asbestos-containing joint compound.

Substantial-Factor Causation

[5][6] Georgia-Pacific next contends there is legally insufficient evidence of causation, an essential element of appellees' negligence and strict liability defective marketing claims. In a toxic tort case, the plaintiff must show both general and specific causation. *See* Merrell Dow Pharm., Inc. v. Havner, 953 S.W.2d 706, 714-15, 720 (Tex.1997). "General causation is whether a substance is capable of causing a particular injury or condition in the general population, while specific causation is whether a substance caused a particular individual's injury." Havner, 953 S.W.2d at 714; *see also* Georgia-Pacific Corp. v. Stephens, 239 S.W.3d 304, 308-09 (Tex.App.-Houston [1st Dist.] 2007, pet. denied). For purposes of this appeal, Georgia-Pacific is not challenging the legal sufficiency of the evidence of general causation that inhalation of chrysotile asbestos fibers can cause mesothelioma. Instead, Georgia-Pacific challenges the legal sufficiency of the evidence as to specific causation, that is whether Georgia-Pacific asbestos-containing joint compound was, in fact, a cause of Timothy's mesothelioma.

Causation

Georgia-Pacific contends that appellees failed to introduce evidence sufficient to satisfy the "substantial factor" standard of causation set forth in *Flores*, because appellees produced no evidence of cause-in-fact. In the context of an asbestos case, the Texas Supreme Court explained that "asbestos in the defendant's product [must be] a substantial factor in bringing about the plaintiff's injuries." *Flores*, 232 S.W.3d at 770. The *Flores* court agreed that the "frequency, regularity, and proximity"**596 test for exposure to asbestos set out in *Lohrmann v. Pittsburgh Corning Corp.*, 782 F.2d 1156 (4th Cir.1986), is appropriate. *Flores*, 232 S.W.3d at 769; *see also Lohrmann*, 782 F.2d at 1162-63 (to support reasonable inference of substantial causation from circumstantial evidence, there must be evidence of exposure to specific product on regular basis over extended period of time in proximity to where plaintiff actually worked). The supreme court stated, however, that the terms "frequency," "regularity," and "proximity" do not "capture the emphasis [Texas] jurisprudence has placed on causation as an essential predicate to liability," and agreed with *Lohrmann's* analysis that the asbestos exposure must be a substantial factor in causing the asbestos-related disease. *Flores*, 232 S.W.3d at 769; *see also Lohrmann*, 782 F.2d at 1162.

[7][8][9] Causation is an essential element of appellees' claims for negligence and product marketing defect. Proximate cause is an element of a negligence claim, while producing cause is an element of a strict liability claim. Gen. Motors Corp. v. Saenz, 873 S.W.2d 353, 357 (Tex.1993). "Both producing and proximate cause contain the cause-in-fact element, which requires that the defendant's act be a 'substantial factor in bringing about the injury and without

which the harm would not have occurred.' " *Metro Allied Ins. Agency, Inc. v. Lin*, 304 S.W.3d 830, 835 (Tex.2009) (quoting *Doe v. Boys Clubs of Greater Dallas, Inc.*, 907 S.W.2d 472, 481 (Tex.1995)); *see also Flores*, 232 S.W.3d at 770 (quoting RESTATEMENT (SECOND) OF TORTS § 431 cmt. a (1965)) ("substantial" used to denote the fact that the defendant's conduct has such an effect in producing harm as to lead reasonable men to regard it as a cause); *Prudential Ins. Co. of Am. v. Jefferson Assocs., Ltd.*, 896 S.W.2d 156, 161 (Tex.1995); *Patino v. Complete Tire, Inc.*, 158 S.W.3d 655, 661 (Tex.App.-Dallas 2005, pet. denied).

Appellees assert that *Flores* does not require "but-for" causation in proving specific causation and that *Flores* requires only that appellees prove Timothy's exposure to Georgia-Pacific asbestos-containing joint compound was a "substantial factor" in contributing to his risk of mesothelioma. We disagree. The Texas Supreme Court "[has] recognized that '[c]ommon to both proximate and producing cause is causation in fact, including the requirement that the defendant's conduct or product be a substantial factor in bringing about the plaintiff's injuries.' " *Flores*, 232 S.W.3d at 770 (quoting *Union Pump Co. v. Allbritton*, 898 S.W.2d 773, 775 (Tex.1995)); *see also Ford Motor Co. v. Ledesma*, 242 S.W.3d 32, 46 (Tex.2007).

[10][11] Thus, to establish substantial-factor causation, a plaintiff must prove that the defendant's conduct was a cause-in-fact of the harm. *See Flores*, 232 S.W.3d at 770. "In asbestos cases, then, we must determine whether the asbestos in the defendant's product was a substantial factor in bringing about the plaintiff's injuries" and without which the injuries would not have occurred. *Id.*; *see also Stephens*, 239 S.W.3d at 308-09.

[12] Appellees acknowledged in their brief and at oral submission that their only expert who opined on specific causation of Timothy's mesothelioma was pathologist Samuel Hammar, M.D. However, Dr. Hammar testified he could not opine that Timothy would not have developed mesothelioma absent exposure to Georgia-Pacific asbestos-containing joint compound. Because a plaintiff must prove that the defendant's conduct was a cause-in-fact of the harm, appellees' evidence is insufficient to satisfy the required substantial-factor causation element for maintaining *597 this negligence and product liability suit. *See Flores*, 232 S.W.3d at 770.

"Each and Every Exposure" Theory of Causation

[13] Georgia-Pacific argues that appellees further failed to establish substantial-factor causation because they improperly based their showing of causation on the opinion of their only specific causation expert that each and every exposure to asbestos caused or contributed to cause Timothy's mesothelioma. Georgia-Pacific contends the law set forth in *Flores* and *Stephens* rejects the theory that each and every exposure to asbestos contributes to the development of mesothelioma. *See Flores*, 232 S.W.3d at 773; *Stephens*, 239 S.W.3d at 311, 314-15, 321 (in *Flores*, Texas Supreme Court rejected "any exposure" test for specific causation and adopted substantial-factor causation standard). Therefore, Georgia-Pacific asserts there is no evidence of the essential element of causation to support appellees' negligence or defective marketing claims against Georgia-Pacific.

Quoting from the underlying court of appeals decision, the *Flores* court expressly rejected the "each and every exposure" theory of liability:

> [Plaintiff's expert] acknowledged that asbestos is "plentiful" in the ambient air and that "everyone" is exposed to it. If a single fiber could cause asbestosis, however, "everyone" would be susceptible. No one suggests this is the case.... In analyzing the legal sufficiency of Flores's negligence claim, then, the court of appeals erred in holding that "[i]n the context of asbestos-related claims, if there is sufficient evidence that the defendant supplied *any* of the asbestos to which a plaintiff was exposed, then the plaintiff has met the burden of proof."

Flores, 232 S.W.3d at 773 (emphasis in original). Instead, as discussed previously in this opinion, the Texas Supreme Court requires the plaintiff to prove "that the defendant's product was a substantial factor in causing the alleged harm." *Id.*

In *Stephens*, Dr. Hammar, appellees' specific causation expert here, "express[ed] an opinion that each and every exposure that an individual has in a bystander occupational setting causes their mesothelioma." *Stephens*, 239 S.W.3d at 315. Dr.

Hammar testified that any exposure the deceased commercial painter had throughout the time he worked was causative of his mesothelioma. *Id.* at 320. The plaintiffs in *Stephens* also relied on the testimony of Jerry Lauderdale, an industrial hygienist. *Id.* at 314. Lauderdale testified that asbestos-related diseases are based on cumulative exposures and that there is no way to isolate a particular exposure that caused development of the disease. *Id.* at 315. It was Lauderdale's opinion "that every exposure does contribute to the development of-potential to develop mesothelioma." *Id.* The court noted that the experts failed to show that "the 'any exposure' theory is generally accepted in the scientific community-that any exposure to a product that contains asbestos results in a statistically significant increase in the risk of developing mesothelioma." *Id.* at 320-21. Consistent with *Flores*, the "each and every exposure" theory was rejected in *Stephens*. *Id.* at 314-15, 320-21.

In this case, appellees' specific causation expert, Dr. Hammar, testified that asbestos-related diseases are dose-related diseases, meaning that asbestos exposures comprising the cumulative dose, at least to the point of the first cancer cell's development, are all causative or potentially causative of the disease. He opined, to a reasonable degree of medical probability, that ***598** each and every exposure to asbestos would be a significant contributing, or at least a potentially contributing, factor to the development of mesothelioma. Dr. Hammar agreed that each and every exposure Timothy had to asbestos was significant and a contributing factor in the development of his mesothelioma. These exposures would include Timothy's use of or exposure to asbestos during his employment at Knox Glass, his bystander exposure, and his household exposure to asbestos fibers Harold inadvertently brought home on his clothing from Knox Glass and from his part-time mechanical and construction work.

At oral submission, appellees stated that while not experts on the specific cause of Timothy's disease, their other experts at trial supported Dr. Hammar's testimony. Appellees' experts at trial on general causation, Arnold R. Brody, Ph.D., an experimental pathologist with a doctorate in cell biology, and Richard Lemen, Ph.D., an epidemiologist, espoused the "each and every exposure" theory. Dr. Brody testified that each and every asbestos fiber a person inhales is considered a cause of or a substantial contributing factor to mesothelioma. Dr. Lemen testified that with each and every exposure to asbestos, and each and every inhalation of asbestos fibers, the fibers add to the total body burden of exposure and contribute to the development of mesothelioma.

In their effort to demonstrate evidence of substantial-factor causation, appellees also refer to the testimony of Richard Kronenberg, M.D., a witness called to testify by Georgia-Pacific. Dr. Kronenberg testified that asbestos diseases result from a total accumulated exposure over a lifetime. He stated that each and every exposure would be a significant contributing factor to an asbestos disease, and that all the exposures throughout Timothy's life working with any sort of asbestos-containing products contributed to the development of his disease.

The Texas Supreme Court has determined that an "each and every exposure" theory is legally insufficient to support a finding of causation. *Flores*, 232 S.W.3d at 773. We agree with Georgia-Pacific's assertion that appellees did not establish substantial-factor causation to the extent they improperly based their showing of specific causation on their expert's testimony and the testimony of Dr. Kronenberg that each and every exposure to asbestos caused or contributed to cause Timothy's mesothelioma.

Frequency, Proximity, and Regularity of Exposure

Appellees contend that Georgia-Pacific misstates the facts in asserting the appellees' expert relied on the "each and every exposure" theory in support of substantial-factor causation. Instead, appellees assert that in accordance with the substantial-factor causation standard, they presented "substantial evidence of Timothy's ten years of frequent, proximate, and regular exposure to Georgia-Pacific asbestos joint compound...."

Appellees contend that Timothy "used Georgia-Pacific asbestos joint compound 'many times' over ten years." Appellees assert that "[t]aking into account the frequency, proximity, and regularity of Timothy's exposure to Georgia-Pacific's joint compound," Dr. Hammar testified that Timothy's exposure to Georgia-Pacific asbestos joint compound would have been sufficient in and of itself to cause his mesothelioma.

It was Dr. Hammar's understanding that from an early age with his father, and then as he grew older, Timothy "did a fair amount of work with the drywall work" and he testified Timothy was exposed to *599 asbestos during mixing, sanding, and cleaning up of drywall materials. Dr. Hammar testified he had reviewed Timothy's work history sheets "which chronicled Timothy's work history and what he had actually done during his life." But he acknowledged that work history sheets do not tell "the time of exposure and the intensity of the exposure the individual had." Further, he had not reviewed the deposition testimony of Timothy or Harold, although he acknowledged that deposition testimony provides more details of the nature and amount of exposure than work history sheets.

As is detailed above, the record does not contain "substantial" evidence of Timothy's frequent use of or exposure to Georgia-Pacific joint compound for the period 1967 to 1977 and does not establish Timothy's use of the joint compound "many times" over that period.[FN8] In fact, the evidence regarding Timothy's exposure to asbestos-containing joint compound and the number of times it occurred during the period 1967 to 1977 belies an assertion of exposure occurring "many times" and belies the information contained in Timothy's work history sheets reviewed by Dr. Hammar.[FN9]

> FN8. Appellees further assert that Timothy's exposure to Georgia-Pacific asbestos-containing joint compound "was far greater than any other asbestos exposure." This is apparently based on appellees "quantifying the ratio of [Timothy's] exposure to Georgia-Pacific asbestos joint compound as compared to his other exposures," which according to appellees was "ten years of Georgia-Pacific asbestos joint compound versus three months of exposure at Knox-Glass [sic], six months at Palestine Contractors, potential household exposure, and sporadic brake work." Without endorsing this methodology, we conclude this argument is inapposite to the "frequency, proximity, and regularity" test associated with substantial-factor causation.
>
> FN9. According to Timothy's work history sheets, for a period of over thirty years from the early 1970s, Timothy was exposed to asbestos fibers from Georgia-Pacific joint compounds through his work with or around them as a self-employed carpenter with a workweek of over forty hours, at various residences with Harold as a coworker, and through household exposure resulting from Harold's work as a carpenter.

We disagree with appellees' contention that Georgia-Pacific is incorrect in arguing appellees relied on the "each and every exposure" theory to support substantial-factor causation. We also disagree with appellees' contention that, instead, they presented "substantial evidence of Timothy's ten years of frequent, proximate, and regular exposure to Georgia-Pacific asbestos joint compound" to establish substantial-factor causation. *See Jackson v. Anchor Packing Co.*, 994 F.2d 1295, 1308 (8th Cir.1993) (although worker testified he worked with gaskets and packets "many times" during years as mechanic, no evidence in record that he used gaskets many times and cannot tell whether he used products "for two jobs or two hundred jobs"); *Lohrmann*, 782 F.2d at 1163 (ten to fifteen occasions of exposure to asbestos-containing pipe covering lasting between one and eighteen hours duration insufficient to satisfy frequency-regularity-proximity test). On this record, there is insufficient evidence of Timothy's frequent and regular exposure to Georgia-Pacific's asbestos-containing joint compound during the relevant time period.

Quantitative Evidence that Exposure Increased Risk of Developing Mesothelioma

Georgia-Pacific also contends that appellees failed to establish substantial-factor causation because there is no evidence of the quantitative exposure (dose) of asbestos fibers from Georgia-Pacific asbestos-containing joint compound to which Timothy*600 was exposed, and because appellees failed to present evidence of the minimum exposure level leading to an increased risk of development of mesothelioma.

As set forth in *Flores*, *Stephens*, and *Smith*, the "each and every exposure" theory and the theory that there is no level of asbestos exposure below which the potential to develop mesothelioma is not present have been rejected. *See Flores*, 232 S.W.3d at 769-70, 773; *Smith v. Kelly-Moore Paint Co.*, 307 S.W.3d 829, 837 n. 9, 839 (Tex.App.-Fort Worth, 2010, no

pet.); *Stephens*, 239 S.W.3d at 311, 314-15. In order to prove substantial factor causation, a plaintiff must not only show frequency, regularity, and proximity of exposure to the product, the plaintiff must also show reasonable quantitative evidence that the exposure increased the risk of developing the asbestos-related injury. *Flores*, 232 S.W.3d at 769-72; *Smith*, 307 S.W.3d at 833; *Stephens*, 239 S.W.3d at 312. "Because most chemically induced adverse health effects clearly demonstrate 'thresholds,' there must be reasonable evidence that the exposure was of sufficient magnitude to exceed the threshold before a likelihood of 'causation' can be inferred." *Flores*, 232 S.W.3d at 773 (quoting David L. Eaton, *Scientific Judgment and Toxic Torts-A Primer in Toxicology for Judges and Lawyers*, 12 J.L. & POL'Y 5, 39 (2003)).

Flores mandates that a showing of substantial-factor causation include quantitative evidence that Timothy's exposure to asbestos increased his risk of developing an asbestos-related injury. *See Flores*, 232 S.W.3d at 772. Thus, the evidence had to not only show Timothy's exposure to Georgia-Pacific asbestos-containing product on a frequent and regular basis, but also that the exposure was in sufficient amounts to increase his risk of developing mesothelioma. *Id.* at 769-70.

Appellees contend their specific causation expert, Dr. Hammar, "analyzed the mathematical threshold of asbestos exposure leading to a multiple increased risk of mesothelioma, and testified that Timothy's ten year exposure to Georgia-Pacific asbestos joint compound would have been enough in and of itself to cause his mesothelioma." They state Dr. Hammar considered the threshold for increased risk of developing mesothelioma to be 0.1 fiber cc,[FN10] and considered the frequency, regularity, and fiber concentration of Timothy's ten years of exposure to Georgia-Pacific asbestos-containing joint compound, and testified, within a reasonable degree of medical certainty, that these exposures were sufficient, in and of themselves, to have caused Timothy's mesothelioma.

> FN10. "Asbestos exposure is generally measured in fibers per cubic centimeter (fibers/cc) on an eight hour weighted average. This is calculated by taking the amount of time an individual is exposed to asbestos and mathematically calculating a time weighted average over an eight hour day.... In all urban environments, there is a level of asbestos in the ambient air. This level, often called the background level, varies from location to location and ranges from .000001 to .01 fiber/cc." *Bartel*, 316 F.Supp.2d at 607.

Dr. Hammar testified he does not know of any safe level of exposure to asbestos under which disease does not occur. He opined that exposure to friable[FN11] asbestos fibers above background levels had the potential to contribute to the development of Timothy's mesothelioma. It is his opinion that every exposure above .1 fiber cc contributes to the development of mesothelioma. He stated that information published in the Federal Register shows that at .1 fiber cc, statistically there are seven cases of mesothelioma per year.

> FN11. " 'Friable' refers to breathable asbestos." *See Flores*, 232 S.W.3d at 767 n. 6.

***601** These dosage opinions are consistent with Dr. Hammar's opinions in *Stephens*. There he "opined that the level of exposure it takes to cause mesothelioma 'could be any level above what is considered to be background, which, from my definition, would be anything greater than .1 fiber cc years.' In sum, he stated: 'I'm going to express an opinion that each and every exposure that an individual has in a bystander occupational setting causes their mesothelioma.' " *Stephens*, 239 S.W.3d at 315. He stated "that mesothelioma is a dose-responsive disease, and that a threshold exists 'above which you may be at risk, below which you may not be at risk' for developing the disease." *Id.*

In *Stephens*, there was no quantitative evidence of the plaintiff's exposure to Georgia-Pacific asbestos-containing joint compound, the product also at issue there. *Id.* at 321. Although the literature and scientific studies the experts relied upon supported a reasonable inference that exposure to chrysotile asbestos can increase a worker's risk of developing mesothelioma, none of those studies undertook the task of linking the minimum exposure level (or dosage) of joint compound with a statistically significant increased risk of developing of the disease. *Id.* Thus, the court held that the opinions offered by the plaintiffs' experts, including Dr. Hammar, lacked the factual and scientific foundation required by *Flores* and were

legally insufficient proof of substantial-factor causation necessary to support the jury's verdict. *Stephens*, 239 S.W.3d at 321.

According to John Maddox, M.D., the plaintiffs' expert regarding specific causation in *Smith*, "[b]ecause asbestos dust is so strongly associated with mesothelioma, proof of significant exposure to asbestos dust is proof of specific causation." *Smith*, 307 S.W.3d at 837. "Dr. Maddox opined that it is generally accepted in the scientific community that there is no minimum level of exposure to asbestos 'above background levels' below which adverse effects do not occur." *Id.* After discussing the scientific literature relied upon by Dr. Maddox, the court held that the plaintiffs' evidence "ultimately suffers the same defect as the plaintiff's in *Stephens* " and that under *Flores*, Dr. Maddox's opinion is insufficient as to specific causation. *Id.* at 839.

Here, appellees endeavor to rely on material practice simulation studies performed by their general causation expert, William Longo, Ph.D., a material scientist. Dr. Longo's simulation studies were intended to determine the amounts of asbestos fibers released during mixing, sanding, and sweeping Georgia-Pacific's (or its predecessor Bestwall's) asbestos-containing joint compound in a controlled environment. However, Dr. Longo admitted his studies could not establish an exposure level or dose for Timothy, particularly because of the many variables in the circumstances of a given work activity and location of the activity. Thus, Dr. Longo's testimony regarding the results of his material practice simulation studies do not quantify Timothy's exposure to asbestos fibers from Georgia-Pacific asbestos-containing joint compound.

On this record, appellees' evidence is insufficient to provide quantitative evidence of Timothy's exposure to asbestos fibers from Georgia-Pacific's asbestos-containing joint compound or to establish Timothy's exposure was in amounts sufficient to increase his risk of developing mesothelioma. Therefore, appellees' evidence is legally insufficient to establish substantial-factor causation mandated by *Flores*.

For the reasons discussed above, appellees' claims of negligence and product liability require proof of substantial-factor causation. *See Flores*, 232 S.W.3d at 774. *602 We conclude that the evidence presented at trial is legally insufficient proof of substantial-factor causation necessary to support the jury's negligence and strict liability marketing defect verdicts against Georgia-Pacific. We sustain Georgia-Pacific's first issue.

APPELLANT'S SECOND AND THIRD ISSUES

In its second issue, Georgia-Pacific asserts that there was no clear and convincing evidence to support the jury's finding of Georgia-Pacific's gross negligence. Our disposition of Georgia-Pacific's first issue necessarily disposes of appellees' gross negligence claim against Georgia-Pacific. *See Transp. Ins. Co. v. Moriel*, 879 S.W.2d 10, 23 (Tex.1994).

Georgia-Pacific contends in its third issue that the trial court erred in denying its motion for mistrial and in vacating the order granting a new trial, warranting a remand of this case to the trial court. Our disposition of Georgia-Pacific's first issue makes it unnecessary to address Georgia-Pacific's third issue. *See* Tex.R.App. P. 47.1.

CONCLUSION

There is legally insufficient evidence of causation to support the verdict against Georgia-Pacific. We reverse the trial court's judgment and render judgment that appellees take nothing on their claims against Georgia-Pacific.

Tex.App.-Dallas,2010.
Georgia-Pacific Corp. v. Bostic
320 S.W.3d 588

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TAB C

Court of Appeals
Fifth District of Texas at Dallas

JUDGMENT

GEORGIA-PACIFIC CORPORATION,
Appellant

No. 05-08-01390-CV V.

SUSAN ELAINE BOSTIC, INDIVIDUALLY AND AS PERSONAL REPRESENTATIVE OF THE HEIRS AND ESTATE OF TIMOTHY SHAWN BOSTIC, DECEASED; HELEN DONNAHOE; AND KYLE ANTHONY BOSTIC, Appellees

Appeal from the County Court at Law No. 1 of Dallas County, Texas. (Tr.Ct.No. cc-03-01977-A).
Opinion delivered by Justice Fillmore, Justices Bridges and FitzGerald participating.

In accordance with this Court's opinion of this date, the judgment of the trial court is **REVERSED**, and judgment is **RENDERED** that appellees Susan Elaine Bostic, Individually and as Personal Representative of the Estate of Timothy Shawn Bostic, Deceased, Helen Donnahoe, and Kyle Anthony Bostic take nothing on their claims against appellant Georgia-Pacific Corporation. It is **ORDERED** that appellant Georgia-Pacific Corporation recover its costs of this appeal from appellees Susan Elaine Bostic, Individually and as Personal Representative of the Estate of Timothy Shawn Bostic, Deceased, Helen Donnahoe, and Kyle Anthony Bostic.

Judgment entered August 26, 2010.

ROBERT M. FILLMORE
JUSTICE

REVERSE and RENDER and Opinion Filed August 26, 2010

In The
Court of Appeals
Fifth District of Texas at Dallas

No. 05-08-01390-CV

GEORGIA-PACIFIC CORPORATION, Appellant

V.

SUSAN ELAINE BOSTIC, INDIVIDUALLY AND AS PERSONAL REPRESENTATIVE OF THE HEIRS AND ESTATE OF TIMOTHY SHAWN BOSTIC, DECEASED; HELEN DONNAHOE; AND KYLE ANTHONY BOSTIC, Appellees

On Appeal from the County Court at Law No. 1
Dallas County, Texas
Trial Court Cause No. cc-03-01977-A

OPINION

Before Justices Bridges, FitzGerald, and Fillmore
Opinion By Justice Fillmore

Appellant Georgia-Pacific Corporation appeals the final judgment of the trial court in favor of appellees Susan Elaine Bostic, Individually and as Personal Representative of the Heirs and Estate of Timothy Shawn Bostic, Deceased, Helen Donnahoe, and Kyle Anthony Bostic. In three issues, Georgia-Pacific contends (1) there is legally insufficient evidence that Georgia-Pacific's joint compound caused Timothy Bostic's mesothelioma, (2) there is no evidence to support the jury's finding of gross negligence against Georgia-Pacific, and (3) the trial court abused its discretion by denying Georgia-Pacific's motion for mistrial and by vacating the order granting Georgia-Pacific

a new trial.

Concluding there is legally insufficient evidence of causation, we reverse the trial court's judgment and render judgment that appellees take nothing on their claims against Georgia-Pacific.

PROCEDURAL BACKGROUND

In February 2003, Timothy Bostic's wife, son, father, and mother brought wrongful death claims and a survival action against Georgia-Pacific and numerous other entities alleging Timothy's death was caused by exposure to asbestos. At the time of trial, Georgia-Pacific was the sole remaining defendant, the other named defendants having settled or been dismissed. Appellees alleged Georgia-Pacific was negligent, strictly liable for a product marketing defect, and grossly negligent.

In 2005, Judge Sally Montgomery presided over the trial of this lawsuit in Dallas County Court at Law No. 3. After the jury verdict awarding appellees actual and punitive damages, Judge Montgomery ordered appellees to either elect a new trial on all issues or agree to remit a misallocated award of future lost wages and the award of punitive damages. Appellees elected a new trial. The lawsuit was tried for the second time before a jury in 2006.[1] The jury returned a verdict in favor of appellees, finding Georgia-Pacific seventy-five percent liable and Knox Glass, Inc., a non-party former employer of Timothy, twenty-five percent liable for Timothy's death. The jury awarded $7,554,907 in compensatory damages and $6,038,910 in punitive damages.

Georgia-Pacific filed a motion to recuse Judge Montgomery. Judge M. Kent Sims granted the motion to recuse, and the lawsuit was transferred to Judge Russell H. Roden, Dallas County Court at Law No. 1. In December 2006, the trial court granted Georgia-Pacific's motion for mistrial and ordered a new trial.

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[1] Harold Bostic, Timothy's father, died while the case was being retried.

In January 2007, Judge D'Metria Benson became the presiding judge of Dallas County Court at Law No. 1. In February 2008, appellees filed a motion to vacate Judge Roden's order granting a new trial and for entry of judgment. In July 2008, Judge Benson granted appellees' motion to vacate the order for new trial and signed a judgment based on the jury's June 2006 verdict. In October 2008, Judge Benson signed the amended final judgment awarding appellees $6,784,135.32 in compensatory damages and $4,831,128.00 in punitive damages. Georgia-Pacific appealed.

LEGAL SUFFICIENCY OF THE EVIDENCE

In its first issue, Georgia-Pacific asserts there is legally insufficient evidence that Georgia-Pacific asbestos-containing joint compound[2] caused Timothy's mesothelioma, a form of cancer usually linked to asbestos exposure. Georgia-Pacific asserts there is no evidence Timothy was exposed to Georgia-Pacific asbestos-containing joint compound, and even if there was evidence of exposure, there is no evidence of dose. Further, Georgia-Pacific asserts that even if there was evidence of exposure and dose, the record contains no epidemiological studies showing that persons similar to Timothy with exposure to asbestos-containing joint compound had an increased risk of developing mesothelioma. Georgia-Pacific also asserts that appellees' experts' theory that "each and every exposure" to asbestos caused Timothy's mesothelioma was rejected by the Texas Supreme Court in *Borg-Warner Corp. v. Flores*, 232 S.W.3d 765 (Tex. 2007).[3] Georgia-Pacific asserts that for each of these reasons, appellees' negligence and defective marketing claims against Georgia-

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[2] Joint compound, sometimes called "drywall mud," is used to connect and smooth the seams of adjoining pieces of drywall, also called sheetrock, and to cover nail heads on sheets of drywall. Joint compound is spread in a thin coat and then smoothed. After it dries, uneven areas are further smoothed by sanding. This process is sometimes carried out multiple times in further refining the surface.

[3] Prior to the 2008 final judgment in this case, the Texas Supreme Court issued its *Flores* opinion on toxic tort law in asbestos cases, including specific causation. Like the instant appeal, in *Georgia-Pacific Corp. v. Stephens*, 239 S.W.3d 304 (Tex. App. Houston [1st Dist.] 2007, pet. denied), issued after *Flores*, the asbestos trial occurred before the *Flores* decision, but the appellate court was bound by *Flores*. *Stephens*, 239 S.W.3d at 321; *see also Smith v. Kelly-Moore Paint Co.*, 307 S.W.3d 829, 834 (Tex. App. Fort Worth 2010, no pet.) (appellate court bound by *Flores* as supreme court precedent); *Lubbock City v. Trammel's Lubbock Bail Bonds*, 80 S.W.3d 580, 585 (Tex. 2002) (once supreme court announces proposition of law, that proposition is binding precedent and may not be modified or abrogated by court of appeals).

Pacific fail as a matter of law.

When, as here, an appellant attacks the legal sufficiency of an adverse finding on an issue on which it did not have the burden of proof, it must demonstrate that no evidence supports the finding. *Croucher v. Croucher*, 660 S.W.2d 55, 58 (Tex. 1983). "The final test for legal sufficiency must always be whether the evidence at trial would enable reasonable and fair-minded people to reach the verdict under review." *Del Lago Partners, Inc. v. Smith*, 307 S.W.3d 762, 770 (Tex. 2010) (quoting *City of Keller v. Wilson*, 168 S.W.3d 802, 827 (Tex. 2005)). We review the evidence in the light most favorable to the verdict, crediting favorable evidence if reasonable jurors could and disregarding contrary evidence unless reasonable jurors could not. *Del Lago Partners*, 307 S.W.3d at 770.

Asbestos Exposure

In 2002, Timothy was diagnosed with mesothelioma at the age of forty. He died in 2003. Appellees claim Timothy's mesothelioma was caused by his exposure to asbestos-containing joint compound manufactured by Georgia-Pacific. Georgia-Pacific acknowledged there is some evidence that Timothy used or was present during the use of joint compound between 1967 and 1977, but contends there is no evidence of exposure to Georgia-Pacific asbestos-containing joint compound. *See Gaulding v. Celotex Corp.*, 772 S.W.2d 66, 68 (Tex. 1989) (fundamental principle of products liability law is plaintiff must prove defendant supplied product which caused injury).

Georgia-Pacific manufactured and sold joint compound products that included chrysotile asbestos[4] fibers from the time it acquired Bestwall Gypsum Company in 1965 until 1977, when

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[4] Chrysotile is the most abundant type of asbestos fiber and is a serpentine fiber consisting of "pliable curly fibrils which resemble scrolled tubes." *Flores*, 232 S.W.3d at 766 n.4 (citing Lee S. Siegel, Note, *As the Asbestos Crumbles: A Look at New Evidentiary Issues in Asbestos Related Property Damage Litigation*, 20 HOFSTRA L. REV. 1139, 1149 (1992)); *Smith*, 307 S.W.3d at 832 n.3. The remaining commercial types of asbestos fibers are amphiboles, which include amosite and crocidolite. *Smith*, 307 S.W.3d at 832, 837; *Beutel v. John Crane, Inc.*, 316 F. Supp.2d 603, 606 (N.D. Ohio 2004), *aff'd*, 424 F.3d 488 (6th Cir. 2005).

Georgia-Pacific ceased marketing asbestos-containing joint compound. Those Georgia-Pacific joint compounds were offered in a dry mix formula and a pre-mixed formula.[5] The parties do not dispute that any exposure of Timothy to a Georgia-Pacific asbestos-containing joint compound would have occurred between 1967 and 1977. Evidence regarding Timothy's work with or around Georgia-Pacific asbestos-containing joint compound in this ten-year period came from Timothy's and Harold Bostic's deposition testimony read and played by videotape at trial and Timothy's work history sheets.

Timothy testified he had been around drywall work his entire life, and he recalled that before the age of ten, he observed his father performing drywall work. He stated he mixed and sanded joint compound from the age of five. He testified he recalled at a young age helping his father "mud the holes" with joint compound. While he did not provide any more specifics of drywall work he performed with his father before 1977, he believed he used and was exposed to Georgia-Pacific joint compound before he graduated from high school in 1980. Timothy's work history sheets also indicate he worked with and around other brands of asbestos-containing joint compounds.

Timothy's work history sheets also assert exposure to asbestos fibers from Georgia-Pacific joint compound as a result of household exposure to Harold's clothing. This alleged exposure would have occurred prior to his parents' divorce in 1972, when he was ten years old, and thereafter when he stayed with his father on weekends, holidays, and at times in the summer.

Harold testified he used Georgia-Pacific joint compound ninety-eight percent of the time that he did drywall work. He testified he tried one or two other brands of joint compound, but he always returned to Georgia-Pacific's product. With one exception listed below, Harold said he could not positively associate Georgia-Pacific's product with any specific drywall job. He stated he knew he

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[5] Dust containing asbestos fibers could be released by sanding or sweeping either formula and by mixing the dry formula

had used Georgia-Pacific's product on several jobs, but he could not recall exactly where. Harold testified that Timothy began to accompany him on remodeling jobs in 1967 when Timothy was the age of five. Timothy helped mix joint compound, applied and sanded joint compound to the height Timothy could reach, and breathed in the dust from sanded joint compound.

According to his testimony, Harold worked part-time on only one remodeling or construction job at a time for a family member or friend. Each project took a lengthy period of time to complete. Although he testified there was no doubt in his mind that he and Timothy used Georgia-Pacific joint compound "many, many times" between 1967 and 1977, he identified and described work performed on eight remodeling projects for the relevant period. Harold identified only one specific project where Georgia-Pacific joint compound was used, and he could not recall whether Timothy performed drywall work or was present during drywall work on that project. Only three projects were identified in which Harold and Timothy may have performed drywall work together or Timothy may have been present when Harold performed drywall work. Following is a summary chronology of the remodeling or construction jobs Harold recalled for this relevant period:

- In the house he lived in with his wife and Timothy, Harold performed drywall work while remodeling a utility room. Timothy was four or five years of age at the time and may have played in the joint compound "mud" or sanded drywall to the height he could reach.

- During the course of a three-month project, Harold built a ten foot by ten foot bathroom and dressing room in his brother's house. Harold performed drywall work as part of the project. He could not recall the brand of joint compound he utilized. Timothy performed sewer work on this project. Timothy was six or seven years of age.

- Harold remodeled the interior of his sister's service station. The project lasted a year in 1968 or 1970. Harold performed drywall work on an eight foot by seven foot room and the ceiling of the room. Timothy was between the ages of six and eight.

- Harold built living quarters in a friend's garage and car dealership. This year-long project included drywall work. He has no memory of Timothy working with drywall on this project.

- In connection with the construction of the interior of a friend's prefabricated home, Harold performed drywall work. The construction project took a year to complete. Harold recalled

utilizing Georgia-Pacific joint compound, but he did not recall whether Timothy performed drywall work or whether Timothy was present when Harold performed drywall work. Timothy dug the septic tank on this project. Timothy was between the ages of ten and twelve.

- In finishing a room in his sister's newer home, Harold could not recall utilizing drywall. Timothy was eleven or twelve years of age.

- During a year-long construction project, Harold performed drywall work in his sister's five hundred square foot older home.

- In building partitions in his mother's home, Harold recalled that he may have patched some cracks, but he did not perform drywall work and he could not recall using joint compound. Timothy was thirteen or fourteen years of age.

Evidence at trial substantiated Timothy was exposed to asbestos other than through use of or presence during the use of Georgia-Pacific asbestos-containing joint compound. In addition to Georgia-Pacific joint compound, the evidence established and appellees acknowledge that Timothy was exposed to numerous asbestos products and asbestos-containing products, both occupationally and through household and bystander exposure.

Timothy was exposed to asbestos utilized at Knox Glass. Harold was employed as a welder at Knox Glass from around 1960 until the plant closed in 1984. Asbestos and asbestos-containing products were used throughout the glass container factory, particularly to insulate against heat. Harold was exposed to asbestos fibers, which were inadvertently brought home on his clothing, thereby exposing Timothy. These household exposures to asbestos occurred consistently from Timothy's birth until his parents were divorced when he was ten years old, from time spent with Harold on weekends, holidays, and in the summers between the ages of ten and fifteen, and from the ages of fifteen to eighteen when Timothy lived with Harold.

Timothy was further exposed to asbestos utilized at Knox Glass in connection with his janitorial and mechanical work at Knox Glass in the summer months of 1980 through 1982.[6] He worked in both the hot end of the plant, where glass bottles were manufactured and where asbestos was more likely prevalent, and in the cold end of the plant.[7] The evidence indicated that asbestos or asbestos-containing items in the work environment at Knox Glass included refractory cements, fireproofing, asbestos cloth, pumps, packing (braided rope made from asbestos), valves, furnaces, blow heads, gaskets, and firebrick mortar. Timothy's work responsibilities included cutting raw asbestos cloth, sweeping up asbestos-containing dust, cleaning up after asbestos pipe coverings were repaired, removing flaking asbestos from machines and replacing it with asbestos he cut, and wearing asbestos gloves or mittens.

Timothy also had occupational exposure to asbestos during 1977 and 1978, when he worked for approximately six months as a welder's assistant for Palestine Contractors. There he was exposed to asbestos while removing gaskets and asbestos pipe insulation three to four times each week.

Timothy was also exposed to asbestos fibers as a result of mechanical work Harold performed on automobiles, including brake work. Timothy was exposed in the household to asbestos fibers on Harold's clothing and as a bystander and assistant to his father with respect to the automotive repairs. In addition, when he was older, Timothy performed mechanical work on vehicles resulting in exposure to a number of asbestos-containing products, including clutches, brake pads and linings, friction products, and gaskets. He testified that he performed approximately four

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[6] In 1988, Timothy and Harold underwent testing to determine whether they had contracted an asbestos-related disease as a result of working at Knox Glass. A bronchial alveolar lavage (BAL) was performed on each of them to determine what type of fiber exposures had occurred. Two chrysotile and two amosite asbestos fibers were found in Timothy's BAL. There were additional fibers that were not asbestos that could not be identified. Three amosite asbestos fibers were found in Harold Bostic's BAL.

[7] Timothy testified he worked summer months at Knox Glass in 1980, 1981, and 1982. Appellees seek to narrow the time period of exposure to asbestos and asbestos-containing products to three months by asserting that to be the cumulative amount of time Timothy worked in the hot end of the plant.

brake jobs a year and fewer than ten clutch jobs in his lifetime. Timothy identified a number of manufacturers of asbestos-containing products he was exposed to in connection with the mechanical work he performed.

After his graduation from high school, Timothy began remodeling homes on his own. According to the evidence, he was exposed to a number of asbestos-containing products in his remodeling work, including roofing shingles, floor tiles, and ceiling tiles. Timothy identified several manufacturers and marketers of asbestos-containing products he utilized in addition to Georiga-Pacific joint compounds. It is not disputed that Timothy used Georgia-Pacific products after his graduation from high school in 1980. However, these uses occurred after Georgia-Pacific joint compounds no longer contained asbestos.

Albeit limited, the record contains evidence through the lay testimony of Timothy and Harold, and Timothy's work history sheets, of Timothy's use or presence during the use of Georgia-Pacific's asbestos-containing joint compound. On this record, we disagree with Georgia-Pacific's argument that there is no evidence Timothy was exposed to Georgia-Pacific asbestos-containing joint compound.

Substantial-Factor Causation

Georgia-Pacific next contends there is legally insufficient evidence of causation, an essential element of appellees' negligence and strict liability defective marketing claims. In a toxic tort case, the plaintiff must show both general and specific causation. *See Merrell Dow Pharm., Inc. v. Havner*, 953 S.W.2d 706, 714–15, 720 (Tex. 1997). "General causation is whether a substance is capable of causing a particular injury or condition in the general population, while specific causation is whether a substance caused a particular individual's injury." *Havner*, 953 S.W.2d at 714; *see also Georgia-Pacific Corp. v. Stephens*, 239 S.W.3d 304, 308–09 (Tex. App.–Houston [1st Dist.] 2007,

pet. denied). For purposes of this appeal, Georgia-Pacific is not challenging the legal sufficiency of the evidence of general causation that inhalation of chrysotile asbestos fibers can cause mesothelioma. Instead, Georgia-Pacific challenges the legal sufficiency of the evidence as to specific causation, that is whether Georgia-Pacific asbestos-containing joint compound was, in fact, a cause of Timothy's mesothelioma.

Causation

Georgia-Pacific contends that appellees failed to introduce evidence sufficient to satisfy the "substantial factor" standard of causation set forth in *Flores*, because appellees produced no evidence of cause-in-fact. In the context of an asbestos case, the Texas Supreme Court explained that "asbestos in the defendant's product [must be] a substantial factor in bringing about the plaintiff's injuries." *Flores*, 232 S.W.3d at 770. The *Flores* court agreed that the "frequency, regularity, and proximity" test for exposure to asbestos set out in *Lohrmann v. Pittsburgh Corning Corp.*, 782 F.2d 1156 (4th Cir.1986), is appropriate. *Flores*, 232 S.W.3d at 769; *see also Lohrmann*, 782 F.2d at 1162–63 (to support reasonable inference of substantial causation from circumstantial evidence, there must be evidence of exposure to specific product on regular basis over extended period of time in proximity to where plaintiff actually worked). The supreme court stated, however, that the terms "frequency," "regularity," and "proximity" do not "capture the emphasis [Texas] jurisprudence has placed on causation as an essential predicate to liability," and agreed with *Lohrmann*'s analysis that the asbestos exposure must be a substantial factor in causing the asbestos-related disease. *Flores*, 232 S.W.3d at 769; *see also Lohrmann*, 782 F.2d at 1162.

Causation is an essential element of appellees' claims for negligence and product marketing defect. Proximate cause is an element of a negligence claim, while producing cause is an element of a strict liability claim. *Gen. Motors Corp. v. Saenz*, 873 S.W.2d 353, 357 (Tex. 1993). "Both

producing and proximate cause contain the cause-in-fact element, which requires that the defendant's act be a 'substantial factor in bringing about the injury and without which the harm would not have occurred.'" *Metro Allied Ins. Agency, Inc. v. Lin*, 304 S.W.3d 830, 835 (Tex. 2009) (quoting *Doe v. Boys Clubs of Greater Dallas, Inc.*, 907 S.W.2d 472, 481 (Tex. 1985)); *see also Flores*, 232 S.W.3d at 770 (quoting RESTATEMENT (SECOND) OF TORTS § 431 cmt. a (1965)) ("substantial" used to denote the fact that the defendant's conduct has such an effect in producing harm as to lead reasonable men to regard it as a cause); *Prudential Ins. Co. of Am. v. Jefferson Assocs., Ltd.*, 896 S.W.2d 156, 161 (Tex. 1995); *Patino v. Complete Tire, Inc.*, 158 S.W.3d 655, 661 (Tex. App.-Dallas 2005, pet. denied).

Appellees assert that *Flores* does not require "but-for" causation in proving specific causation and that *Flores* requires only that appellees prove Timothy's exposure to Georgia-Pacific asbestos-containing joint compound was a "substantial factor" in contributing to his risk of mesothelioma. We disagree. The Texas Supreme Court "[has] recognized that '[c]ommon to both proximate and producing cause is causation in fact, including the requirement that the defendant's conduct or product be a substantial factor in bringing about the plaintiff's injuries.'" *Flores*, 232 S.W.3d at 770 (quoting *Union Pump Co. v. Allbritton*, 898 S.W.2d 773, 775 (Tex. 1995)); *see also Ford Motor Co. v. Ledesma*, 242 S.W.3d 32, 46 (Tex. 2007).

Thus, to establish substantial-factor causation, a plaintiff must prove that the defendant's conduct was a cause-in-fact of the harm. *See Flores*, 232 S.W.3d at 770. "In asbestos cases, then, we must determine whether the asbestos in the defendant's product was a substantial factor in bringing about the plaintiff's injuries" and without which the injuries would not have occurred. *Id.*; *see also Stephens*, 239 S.W.3d at 308–09.

Appellees acknowledged in their brief and at oral submission that their only expert who opined on specific causation of Timothy's mesothelioma was pathologist Samuel Hammar, M.D. However, Dr. Hammar testified he could not opine that Timothy would not have developed mesothelioma absent exposure to Georgia-Pacific asbestos-containing joint compound. Because a plaintiff must prove that the defendant's conduct was a cause-in-fact of the harm, appellees' evidence is insufficient to satisfy the required substantial-factor causation element for maintaining this negligence and product liability suit. *See Flores*, 232 S.W.3d at 770.

"Each and Every Exposure" Theory of Causation

Georgia-Pacific argues that appellees further failed to establish substantial-factor causation because they improperly based their showing of causation on the opinion of their only specific causation expert that each and every exposure to asbestos caused or contributed to cause Timothy's mesothelioma. Georgia-Pacific contends the law set forth in *Flores* and *Stephens* rejects the theory that each and every exposure to asbestos contributes to the development of mesothelioma. *See Flores*, 232 S.W.3d at 773; *Stephens*, 239 S.W.3d at 311, 314–15, 321 (in *Flores*, Texas Supreme Court rejected "any exposure" test for specific causation and adopted substantial-factor causation standard). Therefore, Georgia-Pacific asserts there is no evidence of the essential element of causation to support appellees' negligence or defective marketing claims against Georgia-Pacific.

Quoting from the underlying court of appeals decision, the *Flores* court expressly rejected the "each and every exposure" theory of liability:

> [Plaintiff's expert] acknowledged that asbestos is "plentiful" in the ambient air and that "everyone" is exposed to it. If a single fiber could cause asbestosis, however, "everyone" would be susceptible. No one suggests this is the case. . . . In analyzing the legal sufficiency of Flores's negligence claim, then, the court of appeals erred in holding that "[i]n the context of asbestos-related claims, if there is sufficient evidence that the defendant supplied *any* of the asbestos to which a plaintiff was exposed, then the plaintiff has met the burden of proof."

Flores, 232 S.W.3d at 773 (emphasis in original). Instead, as discussed previously in this opinion, the Texas Supreme Court requires the plaintiff to prove "that the defendant's product was a substantial factor in causing the alleged harm." *Id.*

In *Stephens*, Dr. Hammar, appellees' specific causation expert here, "express[ed] an opinion that each and every exposure that an individual has in a bystander occupational setting causes their mesothelioma." *Stephens*, 239 S.W.3d at 315. Dr. Hammar testified that any exposure the deceased commercial painter had throughout the time he worked was causative of his mesothelioma. *Id.* at 320. The plaintiffs in *Stephens* also relied on the testimony of Jerry Lauderdale, an industrial hygienist. *Id.* at 314. Lauderdale testified that asbestos-related diseases are based on cumulative exposures and that there is no way to isolate a particular exposure that caused development of the disease. *Id.* at 315. It was Lauderdale's opinion "that every exposure does contribute to the development of—potential to develop mesothelioma." *Id.* The court noted that the experts failed to show that "the 'any exposure' theory is generally accepted in the scientific community—that any exposure to a product that contains asbestos results in a statistically significant increase in the risk of developing mesothelioma." *Id.* at 320–21. Consistent with *Flores*, the "each and every exposure" theory was rejected in *Stephens*. *Id.* at 314–15, 320–21.

In this case, appellees' specific causation expert, Dr. Hammar, testified that asbestos-related diseases are dose-related diseases, meaning that asbestos exposures comprising the cumulative dose, at least to the point of the first cancer cell's development, are all causative or potentially causative of the disease. He opined, to a reasonable degree of medical probability, that each and every exposure to asbestos would be a significant contributing, or at least a potentially contributing, factor to the development of mesothelioma. Dr. Hammar agreed that each and every exposure Timothy had to asbestos was significant and a contributing factor in the development of his mesothelioma.

These exposures would include Timothy's use of or exposure to asbestos during his employment at Knox Glass, his bystander exposure, and his household exposure to asbestos fibers Harold inadvertently brought home on his clothing from Knox Glass and from his part-time mechanical and construction work.

At oral submission, appellees stated that while not experts on the specific cause of Timothy's disease, their other experts at trial supported Dr. Hammar's testimony. Appellees' experts at trial on general causation, Arnold R. Brody, Ph.D., an experimental pathologist with a doctorate in cell biology, and Richard Lemen, Ph.D., an epidemiologist, espoused the "each and every exposure" theory. Dr. Brody testified that each and every asbestos fiber a person inhales is considered a cause of or a substantial contributing factor to mesothelioma. Dr. Lemen testified that with each and every exposure to asbestos, and each and every inhalation of asbestos fibers, the fibers add to the total body burden of exposure and contribute to the development of mesothelioma.

In their effort to demonstrate evidence of substantial-factor causation, appellees also refer to the testimony of Richard Kronenberg, M.D., a witness called to testify by Georgia-Pacific. Dr. Kronenberg testified that asbestos diseases result from a total accumulated exposure over a lifetime. He stated that each and every exposure would be a significant contributing factor to an asbestos disease, and that all the exposures throughout Timothy's life working with any sort of asbestos-containing products contributed to the development of his disease.

The Texas Supreme Court has determined that an "each and every exposure" theory is legally insufficient to support a finding of causation. *Flores*, 232 S.W.3d at 773. We agree with Georgia-Pacific's assertion that appellees did not establish substantial-factor causation to the extent they improperly based their showing of specific causation on their expert's testimony and the testimony of Dr. Kronenberg that each and every exposure to asbestos caused or contributed to cause

Timothy's mesothelioma.

Frequency, Proximity, and Regularity of Exposure

Appellees contend that Georgia-Pacific misstates the facts in asserting the appellees' expert relied on the "each and every exposure" theory in support of substantial-factor causation. Instead, appellees assert that in accordance with the substantial-factor causation standard, they presented "substantial evidence of Timothy's ten years of frequent, proximate, and regular exposure to Georgia-Pacific asbestos joint compound. . . ."

Appellees contend that Timothy "used Georgia-Pacific asbestos joint compound 'many times' over ten years." Appellees assert that "[t]aking into account the frequency, proximity, and regularity of Timothy's exposure to Georgia-Pacific's joint compound," Dr. Hammar testified that Timothy's exposure to Georgia-Pacific asbestos joint compound would have been sufficient in and of itself to cause his mesothelioma.

It was Dr. Hammar's understanding that from an early age with his father, and then as he grew older, Timothy "did a fair amount of work with the drywall work" and he testified Timothy was exposed to asbestos during mixing, sanding, and cleaning up of drywall materials. Dr. Hammar testified he had reviewed Timothy's work history sheets "which chronicled Timothy's work history and what he had actually done during his life." But he acknowledged that work history sheets do not tell "the time of exposure and the intensity of the exposure the individual had." Further, he had not reviewed the deposition testimony of Timothy or Harold, although he acknowledged that deposition testimony provides more details of the nature and amount of exposure than work history sheets.

As is detailed above, the record does not contain "substantial" evidence of Timothy's frequent use of or exposure to Georgia-Pacific joint compound for the period 1967 to 1977 and does

not establish Timothy's use of the joint compound "many times" over that period.[8] In fact, the evidence regarding Timothy's exposure to asbestos-containing joint compound and the number of times it occurred during the period 1967 to 1977 belies an assertion of exposure occurring "many times" and belies the information contained in Timothy's work history sheets reviewed by Dr. Hammar.[9]

We disagree with appellees' contention that Georgia-Pacific is incorrect in arguing appellees relied on the "each and every exposure" theory to support substantial-factor causation. We also disagree with appellees' contention that, instead, they presented "substantial evidence of Timothy's ten years of frequent, proximate, and regular exposure to Georgia-Pacific asbestos joint compound" to establish substantial-factor causation. *See Jackson v. Anchor Packing Co.*, 994 F.2d 1295, 1308 (8th Cir. 1993) (although worker testified he worked with gaskets and packets "many times" during years as mechanic, no evidence in record that he used gaskets many times and cannot tell whether he used products "for two jobs or two hundred jobs"); *Lohrmann*, 782 F.2d at 1163 (ten to fifteen occasions of exposure to asbestos-containing pipe covering lasting between one and eighteen hours duration insufficient to satisfy frequency-regularity-proximity test). On this record, there is insufficient evidence of Timothy's frequent and regular exposure to Georgia-Pacific's asbestos-containing joint compound during the relevant time period.

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[8] Appellees further assert that Timothy's exposure to Georgia-Pacific asbestos-containing joint compound "was far greater than any other asbestos exposure." This is apparently based on appellees "quantifying the ratio of [Timothy's] exposure to Georgia-Pacific asbestos joint compound as compared to his other exposures," which according to appellees was "ten years of Georgia-Pacific asbestos joint compound versus three months of exposure at Knox-Glass [sic], six months at Palestine Contractors, potential household exposure, and sporadic brake work." Without endorsing this methodology, we conclude this argument is inapposite to the "frequency, proximity, and regularity" test associated with substantial-factor causation.

[9] According to Timothy's work history sheets, for a period of over thirty years from the early 1970s, Timothy was exposed to asbestos fibers from Georgia-Pacific joint compounds through his work with or around them as a self-employed carpenter with a workweek of over forty hours, at various residences with Harold as a coworker, and through household exposure resulting from Harold's work as a carpenter.

Quantitative Evidence that Exposure Increased Risk of Developing Mesothelioma

Georgia-Pacific also contends that appellees failed to establish substantial-factor causation because there is no evidence of the quantitative exposure (dose) of asbestos fibers from Georgia-Pacific asbestos-containing joint compound to which Timothy was exposed, and because appellees failed to present evidence of the minimum exposure level leading to an increased risk of development of mesothelioma.

As set forth in *Flores*, *Stephens*, and *Smith*, the "each and every exposure" theory and the theory that there is no level of asbestos exposure below which the potential to develop mesothelioma is not present have been rejected. *See Flores*, 232 S.W.3d at 769–70, 773; *Smith v. Kelly-Moore Paint Co.*, 307 S.W.3d 829, 837 n.9, 839 (Tex. App.–Fort Worth, 2010, no pet.); *Stephens*, 239 S.W.3d at 311, 314–15. In order to prove substantial factor causation, a plaintiff must not only show frequency, regularity, and proximity of exposure to the product, the plaintiff must also show reasonable quantitative evidence that the exposure increased the risk of developing the asbestos-related injury. *Flores*, 232 S.W.3d at 769–72; *Smith*, 307 S.W.3d at 833; *Stephens*, 239 S.W.3d at 312. "Because most chemically induced adverse health effects clearly demonstrate 'thresholds,' there must be reasonable evidence that the exposure was of sufficient magnitude to exceed the threshold before a likelihood of 'causation' can be inferred." *Flores*, 232 S.W.3d at 773 (quoting David L. Eaton, *Scientific Judgment and Toxic Torts–A Primer in Toxicology for Judges and Lawyers*, 12 J.L. & POL'Y 5, 39 (2003)).

Flores mandates that a showing of substantial-factor causation include quantitative evidence that Timothy's exposure to asbestos increased his risk of developing an asbestos-related injury. *See Flores*, 232 S.W.3d at 772. Thus, the evidence had to not only show Timothy's exposure to Georgia-Pacific asbestos-containing product on a frequent and regular basis, but also that the exposure was

in sufficient amounts to increase his risk of developing mesothelioma. *Id.* at 769-70.

Appellees contend their specific causation expert, Dr. Hammar, "analyzed the mathematical threshold of asbestos exposure leading to a multiple increased risk of mesothelioma, and testified that Timothy's ten year exposure to Georgia-Pacific asbestos joint compound would have been enough in and of itself to cause his mesothelioma." They state Dr. Hammar considered the threshold for increased risk of developing mesothelioma to be 0.1 fiber cc,[10] and considered the frequency, regularity, and fiber concentration of Timothy's ten years of exposure to Georgia-Pacific asbestos-containing joint compound, and testified, within a reasonable degree of medical certainty, that these exposures were sufficient, in and of themselves, to have caused Timothy's mesothelioma.

Dr. Hammar testified he does not know of any safe level of exposure to asbestos under which disease does not occur. He opined that exposure to friable[11] asbestos fibers above background levels had the potential to contribute to the development of Timothy's mesothelioma. It is his opinion that every exposure above .1 fiber cc contributes to the development of mesothelioma. He stated that information published in the Federal Register shows that at .1 fiber cc, statistically there are seven cases of mesothelioma per year.

These dosage opinions are consistent with Dr. Hammar's opinions in *Stephens*. There he "opined that the level of exposure it takes to cause mesothelioma 'could be any level above what is considered to be background, which, from my definition, would be anything greater than .1 fiber cc years.' In sum, he stated: 'I'm going to express an opinion that each and every exposure that an individual has in a bystander occupational setting causes their mesothelioma.'" *Stephens*, 239

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10 "Asbestos exposure is generally measured in fibers per cubic centimeter (fibers/cc) on an eight hour weighted average. This is calculated by taking the amount of time an individual is exposed to asbestos and mathematically calculating a time weighted average over an eight hour day . . . In all urban environments, there is a level of asbestos in the ambient air. This level, often called the background level, varies from location to location and ranges from .00001 to .01 fiber/cc." *Bartel*, 316 F. Supp. at 607.

11 "'Friable' refers to breathable asbestos." *See Flores*, 232 S.W.3d at 767 n6.

S.W.3d at 315. He stated "that mesothelioma is a dose-responsive disease, and that a threshold exists 'above which you may be at risk, below which you may not be at risk' for developing the disease." *Id.*

In *Stephens*, there was no quantitative evidence of the plaintiff's exposure to Georgia-Pacific asbestos-containing joint compound, the product also at issue there. *Id.* at 321. Although the literature and scientific studies the experts relied upon supported a reasonable inference that exposure to chrysotile asbestos can increase a worker's risk of developing mesothelioma, none of those studies undertook the task of linking the minimum exposure level (or dosage) of joint compound with a statistically significant increased risk of developing of the disease. *Id.* Thus, the court held that the opinions offered by the plaintiffs' experts, including Dr. Hammar, lacked the factual and scientific foundation required by *Flores* and were legally insufficient proof of substantial-factor causation necessary to support the jury's verdict. *Stephens*, 239 S.W.3d at 321.

According to John Maddox, M.D., the plaintiffs' expert regarding specific causation in *Smith*, "[b]ecause asbestos dust is so strongly associated with mesothelioma, proof of significant exposure to asbestos dust is proof of specific causation." *Smith*, 307 S.W.3d at 837. "Dr. Maddox opined that it is generally accepted in the scientific community that there is no minimum level of exposure to asbestos 'above background levels' below which adverse effects do not occur." *Id.* After discussing the scientific literature relied upon by Dr. Maddox, the court held that the plaintiffs' evidence "ultimately suffers the same defect as the plaintiff's in *Stephens*" and that under *Flores*, Dr. Maddox's opinion is insufficient as to specific causation. *Id.* at 839.

Here, appellees endeavor to rely on material practice simulation studies performed by their general causation expert, William Longo, Ph.D., a material scientist. Dr. Longo's simulation studies were intended to determine the amounts of asbestos fibers released during mixing, sanding, and

sweeping Georgia-Pacific's (or its predecessor Bestwall's) asbestos-containing joint compound in a controlled environment. However, Dr. Longo admitted his studies could not establish an exposure level or dose for Timothy, particularly because of the many variables in the circumstances of a given work activity and location of the activity. Thus, Dr. Longo's testimony regarding the results of his material practice simulation studies do not quantify Timothy's exposure to asbestos fibers from Georgia-Pacific asbestos-containing joint compound.

On this record, appellees' evidence is insufficient to provide quantitative evidence of Timothy's exposure to asbestos fibers from Georgia-Pacific's asbestos-containing joint compound or to establish Timothy's exposure was in amounts sufficient to increase his risk of developing mesothelioma. Therefore, appellees' evidence is legally insufficient to establish substantial-factor causation mandated by *Flores*.

For the reasons discussed above, appellees' claims of negligence and product liability require proof of substantial-factor causation. *See Flores*, 232 S.W.3d at 774. We conclude that the evidence presented at trial is legally insufficient proof of substantial-factor causation necessary to support the jury's negligence and strict liability marketing defect verdicts against Georgia-Pacific. We sustain Georgia-Pacific's first issue.

APPELLANT'S SECOND AND THIRD ISSUES

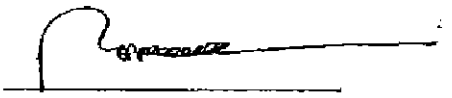
In its second issue, Georgia-Pacific asserts that there was no clear and convincing evidence to support the jury's finding of Georgia-Pacific's gross negligence. Our disposition of Georgia-Pacific's first issue necessarily disposes of appellees' gross negligence claim against Georgia-Pacific. *See Transp. Ins. Co. v. Moriel*, 879 S.W.2d 10, 23 (Tex.1994).

Georgia-Pacific contends in its third issue that the trial court erred in denying its motion for mistrial and in vacating the order granting a new trial, warranting a remand of this case to the trial

court. Our disposition of Georgia-Pacific's first issue makes it unnecessary to address Georgia-Pacific's third issue. *See* Tex. R. App. P. 47.1.

CONCLUSION

There is legally insufficient evidence of causation to support the verdict against Georgia-Pacific. We reverse the trial court's judgment and render judgment that appellees take nothing on their claims against Georgia-Pacific.



ROBERT M. FILLMORE
JUSTICE

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TAB D

232 S.W.3d 765, 50 Tex. Sup. Ct. J. 851
(Cite as: 232 S.W.3d 765)

Supreme Court of Texas.
BORG-WARNER CORPORATION, now known as Burns International Services Corporation, Petitioner,
v.
Arturo FLORES, Respondent.
No. 05-0189.

Argued Sept. 29, 2006.
Decided June 8, 2007.
Rehearing Denied Oct. 12, 2007.

Background: Automobile mechanic brought asbestos-related products liability action against brake pad manufacturer. The 319th District Court, Nueces County, Ricardo Garcia, J., entered judgment on jury verdict for mechanic and awarded compensatory and punitive damages. Manufacturer appealed. The Corpus Christi-Edinburg Court of Appeals, 153 S.W.3d 209, affirmed. Review was granted.

Holding: The Supreme Court, Wallace B. Jefferson, C.J., held that plaintiff's evidence was legally insufficient to establish that defendant's asbestos-containing brake pads were substantial factor in causing plaintiff's alleged asbestosis.

Court of Appeals reversed; judgment rendered for defendant.

West Headnotes

[1] Products Liability 313A ⚿147

313A Products Liability
313AII Elements and Concepts
313Ak146 Proximate Cause
313Ak147 k. In General. Most Cited Cases
(Formerly 313Ak62)

Products Liability 313A ⚿201

313A Products Liability
313AIII Particular Products
313Ak201 k. Asbestos. Most Cited Cases
(Formerly 313Ak62)

A person's exposure to "some" respirable fibers is not sufficient to show that a product containing asbestos was a substantial factor in causing asbestosis.

[2] Evidence 157 ⚿571(9)

157 Evidence
157XII Opinion Evidence
157XII(F) Effect of Opinion Evidence
157k569 Testimony of Experts
157k571 Nature of Subject
157k571(9) k. Cause and Effect. Most Cited Cases

Products Liability 313A ⚿201

313A Products Liability
313AIII Particular Products
313Ak201 k. Asbestos. Most Cited Cases
(Formerly 313Ak83)

Products Liability 313A ⚿390

313A Products Liability
313AIV Actions
313AIV(C) Evidence
313AIV(C)4 Weight and Sufficiency of Evidence
313Ak389 Proximate Cause
313Ak390 k. In General. Most Cited Cases
(Formerly 313Ak83)

Plaintiff mechanic's evidence was legally insufficient to establish, in products liability action, that defendant manufacturer's asbestos-containing brake pads were substantial factor in causing plaintiff's alleged asbestosis; plaintiff merely presented expert evidence that mechanics in the braking industry could be exposed to "some" respirable asbestos fibers when grinding brake pads or blowing out the housings, and of the frequency, regularity, and proximity of plaintiff's exposure to asbestos, without presenting any dosage-related evidence of approximately how much asbestos plaintiff might have inhaled.

*765 Deborah G. Hankinson, Elana S. Einhorn, Law Offices of Deborah Hankinson PC, Elizabeth L. Phifer, Smith Underwood & Perkins, P.C., Dallas,

Rene Luis Obregon, Corpus Christi, for Petitioner.

Scott W. Wert, Foster & Sear LLP, Arlington, Brent M. Rosenthal, Misty Ann Farris, Kevin Duane McHargue, Baron & Budd, P.C., Dallas, for Respondent.

Joe R. Greenhill, Baker Botts LLP, Austin, David A. Oliver Jr., Porter & Hedges, L.L.P., Reagan W. Simpson, King & Spalding LLP, Sandra Thourot Krider, Edwards Burns & Krider LLP, David A. Chaumette, Shook, Hardy & Bacon, L.L.P., Houston, for Amicus Curiae.

Chief Justice JEFFERSON delivered the opinion of the Court.

Nearly ten years ago, we observed that asbestos litigation had reached maturity. *In re Ethyl Corp.*, 975 S.W.2d 606, 610 (Tex.1998). Even mature claims evolve, however, and courts have continued to struggle with the appropriate parameters for lawsuits alleging asbestos-related injuries. [FN1] While science has confirmed the *766 threat posed by asbestos, we have not had the occasion to decide whether a person's exposure to "some" respirable fibers is sufficient to show that a product containing asbestos was a substantial factor in causing asbestosis. Because we conclude that it is not, we reverse the court of appeals' judgment and render judgment for the petitioner.

FN1. In 2005, Texas, like Louisiana and Ohio before it, adopted a medical criteria statute governing claims for injuries resulting from asbestos or silica. Act of May 16, 2005, 79th Leg., R.S., ch. 97, § 2, 2005 Tex. Gen. Laws 169, 171-79 (now codified at TEX. CIV. PRAC. & REM.CODE ch. 90); *see also* STEPHEN J. CARROLL ET AL., RAND INSTITUTE FOR CIVIL JUSTICE, ASBESTOS LITIGATION 132 (2005). The trial in this case occurred before the statute was passed and was not, therefore, governed by its provisions.

I

Factual and Procedural Background

Sixty-six-year-old Arturo Flores is a retired brake mechanic. Flores spent much of his working life-from 1966 until his retirement in 2001-in the automotive department at Sears in Corpus Christi. While there, Flores handled several brands of brake pads, including those manufactured by Borg-Warner. [FN2] Flores used Borg-Warner pads from 1972-75, on five to seven of the roughly twenty brake jobs he performed each week.[FN3] Borg-Warner disk brake pads contained chrysotile [FN4] asbestos fibers, fibers that comprised seven to twenty-eight percent of the pad's weight, depending on the particular type of pad. Flores's job involved grinding the pads so that they would not squeal. The grinding generated clouds of dust that Flores inhaled while working in a room that measured roughly eight by ten feet.

FN2. Flores also performed brake jobs using Bendix, Raybestos, Motorcraft, Chrysler, and GM products.

FN3. From 1966 through 1972, Flores performed approximately three brake jobs per day. None of those involved Borg-Warner products.

FN4. Chrysotile asbestos is the most abundant type of asbestos fiber and is a serpentine fiber consisting of "pliable curly fibrils which resemble scrolled tubes." Lee S. Siegel, Note, *As the Asbestos Crumbles: A Look at New Evidentiary Issues in Asbestos Related Property Damage Litigation*, 20 HOFSTRA L. REV. 1139, 1149 (1992)

Flores sued Borg-Warner and others, alleging that he suffered from asbestosis caused by working with brakes for more than three decades. At the week-long trial, Flores presented the testimony of two experts, Dr. Dinah Bukowski, a board-certified pulmonologist, and Dr. Barry Castleman, Ph.D., an "independent consultant in ... the field of toxic substance control." Dr. Bukowski examined Flores on a single occasion in May 2001. She reviewed Flores's x-rays, which revealed interstitial lung disease. Although there are more than 100 causes (including smoking) of such disease, Dr. Bukowski diagnosed Flores with asbestosis, based on his work as a brake mechanic coupled with an adequate latency period. According to Dr. Bukowski, asbestosis is "a form of interstitial lung disease, one of the scarring processes of the lungs caused from the inhalation of asbestos and

found on biopsy to show areas of scarring in association with actual asbestos bodies or asbestos fibers." [FN5] Dr. Bukowski noted that asbestosis can be fatal and is progressive, meaning that the scar tissue increases over time. Once inhaled, the fibers cannot be expelled, and there is no known cure for asbestosis. She asserted that Flores's asbestosis could worsen; that he could suffer *767 stiffening of his lungs, loss of lung volume, and difficulty with oxygenation. She acknowledged that everyone is exposed to asbestos in the ambient air; "it's very plentiful in the environment, if you're a typical urban dweller." She conceded that Flores's pulmonary function tests showed mild obstructive lung disease, which was unrelated to asbestos exposure.

> FN5. There was no biopsy performed on Flores's lung tissue, and Dr. Bukowski testified that, per criteria promulgated by the American Thoracic Society, biopsies are not necessary to an asbestosis diagnosis.

Barry Castleman, Ph.D. testified that he has written numerous articles in peer-reviewed journals, as well as a book entitled *Asbestos: Medical and Legal Aspects*. Chapter 8, titled "Asbestos Disease in Brake Repair Workers," discusses asbestos-related risks to brake mechanics, "a long term interest of [his]" and reviews the published and some unpublished literature on asbestos as a hazard to brake mechanics. Dr. Castleman did not conduct independent research regarding the brake industry; instead, his research involved "look [ing] at what was publicly available." Dr. Castleman testified that "brake mechanics can be exposed [to asbestos] by grinding of brake pads or-or brake shoes and by-in the case of brake lining blowing out the accumulated dust in the brake-in the brake housing in doing a brake servicing/brake repair job." He described a conference on the hazards of brake repair held by Ford of Britain in 1969 and published in 1970 in the Annals of Occupational Hygiene. That conference evaluated the levels of exposure to asbestos fiber in the air from brake servicing jobs, and "it showed that the levels of exposure could be ... significant. They might not have necessarily exceeded the allowable exposure limits of the day, but in some cases, at least, they came close to doing that." Dr. Castleman then described some of the literature pertaining to mechanics in particular: a 1965 article that reported a case of mesothelioma in a "garage hand and chauffeur"; information published by the National Institute for Occupational Safety and Health warning about dangers to brake mechanics, emphasizing that grinding of brake parts was a hazardous job with high levels of asbestos exposure; and a 1978 brochure published by the Friction Material Standards Institute (FMSI), "a vehicle for companies in that subgroup of the asbestos industry to avail themselves of knowledge relating to the hazards and government regulation of their products in the years following 1968," warning brake mechanics about the dangers of asbestos. The FMSI brochure led Dr. Castleman to conclude "that the hazards to brake mechanics were effectively accepted by the asbestos manufacturers-asbestos product manufacturers by that time."

Dr. Castleman testified that a 1968 article determined that "most of the asbestos in brake linings is destroyed by the heat of friction and therefore is not released to the public air as asbestos fiber." But "some of the asbestos was found to survive the heated friction of the braking process." When questioned about whether friable [FN6] asbestos remained, Dr. Castleman testified that "[r]espirable asbestos fibers still remain," and a brake mechanic could be exposed to those fibers "[e]ither by grinding brake parts or by blowing out brake housings doing brake servicing work." On cross-examination, Dr. Castleman conceded that he had not researched Borg-Warner products and did not have any specific knowledge about them. While he knew that Borg-Warner manufactured brake pads, he did not "have any more detailed knowledge about the company than that."

> FN6. "Friable" refers to breathable asbestos. *See* James L. Stengel, *The Asbestos End-Game*, 62 N.Y.U. ANN. SURV. AM. L., 223, 228 (2006).

*768 Flores admitted to smoking from the time he was twenty-five until three weeks prior to trial. Flores's cardiologist reported a 50-pack year [FN7] smoking history, greater than the 15 to 20-pack year history Flores reported to Dr. Bukowski. At the time of trial, Flores's chief medical complaint was shortness of breath, which he testified manifested itself primarily after he had been mowing the lawn for 35-40 minutes. Flores also suffers from coronary artery disease and high cholesterol.

FN7. A pack year is a way of measuring the amount a person has smoked over a long period of time. *See* NATIONAL CANCER INSTITUTE, DICTIONARY OF CANCER TERMS, *http:// www. cancer. gov/ Templates/ db alpha. aspx? CdrID=306510* (all Internet materials last visited June 6, 2007 and copy available in clerk of court's file). It is calculated by multiplying the number of packs of cigarettes smoked per day by the number of years the person has smoked. *Id.*

Borg-Warner's expert, pulmonologist Dr. Kathryn Hale, examined Flores and testified that, in her opinion, he did not have asbestosis and that his x-rays did not show "any asbestos disease." She also testified that she had reviewed the literature, including epidemiological studies involving brake mechanics, and had not seen any articles indicating that auto mechanics suffered an increased risk of lung cancer or mesothelioma. She acknowledged that Flores's medical records included an x-ray report from a NIOSH certified B-reader [FN8] physician who opined that Flores had "bilateral interstitial fibrotic changes consistent with asbestosis in a patient who has had an adequate exposure history and latency period," but Hale testified that she relied on criteria promulgated by the American Thoracic Society, and under those criteria, Flores did not have asbestosis.

FN8. A "NIOSH certified B-reader" refers to a person who has successfully completed the x-ray interpretation course sponsored by the National Institute for Occupational Safety and Health (NIOSH) and passed the B-reader certification examination for x-ray interpretation. *See* TEX. CIV. PRAC. & REM.CODE § 90.001(4) (defining the term).

The jury found that (1) Flores sustained an asbestos-related injury or disease; (2) Borg-Warner's negligence (as well as that of three other settling defendants) proximately caused Flores's asbestos-related injury or disease; (3) all four defendants were "engaged in the business of selling brake products"; and (4) the brake products had marketing, manufacturing, and design defects, each of which was a producing cause of Flores's injury. The jury apportioned to Borg-Warner 37% of the causation and 21% to each of the other three defendants. The jury awarded Flores $34,000 for future physical impairment, $34,000 for future medical care, $12,000 for past physical pain and mental anguish, and $34,000 for future physical pain and mental anguish. [FN9] In the second phase of the bifurcated trial, the jury found, by clear and convincing evidence, that Flores's injury resulted from malice and awarded $55,000 in exemplary damages against Borg-Warner. The trial court signed a judgment in conformity with the verdict, and Borg-Warner appealed.

FN9. Before the trial began, Flores withdrew his claims for past and future earnings, as well as loss of earning capacity.

The court of appeals affirmed, holding that there was legally sufficient evidence of negligence, citing the following:

> (1) Flores was a mechanic from 1964 to 2001; (2) as a mechanic, Flores ground new brake pads prior to installation, a process necessary to minimize "brake squealing"; (3) the grinding process produced visible dust, which Flores inhaled; *769 (4) from 1972 to 1975, Flores ground brake pads manufactured by Borg-Warner; (5) Borg-Warner's brake pads contained between seven and twenty-eight percent asbestos by weight; (6) in 1998, Flores was diagnosed with asbestosis; (7) Dr. Castleman testified that brake mechanics can be exposed to asbestos by grinding brake pads, a process which produces "respirable asbestos fibers"; (8) Dr. Bukowski testified that "brake dust has been shown to ... have asbestos fibers"; and (9) Dr. Bukowski also testified that "brake dust can cause asbestosis."

153 S.W.3d 209, 213-214. Borg-Warner petitioned for review arguing, among other things, that a plaintiff claiming to be injured by an asbestos-containing product must meet the same causation standards that other plaintiffs do.[FN10] We granted the petition. 49 Tex. Sup.Ct. J. 509 (Apr. 21, 2006).

FN10. Centerpoint Energy, Inc., The Coalition for Litigation Justice, Inc., The Dow Chemical Company, Eastman Chemical Company, Exxon Mobil Corporation, The Goodyear Tire and Rubber Company, Owens Illinois, Inc., and Union Carbide Corporation submitted amicus briefs.

232 S.W.3d 765, 50 Tex. Sup. Ct. J. 851
(Cite as: 232 S.W.3d 765)

II

Discussion[FN11]

FN11. We note initially that Borg-Warner did not challenge, either before trial or at the time the evidence was offered, the reliability of Flores's experts and has, therefore, waived any reliability challenge that would require us to evaluate the experts' underlying methodology, technique, or foundational data. *Coastal Transp. Co. v. Crown Cent. Petroleum Corp.*, 136 S.W.3d 227, 231-33 (Tex.2004). Thus, we consider only those objections "restricted to the face of the record." *Id.* at 233.

A

Causation

Perhaps the most widely cited standard for proving causation in asbestos cases is the *Lohrmann* "frequency, regularity, and proximity" test. *Lohrmann v. Pittsburgh Corning Corp.*, 782 F.2d 1156 (4th Cir.1986); *see also Slaughter v. Southern Talc Co.*, 949 F.2d 167, 171 (5th Cir.1991) (noting that *Lohrmann* is "[t]he most frequently used test for causation in asbestos cases" and applying *Lohrmann* to an asbestos claim governed by Texas law). In *Lohrmann*, the Fourth Circuit Court of Appeals considered whether a trial court correctly directed a verdict in favor of four asbestos manufacturers, after determining that there was insufficient evidence of causation between use of their products and the plaintiffs' asbestosis. *Id.* at 1162-63. The appellate court noted that, under Maryland law, proximate cause required evidence that "allow[ed] the jury to reasonably conclude that it is more likely than not that the conduct of the defendant was a substantial factor in bringing about the result." *Id.* at 1162 (noting that section 431 of the Restatement (Second) of Torts uses the same "substantial factor" test). The court rejected a standard "that if the plaintiff can present any evidence that a company's asbestos-containing product was at the workplace while the plaintiff was at the workplace, a jury question has been established as to whether that product" proximately caused the plaintiff's disease, as such a rule would be "contrary to the Maryland law of substantial causation." *Id.* at 1163. Instead, the court concluded that "[t]o support a reasonable inference of substantial causation from circumstantial evidence, there must be evidence of exposure to a specific product on a regular basis over some extended period of time in proximity to where the plaintiff actually worked." *Id.* at 1162-63. The court noted that "[i]n effect, this is a *de minimis* rule since a plaintiff must prove more than a *770 casual or minimum contact with the product. This is a reasonable rule when one considers the Maryland law of substantial causation and the unusual nature of the asbestosis disease process, which can take years of exposure to produce the disease." *Id.* at 1162.

We have not adopted the *Lohrmann* test, and several amici urge us to do so here. The parties contend that our precedent adequately addresses the issue, as it requires that a party's conduct or product be a substantial factor in causing harm. We agree, with *Lohrmann*, that a "frequency, regularity, and proximity" test is appropriate, but those terms do not, in themselves, capture the emphasis our jurisprudence has placed on causation as an essential predicate to liability. It is important to emphasize that the *Lohrmann* court did not restrict its analysis to the tripartite phrase; indeed, it agreed that Restatement section 431 requires that the exposure be a "substantial factor" in causing the disease. *Id.* That analysis comports with our cases. For example, Restatement section 431's "substantial factor" test has informed our causation analysis on several occasions. *See Lear Siegler, Inc. v. Perez*, 819 S.W.2d 470, 471 (Tex.1991); *see also Union Pump Co. v. Allbritton*, 898 S.W.2d 773, 775-777 (Tex.1995). We have recognized that "[c]ommon to both proximate and producing cause is causation in fact, including the requirement that the defendant's conduct or product be a substantial factor in bringing about the plaintiff's injuries." *Union Pump*, 898 S.W.2d at 775. "The word 'substantial' is used to denote the fact that the defendant's conduct has such an effect in producing the harm as to lead reasonable men to regard it as a cause, using that word in the popular sense, in which there always lurks the idea of responsibility, rather than in the so-called 'philosophic sense,' which includes every one of the great number of events without which any happening would not have occurred." *Lear Siegler*, 819 S.W.2d at 472 (quoting RESTATEMENT (SECOND) OF TORTS § 431 cmt. a (1965)). In asbestos cases, then, we must determine whether the asbestos in the defendant's product was a substantial factor in bringing about the plaintiff's injuries.

One of toxicology's central tenets is that "the dose makes the poison." BERNARD D. GOLDSTEIN & MARY SUE HENIFIN, *Reference Guide on Toxicology, in* FEDERAL JUDICIAL CENTER, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 401, 403 (2d ed.2000) (hereafter "REFERENCE MANUAL"). This notion was first attributed to sixteenth century philosopher-physician Paracelsus, who stated that "[a]ll substances are poisonous-there is none which is not; the dose differentiates a poison from a remedy." David L. Eaton, *Scientific Judgment and Toxic Torts-A Primer in Toxicology for Judges and Lawyers,* 12 J.L. & POL'Y 5 (2003) (citing CURTIS D. KLAASSEN, CASARETT AND DOULL'S TOXICOLOGY: THE BASIC SCIENCE OF POISONS Chs. 1, 4 (McGraw Hill 6th ed.2001) (1975)). Even water, in sufficient doses, can be toxic. REFERENCE MANUAL at 403; *see also* Marc Fisher, *Radio Stations and the Promotional Games: A Fatal Attraction,* WASH. POST, Feb. 25, 2007, at N02, *available at* http:// www. washingtonpost. com/wp-dyn/content/article/2007/02/23/AR2007022300456.html (describing woman's death from water intoxication after participating in radio contest to win a video-game system).

Dose "refers to the amount of chemical that enters the body," and, according to one commentator, is "the single most important factor to consider in evaluating whether an alleged exposure caused a specific adverse effect." Eaton, *Scientific Judgment and Toxic Torts,* 12 J.L. & POL'Y at 11. We have recognized that "[e]xposure to asbestos, a known carcinogen,*771 is never healthy but fortunately does not always result in disease." *Temple-Inland Forest Prods. Corp. v. Carter,* 993 S.W.2d 88, 95 (Tex.1999). We have held that epidemiological studies are without evidentiary significance if the injured person cannot show that "the exposure or dose levels were comparable to or greater than those in the studies." *Merrell Dow Pharms., Inc. v. Havner,* 953 S.W.2d 706, 720-21 (Tex.1997). The federal Reference Manual on Scientific Evidence provides:

> An opinion on causation should be premised on three preliminary assessments. First, the expert should analyze whether the disease can be related to chemical exposure by a biologically plausible theory. Second, the expert should examine if the plaintiff was exposed to the chemical in a manner that can lead to absorption into the body. Third, the expert should offer an opinion as to whether the dose to which the plaintiff was exposed is sufficient to cause the disease.

Reference Manual at 419.

[1][2] Dr. Castleman testified that, despite the heat generated by braking, "some asbestos," in the form of respirable fibers, remained in the brake pads, and that brake mechanics could be exposed to those fibers when grinding the pads or blowing out the housings. Flores testified that grinding the pads generated dust, which he inhaled. Dr. Bukowski testified that every asbestos exposure contributes to asbestosis. There is no question, on this record, that mechanics in the braking industry could be exposed to respirable asbestos fibers. But without more, this testimony is insufficient to establish that the Borg-Warner brake pads were a substantial factor in causing Flores's disease. Asbestosis appears to be dose-related, "so that the more one is exposed, the more likely the disease is to occur, and the higher the exposure the more severe the disease is likely to be." *See* 3 DAVID L. FAIGMAN ET AL., MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY § 28:22, at 447 (2007); *cf. id.* § 28:5, at 416 (noting that "it is generally accepted that one may develop mesothelioma from low levels of asbestos exposure"). While "[s]evere cases [of asbestosis] are usually the result of long-term, high-level exposure to asbestos, ... ' [e]vidence of asbestosis has been found many years after relatively brief but extremely heavy exposure.' " STEPHEN J. CARROLL ET AL., RAND INSTITUTE FOR CIVIL JUSTICE, ASBESTOS LITIGATION 13 (2005) (citing American Thoracic Society, *The Diagnosis of Nonmalignant Diseases Related to Asbestos: 1996 Update: Official Statement of the American Thoracic Society,* 134 AM. REV. RESPIRATORY DISEASE 363, 363-68 (1996)). One text notes that:

> There is general agreement from epidemiologic studies that the development of asbestosis requires heavy exposure to asbestos ... in the range of 25 to 100 fibers per cubic centimeter-year. Accordingly, asbestosis is usually observed in individuals who have had many years of high-level exposure, typically asbestos miners and millers, asbestos textile workers, and asbestos insulators.

Andrew Churg, *Nonneoplastic Disease Caused by Asbestos, in* PATHOLOGY OF OCCUPATIONAL LUNG DISEASE 277, 313 (Andrew Churg & Francis H.Y. Green eds., Williams & Wilkins 1998) (1988).

This record, however, reveals nothing about how much asbestos Flores might have inhaled. He performed about fifteen to twenty brake jobs a week for over thirty years, and was therefore exposed to "some asbestos" on a fairly regular basis for an extended period of time. Nevertheless, absent any evidence of dose, the jury could not evaluate the quantity of respirable asbestos to which Flores might have been *772 exposed or whether those amounts were sufficient to cause asbestosis. Nor did Flores introduce evidence regarding what percentage of that indeterminate amount may have originated in Borg-Warner products. We do not know the asbestos content of other brands of brake pads or how much of Flores's exposure came from grinding new pads as opposed to blowing out old ones.[FN12] There were no epidemiological studies [FN13] showing that brake mechanics face at least a doubled risk of asbestosis. *See Merrell Dow Pharms., Inc. v. Havner*, 953 S.W.2d 706, 715 (Tex.1997). While such studies are not necessary to prove causation, we have recognized that "properly designed and executed epidemiological studies may be part of the evidence supporting causation in a toxic tort case," and "the requirement of more than a doubling of the risk strikes a balance between the needs of our legal system and the limits of science." *Id.* at 717-18. Thus, while some respirable fibers may be released upon grinding some brake pads, the sparse record here contains no evidence of the approximate quantum of Borg-Warner fibers to which Flores was exposed, and whether this sufficiently contributed to the aggregate dose of asbestos Flores inhaled, such that it could be considered a substantial factor in causing his asbestosis. *Union Pump*, 898 S.W.2d at 775; *see also Rutherford v. Owens-Illinois, Inc.*, 16 Cal.4th 953, 67 Cal.Rptr.2d 16, 941 P.2d 1203, 1219 (Cal.1997).

FN12. We note that any asbestos fibers Flores encountered when blowing out brake housings would not necessarily have been from Borg-Warner brake pads but from whatever brand of pads Flores was replacing.

FN13. Epidemiological studies examine existing populations to attempt to determine if there is an association between a disease or condition and a factor suspected of causing that disease or condition. *Havner*, 953 S.W.2d at 715.

Thus, a literal application of *Lohrmann* leaves questions unanswered in cases like this. The evidence showed that Flores worked in a small room, grinding brake pads composed partially of embedded asbestos fibers, five to seven times per week over a four year period---seemingly satisfying *Lohrmann's* frequency-regularity-proximity test. Implicit in that test, however, must be a requirement that asbestos fibers were released in an amount sufficient to cause Flores's asbestosis, or the *de minimis* standard *Lohrmann* purported to establish would be eliminated, and the *Union Pump* causation standard would not be met. In a case like this, proof of mere frequency, regularity, and proximity is necessary but not sufficient, as it provides none of the quantitative information necessary to support causation under Texas law.

We recognize the proof difficulties accompanying asbestos claims. The long latency period for asbestos-related diseases, coupled with the inability to trace precisely which fibers caused disease and from whose product they emanated, make this process inexact. *Rutherford*, 67 Cal.Rptr.2d 16, 941 P.2d at 1218 (acknowledging that lengthy latency periods "mean that memories are often dim and records missing or incomplete regarding the use and distribution of specific products" and "[i]n some industries, many different asbestos-containing products have been used, often including several similar products at the same time periods and worksites"). The Supreme Court of California has grappled with the appropriate causation standard in a case involving alleged asbestos-related cancer and acknowledged the difficulties in proof accompanying such claims:

> Plaintiffs cannot be expected to prove the scientifically unknown details of carcinogenesis, or trace the unknowable path of a given asbestos fiber.... [W]e *773 can bridge this gap in the humanly knowable by holding that plaintiffs may prove causation in asbestos-related cancer cases by demonstrating that the plaintiff's exposure to defendant's asbestos-containing product in reasonable medical

> probability was a substantial factor in contributing to the aggregate *dose* of asbestos the plaintiff or decedent inhaled or ingested, and hence to the *risk* of developing asbestos-related cancer, without the need to demonstrate that fibers from the defendant's particular product were the ones, or among the ones, that *actually* produced the malignant growth.
>
> *Rutherford*, 67 Cal.Rptr.2d 16, 941 P.2d at 1219.

Thus, substantial-factor causation, which separates the speculative from the probable, need not be reduced to mathematical precision. Defendant-specific evidence relating to the approximate dose to which the plaintiff was exposed, coupled with evidence that the dose was a substantial factor in causing the asbestos-related disease, will suffice. As one commentator notes, "[i]t is not adequate to simply establish that 'some' exposure occurred. Because most chemically induced adverse health effects clearly demonstrate 'thresholds,' there must be reasonable evidence that the exposure was of sufficient magnitude to exceed the threshold before a likelihood of 'causation' can be inferred." Eaton, 12 J.L. & POL'Y at 39. Dr. Bukowski acknowledged that asbestos is "plentiful" in the ambient air and that "everyone" is exposed to it. If a single fiber could cause asbestosis, however, "everyone" would be susceptible. No one suggests this is the case. Given asbestos's prevalence, therefore, some exposure "threshold" must be demonstrated before a claimant can prove his asbestosis was caused by a particular product.

In analyzing the legal sufficiency of Flores's negligence claim, then, the court of appeals erred in holding that "[i]n the context of asbestos-related claims, if there is sufficient evidence that the defendant supplied *any* of the asbestos to which the plaintiff was exposed, then the plaintiff has met the burden of proof." 153 S.W.3d at 213 (emphasis added). This analysis is much like that rejected by the *Lohrmann* court as "contrary to the Maryland law of substantial causation": "that if the plaintiff can present any evidence that a company's asbestos-containing product was at the workplace while the plaintiff was at the workplace, a jury question has been established as to whether that product" proximately caused the plaintiff's disease. *Lohrmann*, 782 F.2d at 1162. Instead, as outlined above, a plaintiff must prove that the defendant's product was a substantial factor in causing the alleged harm. *Union Pump*, 898 S.W.2d at 775.

We note too, that proof of causation may differ depending on the product at issue; "[i]n some products, the asbestos is embedded and fibers are not likely to become loose or airborne, [while] [i]n other products, the asbestos is friable." *In re Ethyl Corp.*, 975 S.W.2d 606, 617 (Tex.1998); *see also Gideon v. Johns-Manville Sales Corp.*, 761 F.2d 1129, 1145 (5th Cir.1985) (noting that "all asbestos products cannot be lumped together in determining their dangerousness"); *Hardy v. Johns-Manville Sales Corp.*, 681 F.2d 334, 347 (5th Cir.1982) (distinguishing between "airborne asbestos dust and fibers from thermal insulation" and other "products containing asbestos-in whatever quantity or however encapsulated"); *In re R.O.C. Pretrial*, 131 S.W.3d 129, 136-37 (Tex.App.-San Antonio 2004, no pet.) (noting that "the type of asbestos that causes asbestosis is 'friable' asbestos," and that the claimants "had the initial burden to show *774 that they were exposed to asbestos ... in a form that is capable of causing injury from appellee's products"). We have recognized that "[t]his, of course, bears on the extent and intensity of exposure to asbestos," *Ethyl Corp.*, 975 S.W.2d at 617, two factors central to causation. We have described situations in which workers were "so covered with asbestos as to be dubbed 'the snowmen of Grand Central.' " *Temple-Inland*, 993 S.W.2d at 95. That is not the situation here, where the asbestos at issue was embedded in the brake pads. Dr. Castleman testified that brake mechanics could be exposed to "some" respirable fibers when grinding pads or blowing out housings, and Flores testified that the grinding generated dust.[FN14] Without more, we do not know the contents of that dust, including the approximate quantum of fibers to which Flores was exposed, and in keeping with the *de minimis* rule espoused in *Lohrmann* and required by our precedent, we conclude the evidence of causation in this case was legally insufficient. *Lohrmann*, 782 F.2d at 1162; *Union Pump*, 898 S.W.2d at 775.

> FN14. The only other evidence possibly relating to causation was chapter 8 of Dr. Castleman's book, which the trial court admitted over Borg-Warner's hearsay objection. The chapter discusses a number of studies involving friction products and includes an annotated bibliography with short summaries of publications discussing potential as-

bestos hazards from friction product manufacture, fabrication, and replacement. Even considering chapter 8 in its entirety, the information it contains does not supply the missing link in the evidence here. The chapter consists of a five-page history of asbestos in friction products, as well as research and the government regulation thereof, followed by the annotated bibliography and several case reports of mesothelioma in brake repair workers. But nowhere does it quantify the respirable asbestos a brake mechanic like Flores might have inhaled or whether those amounts were sufficient to cause asbestosis. The chapter is silent on Borg-Warner products (although it does contain references to Bendix and General Motors), and it does not cite epidemiological studies showing a doubling of the asbestosis risk for brake mechanics. Thus, for the reasons outlined above, the information contained in chapter 8 does not provide evidence of causation, and we do not reach Borg-Warner's complaint that the trial court erred in admitting the evidence.

III

Conclusion

Flores alleged two claims: negligence and strict liability. Because each requires proof of substantial-factor causation, both fail. *See Union Pump*, 898 S.W.2d at 775. We reverse the court of appeals' judgment and render judgment for Borg-Warner. TEX.R.APP. P. 60.2(c).

Justice O'NEILL did not participate in the decision.
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