[Cite as *Marcus v. Rusk Heating & Cooling, Inc.*, 2013-Ohio-528.]

IN THE COURT OF APPEALS

TWELFTH APPELLATE DISTRICT OF OHIO

CLERMONT COUNTY

LILA MARCUS,	:	
		CASE NO. CA2012-03-026
Plaintiff-Appellant,	:	
		O P I N I O N
	:	2/19/2013
- vs -		
	:	
RUSK HEATING & COOLING, INC., et al.,	:	
Defendants-Appellees.	:	

CIVIL APPEAL FROM CLERMONT COUNTY COURT OF COMMON PLEAS
Case No. 2010-CVB-0082

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S. POWELL, J.

{¶ 1} Plaintiff-appellant, Lila Marcus, appeals the judgment of the Clermont County Common Pleas Court excluding the testimony of appellant's expert witness and granting summary judgment in favor of defendants-appellees, Rusk Heating & Cooling, Inc. and its president, Steven J. Morrison (collectively, "Rusk"), Apollo Heating and Air Conditioning, Inc. and Apollo Quality Heating & Cooling (collectively, "Apollo"), and Tribble Refrigeration, L.L.C., Tribble Refrigeration Co., and James Tribble (collectively, "Tribble").

Statement of Facts

{¶ 2} In March 2004, Rusk installed a Carrier Oil Furnace in appellant's residence located in Milford, Clermont County, Ohio. Rusk also responded to appellant's repeated service calls over the next few years due to malfunctioning issues with the furnace. Appellant and Rusk continually disagreed upon the quality of Rusk's service of the furnace and, ultimately, Rusk refunded the full contract price of the furnace to appellant. Appellant then sought the services of Apollo and Tribble to repair the furnace.

{¶ 3} In January 2008, the furnace experienced a "puff back" where the furnace malfunctioned or misfired, resulting in the disbursement of oily soot and vapors through the furnace's heating ductwork and into the living area of appellant's home, leaving a grimy, oily coating on floors, walls, furniture, and other exposed areas of the home. Also around this time, appellant was diagnosed with a brain injury stemming from the chronic inhalation of carbon monoxide. Due to the injuries to her health and home, appellant contracted with Clark Heating and Cooling, Inc. to remove and replace the furnace.[1]

{¶ 4} On January 15, 2010, appellant commenced this personal injury and property

1. Clark Heating and Cooling, Inc. is not a party to this appeal.

damage action against appellees. In an amended complaint, appellant claims that Rusk negligently installed the furnace in 2004 and that Rusk, Apollo, and Tribble (together, "appellees") negligently serviced the furnace for the next four years. As a direct result of these acts of negligence, appellant claims she was exposed to dangerous levels of carbon monoxide and other toxins that resulted in serious and permanent injury to her brain. Appellant further claims that the negligence of appellees led to the "puff back" in the furnace which caused property damage to her home.

{¶ 5} Several motions were subsequently filed by the parties, including cross-motions for summary judgment and motions in limine seeking to exclude the testimony of appellant's expert witness, Michael Mariscalco, Professional Engineer (P.E.). Specifically, Rusk and Tribble asserted that Mariscalco's opinion did not comply with Evid.R. 702 and the standard set forth by the United States Supreme Court in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S.Ct. 2786 (1993). Rusk and Tribble also contended that, without the testimony of Mariscalco, appellant could not demonstrate that her injuries were caused by the furnace and, therefore, Rusk and Tribble were entitled to summary judgment. Apollo filed a similar motion for summary judgment asserting that it was entitled to judgment as a matter of law.

{¶ 6} A hearing was held on January 20 and 30, 2012 on several *Daubert* issues including the admissibility of Mariscalco's expert report and testimony. In both his report and testimony, Mariscalco opined that insufficient combustion air, caused by the lack of a combustion air pipe, caused the furnace to emit toxic levels of carbon monoxide into appellant's home in a concentration level of 5-20 parts per million ("ppm") from the time the furnace was installed in 2004 until it was removed in 2008.[2] Mariscalco explained that his

2. A combustion air pipe is a pipe through which outside air would be supplied to the furnace to facilitate combustion of the fuel oil.

proffered opinion was based on the theory that carbon monoxide spilled from the barometric damper of the furnace into appellant's living space due to an inadequate source of combustion air that created a negative pressure differential in the room where the furnace was located.

{¶ 7} After the hearing, the trial court concluded that, although Mariscalco's proposed testimony pertained to issues that were beyond the understanding of lay persons and that he was suitably qualified to render the opinion, Mariscalco's analysis was not sufficiently reliable and there was simply too great an analytical gap between Mariscalco's data and his opinion. The trial court then excluded the testimony and reports of Mariscalco from trial and determined that, without his expert opinion, appellant could not prove that her injuries were caused by the emission of carbon monoxide from the furnace. Consequently, the trial court granted summary judgment in favor of appellees.

{¶ 8} Appellant timely appealed, raising two assignments of error.

{¶ 9} Assignment of Error No. 1:

{¶ 10} THE TRIAL JUDGE ABUSED HIS DISCRETION AND COMMITTED AN ERROR AT LAW BY IMPOSING AN UNPRECEDENTED STANDARD WHILE CONCLUDING THAT THE PROPOSED TESTIMONY OF PLAINTIFF-APPELLANT'S ENGINEERING EXPERT WAS NOT SUFFICIENTLY RELIABLE TO BE ADMISSIBLE PURSUANT TO EVID.R. 702.

{¶ 11} In her first assignment of error, appellant challenges a number of the trial court's reasons for excluding Mariscalco's testimony, asserting that the trial court forced an "unachievable standard for reliability" upon appellant and Mariscalco.

{¶ 12} "A trial court's decision on whether to admit or exclude expert testimony will not be reversed absent an abuse of discretion." *Herzner v. Fischer Attached Homes, Ltd.*, 12th Dist. No. CA2007-08-090, 2008-Ohio-2261, ¶ 7, citing *State v. Jones*, 90 Ohio St.3d 403,

414. "An abuse of discretion connotes an arbitrary, unreasonable, or unconscionable decision by the trial court." *Id*., citing *Blakemore v. Blakemore*, 5 Ohio St.3d 217, 219 (1983). When applying the abuse of discretion standard, this court may not substitute its judgment for that of the trial court. *Pons v. Ohio State Med. Bd*., 66 Ohio St.3d 619, 621 (1993).

{¶ 13} It is undisputed that Mariscalco's testimony related to matters beyond the knowledge or experience of laypersons and that Mariscalco qualified as an engineering expert. Evid.R. 702(A) and (B). Therefore, at issue is the reliability of Mariscalco's testimony and the underlying calculations he made in support of his expert opinion. *See* Evid.R. 702(C).

{¶ 14} Evid.R. 702(C) provides that a witness may testify as an expert if:

> The witness' testimony is based on reliable scientific, technical, or other specialized information. To the extent that the testimony reports the result of a procedure, test, or experiment, the testimony is reliable only if all of the following apply:
>
> The theory upon which the procedure, test or experiment is based is objectively verifiable or is validly derived from widely accepted knowledge, fact or principles;
>
> The design of the procedure, test or experience reliably implements the theory;
>
> The particular procedure, test or experiment was conducted in a way that will yield an accurate result.

{¶ 15} "In determining whether an expert's opinions are reliable under Evid.R. 702(C), our inquiry focuses upon whether the principles and methods the expert employed to reach his opinion are reliable, rather than whether the conclusions are correct." *State Farm Fire & Cas. Co. v. Holland*, 12th Dist. No. CA2007-08-025, 2008-Ohio-4436, ¶ 21, citing *Miller v. Bike Athletic Co*., 80 Ohio St.3d 607, 611, 1998-Ohio-178. The trial court, "as part of its gatekeeping function, must assess both the relevance of the expert's testimony and the reliability of the testimony prior to admitting such testimony into evidence." *State v. Widmer*,

12th Dist. No. CA2011-03-027, 2012-Ohio-4342, ¶ 67, citing *Terry v. Caputo*, 115 Ohio St.3d 351, 2007-Ohio-5023, ¶ 24; *Miller* at 611.

{¶ 16} "In evaluating the reliability of scientific evidence, several factors are to be considered: (1) whether the theory or technique has been tested, (2) whether it has been subjected to peer review, (3) whether there is a known or potential rate of error, and (4) whether the methodology has gained general acceptance." *Miller* at 611, citing *Daubert* 509 U.S. at 595.[3] Moreover, a court may conclude that there is "simply too great an analytical gap between the data and the opinion proffered." *Valentine v. Conrad*, 110 Ohio St.3d 42, 2006-Ohio-3561, ¶ 18.

{¶ 17} In this case, appellant sought to introduce the testimony and report of Mariscalco to demonstrate that the furnace was the origin of the carbon monoxide which poisoned her. At the hearing, Mariscalco provided his educational background and training, and then explained how he reached his opinion that, due to a lack of combustion air, the furnace emitted carbon monoxide in the concentration level of 5-20 ppm which spread into the living space of appellant's home. Mariscalco stated that he used a formula from the National Fire Protection Association's Standard 69 (NFPA 69) and a 1961 study performed by the National Research Council of Canada (the Canadian Study) that was published by the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE).[4] From the NFPA 69, which governs the use and control of flammable and combustible gasses to prevent explosive atmospheres, Mariscalco took the formula in order to determine the carbon monoxide concentration that would have filtered through appellant's

3. Appellant's argument that Ohio has not adopted the principles of *Daubert* is without merit. *See Miller*, 80 Ohio St.3d at 611; *Terry v. Caputo*, 115 Ohio St.3d 351, 2007-Ohio-5023, ¶ 24; *Widmer*, 2012-Ohio-4342 at ¶ 67.

4. The parties' expert witnesses agreed that the NFPA and ASHRAE are generally accepted authorities in the field of heating, refrigerating, and air conditioning.

home while the furnace was running.[5]

{¶ 18} Mariscalco then explained that, in determining the value of "G," the flue gas leakage rate (of gas leaking from the furnace), Mariscalco performed no testing, experimentation, or measurements on the furnace or appellant's home. Rather, Mariscalco based the value of "G" on the 1961 Canadian Study, stating that the home in the Canadian Study and appellant's home were similar in size. A copy of the NFPA 69 and the Canadian Study were not admitted into evidence during the hearing.

{¶ 19} Mariscalco also testified that, instead of performing or relying upon a tracer gas study to determine the value of "Q," the estimated outside infiltration rate into appellant's house, Mariscalco simply used a "wide range" of infiltration rates to determine his calculations. Mariscalco admitted that the generally accepted authorities in the field heating, refrigerating, and air conditioning state that the only way to properly determine the air infiltration rate into a home is to perform a tracer gas study, but Mariscalco stated that this was unnecessary because, by using a wide range of air infiltration rates for "Q," he was "able to cover all the bases *predictably* anyway." (Emphasis added.)

{¶ 20} Furthermore, Mariscalco testified that he believed the carbon monoxide was specifically leaking from the barometric damper of the furnace and into appellant's home. However, after the furnace was removed from appellant's home, but before Mariscalco—or any other expert—was able to view the barometric damper, the damper disappeared. Mariscalco testified that he was only able to view the damper through photographs but that

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5. The formula Mariscalco used was: $CO(t)=(G/(Q))*(1-c^{(k*G*V)t})*1{,}000{,}000*C_{fg}$
where: CO(t) = carbon monoxide concentration
G = Flue gas leakage into space, CFM (cubic feet per minute)
Q = Estimated outside infiltration rate into house, CFM (cubic feet per minute)
k = Mixing coefficient
V = Volume of residence, cubic feet
t = Time in minutes
C_{fg} = Concentration of carbon monoxide in flue gas
Neither the record nor the briefs explain the meaning of the variable "c" as it is used in the equation.

he did not believe an examination of the actual damper would change his opinion because his calculation of the carbon monoxide concentration leaking from the furnace was based upon his knowledge of systems and "what would be *typically* considered for leakage types of areas." (Emphasis added.)

{¶ 21} Mariscalco also admitted at the hearing that he had performed no tests on the furnace and only one test on appellant's home. Mariscalco measured the volume of appellant's home in order to determine "V" in his formula. Otherwise, Mariscalco did not perform, and was unaware of any other person performing, a test on the furnace to determine if it did, in fact, emit carbon monoxide while in operation. Mariscalco conceded that, although the furnace was not in working order at the time he examined the furnace, it could have been put into working order except for the missing barometric damper.

{¶ 22} Appellant takes issue with the following four findings made by the trial court: (1) the Canadian Study was scientifically unreliable, as a copy of the Study was not provided to the trial court, (2) Mariscalco performed only one test on appellant's home and no tests on the actual furnace in order to ensure the reliability of his calculations, (3) Mariscalco's final report stated that his opinion was formed using "conservative assumptions of furnace leakage and accumulation" rather than actual testing, and (4) there was no evidence that Mariscalco's methodology of using a series of mathematical calculations including "conservative assumptions" satisfied any of the factors outlined in *Daubert*.[6]

Absence of the Canadian Study

{¶ 23} Appellant first argues that the trial court erred in finding that, because it was

6. Appellant contends that the trial court erred in relying on Mariscalco's report filed October 30, 2010 (labeled as "Final Report") instead of Mariscalco's later report filed December 2, 2011 (labeled as "Supplemental Report"). However, the record clearly shows that the December 2, 2011 report was simply a supplementary report to a test performed by another expert witness. In fact, Mariscalco points out in the "Supplementary Report" that his previous conclusions and opinions contained in his October 30, 2010 Final Report are not altered by the supplement. Thus, the trial court did not err in relying on Mariscalco's October 30, 2010 Final Report.

unable to review it, the Canadian Study was scientifically unreliable.[7] Appellant also argues that she was unaware that the Canadian Study was not before the trial court or that the trial court wished to "scrutinize" the Study.

{¶ 24} "Experts often base their opinions on data and research from within their field of study." *Valentine*, 2006-Ohio-3561 at ¶ 18. Yet, "Evid.R. 702(C) requires not only that those underlying resources are scientifically valid, but also that they support the opinion." *Id*. "Although scientists certainly may draw inferences from a body of work, trial courts must ensure that any such extrapolation accords with scientific principles and methods." *Id*. To the extent that doing so is necessary to avoid making an unreasonable, arbitrary, or unconscionable decision, a trial court is obliged to apprise itself of the details of resources relied upon by the experts. *See id.* at ¶ 20.

{¶ 25} In this case, the trial court was prevented from apprising itself of the details of the Canadian Study because the document was not provided to the trial court. Thus, the trial court was unable to determine whether the methodology behind the Canadian Study had been generally accepted by the scientific community and whether it was a reliable approach in determining the emission and flow of carbon monoxide in a home. *See generally, Finley v. First Realty Property Mgt. Ltd.*, 185 Ohio App.3d 386, 2009-Ohio-6797, ¶ 19 (9th Dist.). Furthermore, without being able to evaluate the Canadian Study, the trial court was unable to determine whether the house subject to the Study was substantially similar to appellant's home. Without this determination, the trial court could not say that the mathematical figure taken from the Canadian Study and used by Mariscalco to determine "G," the flue gas leakage rate, was a reasonable and scientifically reliable use of the Canadian Study.

7. The Canadian Study was a study of draft conditions caused in the wintertime by the operation of a fuel oil furnace. Mariscalco sought to use the Study to prove that the emission of carbon monoxide from the furnace and into the living space of appellant's home would be in the concentration range of 5-20 ppm.

{¶ 26} Furthermore, Evid.R. 703 provides that the "facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by the expert or admitted into evidence at the hearing." In this case, the data relied upon by Mariscalco from the Canadian Study to determine "G" was not something that Mariscalco "perceived" from his own testing, observations, or experimentation but, instead, something that should have been admitted into evidence at the hearing.

{¶ 27} Appellant contends that she had no duty to supply the trial court with a copy of the Canadian Study, had no reason to believe that the trial court desired to "scrutinize" the study, and believed that Rusk had attached a copy of the study to Mariscalco's deposition transcript when it was submitted to the trial court. However, the party offering the expert opinion and testimony bears the burden of proof in establishing its admissibility. *Daubert* at 592 fn. 10; *Knotts v. Black and Decker*, 204 F.Supp.2d 1029, 1038 (N.D.Ohio 2002); *Mohney v. U.S. Hockey, Inc.*, 300 F.Supp.2d 556, 564 (N.D.Ohio 2004). Though appellant asserts that appellees should not benefit from their failure to provide Mariscalco's deposition *with* attached exhibits, appellant provides no reason why she could not and did not submit a copy of the Canadian Study to the trial court during the hearing, during the discovery phase of the case, or as an attachment to a motion in this case. The fact that appellees may have erred in not submitting the exhibits with the deposition does not relieve appellant of her burden to supply evidence to the court to establish the reliability and admissibility of expert testimony.

{¶ 28} Therefore, as the Canadian Study was not provided to the trial court for examination, there was no evidence that the mathematical figures Mariscalco garnered from the Study had any reasonable, analytical relationship to the emission of carbon monoxide from the furnace in appellant's home. Furthermore, although the Canadian Study was published by ASHRAE, an authority in the field of heating, refrigerating, and air conditioning, there was no evidence that the Canadian Study, itself, had been tested, peer reviewed, or

had a known or potential rate of error. Simply put, there was no foundation for the scientific reliability of the Canadian Study and why the mathematical figures relied upon in *that* study involving *that* house could reasonably be applied to appellant's home and Mariscalco's calculation.

{¶ 29} Based upon the foregoing, we cannot find that the trial court abused its discretion in determining that, without being able to review the Canadian Study, the Study, as used by Mariscalco as an underlying source for his opinion, was scientifically unreliable.

Mariscalco's Lack of Testing and Reliance on Assumptions

{¶ 30} Appellant next takes issue with the trial court's finding that Mariscalco failed to perform significant testing on appellant's home and furnace while making assumptions regarding the air infiltration rate ("Q") and the flue leakage rate ("G").

{¶ 31} "Expert testimony may not be based on mere speculation." *Rose v. Truck Centers, Inc.*, 611 F.Supp.2d 745, 750 (N.D.Ohio 2009), citing *Daubert*, 509 U.S. at 590. Although an expert is not required to perform independent tests or experiments in forming his opinion, the absence of such scientific tests or experiments may demonstrate an absence of a reliable methodology. *See* Evid.R. 702; *Botnick v. Zimmer, Inc.*, 484 F.Supp.2d 715, 720 (N.D.Ohio 2007) (absence of studies, tests, or experiments performed by expert to validate expert's opinion fails to satisfy the reliability standard outlined in *Daubert*).

{¶ 32} Here, Mariscalco openly stated at the hearing and during his deposition that, beyond his test to determine the volume of appellant's home, he performed no tests on the furnace or appellant's residence. Further, Mariscalco admitted that the generally accepted way of determining the air infiltration rate ("Q") into a home is to perform a tracer gas study. Yet, Mariscalco chose not to perform such a study. Instead, Mariscalco used a range of infiltration rates to "predict" the amount of carbon monoxide emitted from the furnace and entering appellant's living space while the furnace was running. Furthermore, as was

discussed above, Mariscalco relied upon what the trial court could only conclude was an unreliable study in order to determine "G." Thus, based upon our review of the record, the trial court did not err in finding that Mariscalco failed to perform any significant tests on the furnace and that his opinion and calculations were based upon assumptions.

Application of *Daubert*

{¶ 33} Appellant contends that the trial court erred in holding that there was no evidence that Mariscalco's methodology of using a series of mathematical calculations including "conservative assumptions" had ever been tested by any other qualified expert, had been subject to peer review, contained a known or potential rate of error, or gained general acceptance in the professional, scientific, technical, or engineering communities. In making this argument, appellant also asserts that the trial court has created a new standard by requiring that an expert satisfy *all* of the *Daubert* factors before being permitted to testify.

{¶ 34} However, in reviewing the trial court's decision, we cannot find support for this argument. The trial court simply stated that:

> [appellant] has not established that Mariscalco's methodology of using just a series of mathematical calculations using 'conservative assumptions of furnace leakage and accumulation,' and undisclosed 'background data,' has:
>
> (1) been tested by any other qualified expert;
>
> (2) been subject to peer review;
>
> (3) a known or potential rate of error;
>
> (4) gained general acceptance in the professional, scientific, technical or engineering communities.

The trial court's failure to place an "and" or "or" before the third and fourth factors of *Daubert* does not lead to the conclusion that the trial court was outlining a new and stricter standard.

{¶ 35} Appellant goes on to argue that the trial court erred in finding that Mariscalco's expert opinion failed to meet any of the *Daubert* factors. As noted above, to determine the

reliability of testimony, the trial court may consider one or more of the factors outlined in *Daubert*: (1) whether the theory or scientific technique has been tested, (2) whether the theory or technique has been subject to peer review or publication, (3) whether the method has a known or potential rate of error, and (4) whether the theory has gained general acceptance in the scientific community. *Daubert* 509 U.S. at 593-594. "The focus is not on the substance of the expert's conclusions, but on how the expert arrived at his conclusions." *Herzner* at ¶ 9, citing *Valentine*, 2006-Ohio-3561, at ¶ 16.

{¶ 36} In this case, all parties agree that the NFPA and ASHRAE are the authoritative organizations and manuals in the requisite field. Moreover, it does not appear that the trial court took issue with Mariscalco's reliance upon the formula published in the NFPA 69 or ASHRAE. The trial court did, however, take issue with Mariscalco's use of the Canadian Study to calculate the flue leakage rate of appellant's home without any evidence that the Canadian Study was a scientifically reliable method of testing the emission of carbon monoxide from a furnace or that the house referenced in the Canadian Study was substantially similar to appellant's home in size, composition, and construction.[8]

{¶ 37} In *Herzner v. Fisher*, 2008-Ohio-2261 at ¶ 11, this court addressed the admissibility of an expert's opinion that a plaintiff suffered illness due to her exposure to toxic mold in her condominium unit. The expert relied upon tests conducted on the condominium three months after the plaintiff had vacated the unit. Although the test showed that mold spores were present in the unit, there was no evidence that the mold spores detected were present while the plaintiff was living in the unit or caused the sort of illness from which the plaintiff suffered. *Id*. Based upon this evidence, the trial court concluded that "there was too great a gap between the data and [the expert's] opinion[.]" *Id*. In reviewing the trial court's

8. The Canadian Study was conducted in 1961 while appellant's home was not even built until 1965.

ruling, this court concluded that the trial court thoroughly "exposed numerous faults in the principles and methods utilized by [the expert] to draw his conclusions" and, therefore, did not abuse its discretion in excluding the expert's testimony. *Id*. at ¶ 15.

{¶ 38} Just as in *Herzner*, Mariscalco's opinion cannot be relied upon to show that carbon monoxide was present in appellant's home during the time the furnace was in operation from 2004 to 2008. In *Herzner*, there was a lack of evidence that toxins were actually present in the condominium while the plaintiff was in residence. Similarly, in this case, there is a lack of evidence and testing on the part of Mariscalco to demonstrate that carbon monoxide was (1) ever actually emitted from the furnace in the concentration level of 5-20 ppm, and (2) that any carbon monoxide emitted from the furnace entered the living space of appellant's home.

{¶ 39} Due to Mariscalco's reliance on the Canadian Study, lack of testing, and reliance upon assumptions regarding the air infiltration rate and the way air and carbon monoxide would "typically" or "predictably" flow through appellant's home, the trial court determined that there was simply too great a gap between the data used by Mariscalco and his expert opinion to satisfy the strictures of Evid.R. 702(C). Based upon our review of the record, we find that the trial court did not abuse its discretion in making such a determination.

{¶ 40} Accordingly, appellant's first assignment of error is overruled.

{¶ 41} Assignment of Error No. 2:

{¶ 42} THE TRIAL JUDGE ERRED, AS A MATTER OF LAW, BY GRANTING SUMMARY JUDGMENT IN FAVOR OF DEFENDANT-APPELLEES [SIC].

{¶ 43} In her second assignment of error, appellant contends the trial court erred in granting summary judgment in favor of appellees. Specifically, appellant argues that, even without the testimony of Mariscalco, sufficient evidence exists as to create a genuine issue of material fact that appellant suffered permanent brain damage due to the negligence of

appellees and that appellant's property was damaged due to the "puff back" which occurred in the furnace, also caused by appellees' negligence.

{¶ 44} This court reviews a trial court's decision on summary judgment under a de novo standard of review. *Harold v. Nationwide Mut. Ins. Co.*, 12th Dist. No. CA2007-01-013, 2008-Ohio-347, ¶ 11. Summary judgment is proper when: (1) there is no genuine issue of material fact, (2) the moving party is entitled to judgment as a matter of law, and (3) reasonable minds can only come to a conclusion adverse to the party against whom the motion is made, construing the evidence most strongly in that party's favor. Civ.R. 56(C). The party requesting summary judgment bears the initial burden of informing the court of the basis for the motion and identifying those portions of the record that demonstrate the absence of a genuine issue of material fact as to the essential elements of the nonmoving party's claims. *Dresher v. Burt*, 75 Ohio St.3d 280, 293 (1996). Once a party moving for summary judgment has satisfied its initial burden, the nonmoving party has the reciprocal burden to set forth specific facts showing that genuine issues remain. *Id*.; Civ.R. 56(E). Summary judgment is proper if the party opposing the motion fails to set forth such facts. *Id*.

Personal Injury

{¶ 45} Appellant first contends that, even without the testimony of Mariscalco, genuine issues of material fact exist as to whether appellant suffered permanent brain damage due to the negligent conduct of appellees. Specifically, appellant points to the opinions of her remaining expert witnesses: Robert Thomson, a professional engineer, Dr. Dennis Helffenstein, a clinical psychologist and rehabilitation counselor, and Dr. S. Gregory Hipskind, a neurologist.[9] Appellees, on the other hand, contend that the opinions of appellant's experts fail to provide sufficient opinions as to specific causation.

9. Neither Rusk, Apollo, nor Tribble sought to exclude the expert testimony of these individuals.

{¶ 46} "To withstand summary judgment in a negligence action, a plaintiff must present evidence that the defendant owed the plaintiff a duty, that the duty was breached, and that the breach was the proximate cause of the plaintiff's damages." *Kerns v. Hobart Brothers Co*., 2nd Dist. No. 2007CA32, 2008-Ohio-2242, ¶ 124; *Roberts v. RMB Ents., Inc*, 197 Ohio App.3d 435, 2011-Ohio-6223, ¶ 31 (12th Dist.). To prove that a toxic substance, such as carbon monoxide, caused the plaintiff's medical condition, the plaintiff must establish "(1) that the toxin is capable of causing the medical condition and ailment (general causation), and (2) that the toxic substance in fact caused the claimant's medical condition (specific causation)." *Terry v. Caputo*, 115 Ohio St.3d 351, 2007-Ohio-5023, paragraph one of the syllabus. Specifically, the plaintiff must show that she was exposed to a toxic substance and that the level of exposure was sufficient to induce the complained-of medical condition, commonly known as "dose-response relationship." *Valentine v. PPG Industries, Inc.*, 158 Ohio App.3d 615, 2004-Ohio-4521, ¶ 17, fn. 1 (4th Dist.), affirmed by *Valentine v. Conrad*, 110 Ohio St.3d 42, 2006-Ohio-3561. *See also* Wiley, *Expert Witness Update: New Developments in Personal Injury Litigation*, Section 1.04, at 18-19, and Section 1.05[C], at 28 ("the dose makes the poison") (2000). "The mere coincidence of exposure and the appearance of a disease is never sufficient to prove causation in an individual instance." *Id*. at ¶ 47, citing Susan R. Poulter, *Science and Toxic Torts: Is There a Rational Solution to the Problem of Causation?*, 7 High Tech.L.J. 189 at 216 (1992); *Kerns* at ¶ 96.

{¶ 47} "Establishing general causation and specific causation in cases involving exposure to mold or other toxic substances involves a scientific inquiry, and thus causation must be established by testimony of a medical expert." *Terry*, 2007-Ohio-5023 at paragraph two of the syllabus. Without this expert testimony to establish both general and specific causation, "a claimant cannot establish a prima facie case of exposure to mold or other toxic

substances." *Id*. at paragraph three of the syllabus.

{¶ 48} The parties do not dispute that the inhalation of carbon monoxide is capable of causing brain damage. Thus, the issue of general causation is established and the remaining issue is whether specific causation can be demonstrated by appellant. According to appellees, there is a lack of evidence establishing that appellant's brain damage was caused by exposure to carbon monoxide *which was caused by the furnace* as opposed to other possible causes including a blocked chimney. This court shall begin by reviewing the reports and assessments of appellant's remaining experts.

{¶ 49} On May 17, 2010, Thomson gave his report regarding the furnace and appellant's home. In formulating his opinion, Thomson stated that he visited and inspected the furnace after it had been removed from appellant's home, that he visited and inspected appellant's home, that he took photographs of the home and furnace, and that he interviewed appellant. Thomson concluded that, as the furnace lacked a proper amount of combustion air, the fuel inside the furnace did not burn adequately and the unburned fuel caused carbon monoxide to exhaust from the furnace. This carbon monoxide was "most likely" drawn into the distribution system of the house and entered the living space of the home, which could have resulted in carbon monoxide poisoning to residents of the home.[10] Thomson concluded that the distribution of carbon monoxide into the living space of a residence could result in "poisoning for the occupants." Yet, Thomson never opined as to the amount of carbon monoxide that could, or did, enter the living space of appellant's home or how often the distribution of carbon monoxide occurred.[11]

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10. Although not raised by the parties, this court questions whether Thomson's opinion is competently expressed in terms of probability or reasonable scientific certainty and not a lesser degree of certainty. *See Schneble v. Stark*, 12th Dist. Nos. CA2011-06-063, CA2011-06-064, 2012-Ohio-3031, ¶ 39.

11. Again, appellant takes issue with the trial court's reliance on this May 17, 2010 report, stating that the trial court "fixated" upon this initial report while "ignoring" Thomson's December 7, 2011 supplemental report. However, as indicated in Thomson's supplemental report, his initial opinion from the May 17, 2010 report

{¶ 50} In his neuropsychological evaluation, Dr. Helffenstein bases his opinion, at least in part, on the May 17, 2010 Engineering Report of Thompson for the conclusion that, because the furnace in appellant's home had an insufficient source of combustion air, the furnace emitted carbon monoxide into appellant's home while it was in operation. Thus, Dr. Helffenstein worked under the assumption that appellant was exposed to carbon monoxide from 2004 until 2008. Dr. Helffenstein concluded, after performing tests on appellant and reviewing her medical files, that appellant "experienced a chronic exposure to carbon monoxide between March 2004 and January 18, 2008." Dr. Helffenstein further found that appellant "was essentially exposed to carbon monoxide during the time that she was in her home and the furnace was in operation."

{¶ 51} In his report, Dr. Hipskind states, in the section titled "Patient's History/Indication for Brain SPECT Evaluation," that appellant was evaluated for carbon monoxide poisoning "that was caused by an improperly installed furnace in her home." Dr. Hipskind further states, without providing the basis for these conclusions, that the exposure occurred "from 2004 to 2008 because a combustion pipe was never installed[,] thus the furnace released carbon monoxide into [appellant's] house." Dr. Hipskind indicates that, according to OSHA, "levels of 9 parts per million or above [of carbon monoxide] may be associated with health risks." He then opined that the exposure level to appellant would have been at least been between 6-9 ppm based upon "the current science." Dr. Hipskind concluded that, based upon current understanding of exposure levels to carbon monoxide, as well as appellant's high-definition brain SPECT imaging, appellant's condition is consistent with a chronic low grade exposure to carbon monoxide.

{¶ 52} The reports and affidavits of Drs. Helffstein and Hipskind are premised upon

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remained "unchanged" by the supplemental report. Thus, the trial court was not wrong in reviewing and discussing Thomson's May 17, 2010 report.

Thomson's assumption that, due to a lack of combustion air, carbon monoxide was "most likely" distributed into the living space of appellant's home and that this distribution could result in "poisoning" to appellant. However, the fact that carbon monoxide was produced by the furnace and "most likely" entered appellant's living space does not warrant the conclusion that appellant inhaled said carbon monoxide at *toxic levels*, thereby causing her permanent brain damage. Furthermore, although Dr. Hipskind states that "levels of 9 parts per million or above [of carbon monoxide] may be associated with health risks," there is no indication in the record—beyond Mariscalco's now excluded testimony—that the level of carbon monoxide in appellant's living space reached 9 ppm. Simply because appellant suffers from the effects of carbon monoxide poisoning does not necessarily equate to a finding that carbon monoxide, at a toxic level, was emitted from the furnace or was distributed through her home. As stated above, there was no testing performed in the home which showed any level of carbon monoxide existing in the living space of appellant's home between 2004 and 2008.

{¶ 53} Therefore, based upon our review of the record in this case, we find that appellant has failed to establish that genuine issues of material fact remain as to the element of specific causation. Consequently, the trial court did not err in granting summary judgment to appellees on appellant's personal injury claims, as appellees are entitled to judgment as a matter of law.

Property Damage

{¶ 54} Appellees also moved for, and were granted, summary judgment as to appellant's property damage claims. However, although generally stating that the trial court erred in granting summary judgment, appellant fails to address in her brief the grant of summary judgment with respect to the property damage claims. Therefore, we need not review this aspect of the trial court's decision. Appellant's failure to raise an argument in her brief constitutes a waiver of the argument on appeal. *Radvansky v. City of Olmsted Falls*,

395 F.3d 291, 310 (6th Cir.2005).

{¶ 55} For the reasons set forth above, appellant's second assignment of error is overruled.

HENDRICKSON, P.J., and M. POWELL, J., concur.