

UNITED STATES DISTRICT COURT
 FOR THE DISTRICT OF SOUTH CAROLINA
 FLORENCE DIVISION

Kelly Marshall,)	Civil Action No.: 4:14-cv-04585-RBH
)	
Plaintiff,)	
)	
v.)	ORDER
)	
Lowe’s Home Centers, LLC,)	
and GHP Group Inc.,)	
)	
Defendants.)	
_____)	

This is a products liability design defect case. Plaintiff Kelly Marshall filed this action after sustaining severe burns allegedly caused by a propane tank top heater manufactured by Defendant GHP Group, Inc. (“GHP”) and sold by Defendant Lowe’s Home Centers, LLC (“Lowe’s”) (collectively, “Defendants”). *See* Complaint, ECF No. 1. The matter is before the Court for resolution of four pending motions:¹ (1) Defendants’ motion to exclude the testimony of Plaintiff’s expert Bryan R. Durig; (2) Defendants’ motion to exclude the testimony of Plaintiff’s expert Richard W. Henderson; (3) Plaintiff’s motion to exclude the testimony of Defendants’ expert Allen W. Dudden; and (4) Defendants’ motion for summary judgment. *See* ECF Nos. 43, 45, 47, & 55. The Court held a hearing on June 8, 2016, and took all motions under advisement. *See* ECF Nos. 73, 74, & 75. For the reasons set forth below, the Court denies the motions to exclude, and it grants in part and denies in part the motion for summary judgment.

¹ Plaintiff also alleged the Heater was defectively manufactured and lacked adequate warnings; she has since withdrawn both the manufacturing defect and warning defect claims and is proceeding solely on a design defect theory, as her counsel represented at the hearing. Official Transcript, ECF No. 75 at 1-4.

Additionally, Plaintiff designated Harold L. Ornstein, Ph.D. as an expert but withdrew this expert at the hearing, thereby mooted Defendants’ motion to exclude Dr. Ornstein’s testimony. *See* Tr., ECF No. 75 at 3; Ornstein Report, ECF No. 21-4; Defs.’ Motion to Exclude Ornstein, ECF No. 44; Minute Entry, ECF No. 74.

Factual and Procedural History

Viewed in the light most favorable to Plaintiff, the facts are as follows. The product at issue is a Thermoheat Propane Tank Top Construction Heater, Model No. TT15CL (“the Heater”). Compl. at ¶ 4. It consists of a single burner assembly that radiates heat once connected to the top of a separately sold twenty-pound propane gas tank cylinder. User’s Manual and Operating Instructions, ECF No. 47-8 at 1, 8, 10, 16-17. The burner itself, a heating element with a mesh screen, sits inside a round concave metal reflector. *Id.* at 10. A circular wire guard (“the GHP guard”)—the design of which is at issue in this case—is affixed to the outer edges of the metal reflector and covers the front of the burner.² *Id.* To turn on the Heater, a user must open a valve on the propane cylinder (which allows propane gas to flow to the burner), turn the regulator knob on the burner assembly to the “high” setting, depress the safety shut-off valve plunger, and light the burner with a match. *Id.* at 12. When the Heater is ignited and “on,” the mesh screen on the lit burner glows red. *Id.* The user may control the desired level of heat by turning the regulator knob to the “low,” “medium,” or “high” setting. *Id.* The Heater was manufactured by GHP, an Illinois-based corporation, and was sold nationwide, including at Lowe’s stores throughout South Carolina. Compl. at ¶¶ 4-5, 13.

The face of the metal reflector on the Heater is embossed with raised letters stating “CAUTION – HOT.” *See* ECF No. 25-1 at 9. The Heater was sold in a box, and it came with hang tags and a user’s manual and operating instructions. *See* ECF Nos. 47-8, 47-9, & 47-10. The box in which the Heater was packaged stated “Fast Convenient Heat to accompany you in any activity.” ECF No. 47-10. The user’s manual described the Heater as “a direct-fired tank top construction heater for either

² The Heater also has a rear guard that covers the back of the burner. *See* User’s Manual and Operating Instructions, ECF No. 45-13 at 16-17 & ECF No. 47-8 at 16-17. The rear guard is not at issue in this case.

indoor construction or outdoor use” and contained the following warnings:

- **GENERAL HAZARD WARNING**

FAILURE TO COMPLY WITH THE PRECAUTIONS AND INSTRUCTIONS PROVIDED WITH THIS HEATER, CAN RESULT IN DEATH, SERIOUS BODILY INJURY AND PROPERTY LOSS, OR DAMAGE FROM THE HAZARDS OF FIRE, EXPLOSION, BURN, ASPHYXIATION, CARBON MONOXIDE POISONING, AND/OR ELECTRICAL SHOCK.

ONLY PERSONS WHO CAN UNDERSTAND AND FOLLOW THE INSTRUCTIONS SHOULD USE OR SERVICE THIS HEATER.

- **WARNING:** FIRE, BURN, INHALATION, AND EXPLOSION HAZARD, KEEP SOLID COMBUSTIBLES, SUCH AS BUILDING MATERIALS, PAPER OR CARDBOARD, A SAFE DISTANCE AWAY FROM THE HEATER AS RECOMMENDED BY THE INSTRUCTIONS.

NEVER USE THE HEATER IN SPACES WHICH DO OR MAY CONTAIN VOLATILE OR AIRBORNE COMBUSTIBLES, OR PRODUCTS SUCH AS GASOLINE, SOLVENTS, PAINT THINNERS, DUST PARTICLES OR UNKNOWN CHEMICALS.

- **WARNING!** NOT FOR HOME OR RECREATIONAL VEHICLE USE.
- **IMPORTANT:** READ THIS USER’S MANUAL CAREFULLY AND COMPLETELY BEFORE TRYING TO OPERATE OR SERVICE THIS HEATER. IMPROPER USE OF THIS HEATER CAN CAUSE SERIOUS INJURY OR DEATH FROM FIRE, EXPLOSION AND CARBON MONOXIDE POISONING.

- **IMPORTANT SAFETY INFORMATION:**

.....
■ Always maintain proper clearance from combustible materials. Minimum clearance from combustibles. Side & Rear: 36" (91 cm); Top: 36" (91 cm); Front: 60" (152 cm); Floor: 0" when installed on 20lb cylinder

.....
■ Never place anything including clothes or other flammable items on the heater.

■ The appliance area shall be kept clear and free from combustible materials, gasoline and other flammable vapours and liquids.

Id. at 1, 3-5.

The hang tags attached to the Heater contained the following warnings:

- **Read and understand all safety information on the unit and in the manual before use.**
- Minimum clearances to combustibles: Sides, Rear and Top: 36" (91 cm) Front: 60" (150 cm). Floor: Combustible
- **WARNING:** Fire, burn, inhalation, and explosion hazard. Keep solid combustibles, such as building materials, paper or cardboard, a safe distance away from the heater as recommended by the instructions.

ECF No. 47-9 at 1.

On January 25, 2012, Plaintiff purchased the Heater from a Lowe's store in Myrtle Beach, South Carolina. Compl. at ¶ 14; Marshall Dep., ECF No. 59-1 at 6. She brought the Heater to her place of business, Mr. Microwave (an appliance repair shop located in Myrtle Beach), and used it multiple times between January 2012 and February 2013. Compl. at ¶ 15; Marshall Dep., ECF No. 43-13 at 2, ECF No. 47-2 at 18, & ECF No. 59-1 at 6. Plaintiff would habitually turn on the Heater by lighting it with a grill lighter, run it on the "medium" setting until her shop warmed up, and then turn it off. Marshall Dep., ECF No. 47-2 at 2-3 & ECF No. 44-8 at 7.

On February 18, 2013, Plaintiff was working inside Mr. Microwave and turned on the Heater, which remained on the "medium" setting and was located "[a]t least 10 feet" from her workbench with the burner facing the workbench. Compl. at ¶ 15; Marshall Dep., ECF No. 59-1 at 2. Approximately an hour and a half later, Plaintiff finished repairing a vacuum cleaner, brought it to the front of the shop, and began walking back to her workbench.³ Durig Report, ECF No. 21-1 at 6; Marshall Dep., ECF No. 47-2 at 4-5. While walking, Plaintiff heard a noise coming from the front of the store. Durig Report,

³ Plaintiff testified at her deposition that she did not see the Heater as she was walking back towards the workbench and did not know if she passed it. ECF No. 47-2 at 5-6.

ECF No. 21-1 at 6; Marshall Dep., ECF No. 47-2 at 4-8 & ECF No. 59-1 at 3, 6-7. She stopped for several seconds, turned around, and looked over her left shoulder, but seeing nothing, continued walking towards the workbench. ECF No. 47-2 at 4, 6-7, 9. Seconds later, Plaintiff “smelled something burning,” “saw flames over [her] shoulders,” and realized her cotton clothing was on fire. Marshall Dep., ECF No. 47-2 at 7-8; ECF No. 59-1 at 11. Plaintiff extinguished herself with water and called an ambulance. Durig Report, ECF No. 21-2 at 3-4.

As a result of the incident, Plaintiff sustained severe burns to approximately 40% of her body and spent approximately sixty days at the Joseph M. Still Burn Center in Augusta, Georgia, where she underwent multiple surgeries including skin grafts, debridement, and laser treatments. Giles Report, ECF No. 21-2 at 2; Marshall Dep., ECF No. 59-1 at 9-10. She incurred substantial past medical expenses and has future estimated medical expenses. Giles Report, ECF No. 21-2 at 22-41.

On December 3, 2014, Plaintiff filed this products liability action⁴ against Defendants alleging the GHP guard was defectively designed and seeking actual and punitive damages. ECF No. 1. She asserted four causes of action against both Defendants: strict liability, negligence, negligence per se, and breach of express and implied warranties. Compl. at ¶¶ 18-38. Defendants filed an answer denying liability. ECF No. 6. In support of her claims, Plaintiff identified several experts including Brian R. Durig, Ph.D. and Richard W. Henderson, Ph.D. ECF Nos. 21-1 & 21-3. Dr. Durig investigated the cause and origin of the fire, and he also collaborated with Dr. Henderson to develop an alternative prototype design for the front guard on the Heater (hereinafter referred to as “the alternative guard”). Durig Report, ECF No. 21-1. Dr. Henderson, besides collaborating with Dr. Durig, conducted

⁴ Plaintiff brought this action pursuant to this Court’s diversity jurisdiction under 28 U.S.C. § 1332. Compl. at ¶ 10.

temperature and fabric ignition testing on the Heater to determine whether the temperatures in the vicinity of the GHP guard were high enough to ignite clothing materials such as the cotton shirt Plaintiff was wearing at the time of the accident, and whether the temperatures in the vicinity of the alternative guard were sufficiently reduced to prevent such clothing ignition. Henderson Report, ECF No. 21-3.

In opposition to Plaintiff's claims, Defendants identified several experts including Allen W. Dudden, P.E. ECF No. 25. Mr. Dudden was hired to rebut the conclusions of Plaintiff's experts and also to provide his own opinions regarding the Heater and Plaintiff's use of it. Dudden Report, ECF No. 25-1.

Following the completion of discovery, Defendants moved to exclude the testimony of Dr. Durig and Dr. Henderson, and they also moved for summary judgment. ECF Nos. 43, 45, & 47. Plaintiff subsequently moved to exclude Mr. Dudden's testimony. ECF No. 55. Defendants and Plaintiff filed their respective responses in opposition to the motions, as well as replies to the responses. ECF Nos. 57, 58, 59, 60, 61, 63, 65, & 66. The Court held a hearing on the motions on June 8, 2016, and took them under advisement. *See* ECF Nos. 73, 74, & 75.

Core Threshold Argument

Defendants make a core threshold argument applicable to each of Plaintiff's four causes of action; they contend the Heater at issue was sold as an indoor/outdoor *construction* heater, **not** as an indoor *room* heater for use in a residence or business. They generally argue that because the product was a construction heater, it was improper and unsafe for Plaintiff to use it to heat her work area in a small business that was neither under construction nor being altered or repaired. *See* Dudden Report, ECF No. 25-1 at 17. Defendants further argue the Heater is subject to a national industry standard governing gas-fired construction heaters that does **not** contain a clothing ignition potential test, namely

ANSI Z83, and is not subject to ANSI Z21, which is a national industry standard governing indoor residential space heaters (specifically “Portable Type Gas Camp Heaters”). Defs.’ Reply, ECF No. 61 at 10-11; *compare* ANSI Z83 Excerpts at ECF Nos. 44-9, 47-11, & 66-1, *with* ANSI Z21 Excerpts at ECF Nos. 55-9, 57-10, & 58-8.

Plaintiff contends the Heater was sold and advertised as usable in both an indoor and outdoor environment, citing to the statement on the box in which the Heater was packaged that states “fast convenient heat to accompany you in any activity.” *See* Pl.’s Resp., ECF No. 59 at 16; Box Art, ECF No. 47-10. Additionally, Plaintiff’s expert Dr. Henderson opines the Heater is essentially “worthless” and “of no use for direct warming by radiant energy (either indoors or outdoors) at the clearances dictated by the manufacturer – namely, 36 inches from the sides, rear and top and 60 inches from the front” – in the instructions. Henderson Report, ECF No. 21-3 at 6. Significantly, Dr. Henderson performed cloth ignition testing of his own, but did not use the ANSI Z21 standard.

Defendants counter that the box, hang tags, and instructions all emphasize the Heater is for either indoor or outdoor construction use. *See* Defs.’ Reply, ECF No. 61 at 10-11; Box Art, ECF No. 47-10 (“for either indoor or outdoor construction use”); Hang Tags, ECF No. 47-9 (“Construction Heater” / “For Indoor or Outdoor Construction Use”); User’s Manual, ECF No. 47-8 at 4 (“Propane Tank Top Construction Heater” / “for either indoor construction or outdoor use”). They argue the proper type of heater that Plaintiff should have used was an unvented room heater, not the construction Heater at issue.

As mentioned above, a prototype alternative guard was fabricated via the joint collaboration of Dr. Henderson and Dr. Durig, Plaintiff’s experts. Dr. Henderson provided temperature measurements to Dr. Durig, who then sketched a design for a front guard that was larger than the factory-supplied GHP

guard.

Mr. Dudden, Defendants' expert, will testify that even if the Heater is equipped with the prototype alternative guard fabricated by Plaintiff's experts, the Heater still would not pass clothing ignition tests under either ANSI Z21 or UL 657. *See* Dudden Report, ECF No. 25-1 at 15. Dr. Henderson conducted his own fabric ignition testing on the prototype alternative guard (although he does not refer to ANSI Z21 but does refer to UL 647), and in his report he indicates the fabric samples did not ignite at the same distances the alternative guard extends from the reflector. *See* Henderson Report, ECF No. 21-3.

Discussion

I. Motions to Exclude Expert Testimony

Federal Rule of Evidence 702 governs the admissibility of expert witness testimony and provides as follows:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if: (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702. In applying Rule 702, the Court must act as a gatekeeper and "ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable." *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 588-89 (1993). "Rule 702 grants the district judge the discretionary authority . . . to determine reliability in light of the particular facts and circumstances of the particular case." *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 158 (1999).

In *Daubert*, the United States Supreme Court identified five nondispositive factors for evaluating the relevancy and reliability of proposed expert testimony: (1) whether the particular scientific theory ““can be (and has been) tested””; (2) whether the theory ““has been subjected to peer review and publication””; (3) the ““known or potential rate of error””; (4) the ““existence and maintenance of standards controlling the technique’s operation””; and (5) whether the technique has achieved ““general acceptance”” in the relevant scientific or expert community. *United States v. Crisp*, 324 F.3d 261, 266 (4th Cir. 2003) (quoting *Daubert*, 509 U.S. at 593-94). The *Daubert* test is flexible; “[r]ather than providing a definitive or exhaustive list, *Daubert* merely illustrates the types of factors that will ‘bear on the inquiry.’” *Id.* (quoting *Daubert*, 509 U.S. at 593); *see also Kumho*, 526 U.S. at 141-42 (“[T]he test of reliability is ‘flexible,’ and *Daubert*’s list of specific factors neither necessarily nor exclusively applies to all experts or in every case. Rather, the law grants a district court the same broad latitude when it decides *how* to determine reliability as it enjoys in respect to its ultimate reliability determination.”). The Court, in determining whether proffered testimony is sufficiently reliable, has broad latitude to consider whatever factors bearing on validity that it finds to be useful; “the particular factors will depend upon the unique circumstances of the expert testimony involved.” *Westberry v. Gislaved Gummi AB*, 178 F.3d 257, 261 (4th Cir. 1999) (citing *Kumho*, 526 U.S. at 151).

The court, however, should be conscious of two guiding, and sometimes competing, principles. On the one hand, the court should be mindful that Rule 702 was intended to liberalize the introduction of relevant expert evidence. And, the court need not determine that the expert testimony a litigant seeks to offer into evidence is irrefutable or certainly correct. As with all other admissible evidence, expert testimony is subject to being tested by vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof. On the other hand, the court must recognize that due to the difficulty of evaluating their testimony, expert witnesses have the potential to be both powerful and quite

misleading. And, given the potential persuasiveness of expert testimony, proffered evidence that has a greater potential to mislead than to enlighten should be excluded.

Id. at 261 (internal citations, quotation marks, and alterations omitted).

Expert testimony is admissible under Rule 702, then, if it concerns (1) scientific, technical, or other specialized knowledge that (2) will aid the jury or other trier of fact to understand or resolve a fact at issue. The first prong of this inquiry necessitates an examination of whether the reasoning or methodology underlying the expert’s proffered opinion is reliable—that is, whether it is supported by adequate validation to render it trustworthy. The second prong of the inquiry requires an analysis of whether the opinion is relevant to the facts at issue. Thus, an expert’s testimony is admissible under Rule 702 if it rests on a reliable foundation and is relevant.

Id. at 260 (internal citations and quotation marks omitted).

“The proponent of expert testimony does not have the burden to ‘prove’ anything. He must, however, ‘come forward with evidence from which the court can determine that the proffered testimony is properly admissible.’” *In re C.R. Bard, Inc.*, 948 F. Supp. 2d 589, 601 (S.D.W. Va. 2013) (quoting *Maryland Cas. Co. v. Therm-O-Disc, Inc.*, 137 F.3d 780, 783 (4th Cir. 1998)). Generally, a Rule 702 analysis proceeds in two steps: first, the Court must determine whether the expert witness is qualified; and if so, whether the expert’s opinion is sufficiently reliable and relevant. *See Kumho*, 526 U.S. at 153; *Scurmont LLC v. Firehouse Rest. Grp., Inc.*, No. 4:09-CV-00618-RBH, 2011 WL 2670575, at *7 (D.S.C. July 8, 2011); *Schrom v. Budget Rent-A-Car Sys., Inc.*, No. CIV.A.6:04-21788-HFF, 2005 WL 3058454, at *3 (D.S.C. Nov. 14, 2005).

A. Defendants’ Motions to Exclude the Expert Testimony of Dr. Durig and Dr. Henderson

Defendants move to exclude the testimony of both Dr. Durig and Dr. Henderson. ECF Nos. 43

& 45. The Court first provides the proper context for evaluating these experts' testimony and addressing Defendants' motions.

This is a products liability case in which Plaintiff is pursuing a design defect claim against Defendants. "When a design defect claim is made, a plaintiff alleges that the product at issue was defectively designed, thus causing an entire line of products to be unreasonably dangerous." *Watson v. Ford Motor Co.*, 389 S.C. 434, 444, 699 S.E.2d 169, 174 (2010). Design defect claims "necessarily involve sophisticated issues of engineering, technical science, and other complex concepts that are quintessentially beyond the ken of a lay person." *Id.* Thus, "[i]n most design defect cases, plaintiffs offer expert testimony as evidence to establish their claim." *Id.* at 444-45, 699 S.E.2d at 174.

In South Carolina, "the exclusive test in a products liability design case is the risk-utility test with its requirement of showing a feasible alternative design." *Branham v. Ford Motor Co.*, 390 S.C. 203, 220, 701 S.E.2d 5, 14 (2010).⁵ The risk-utility test states "a product is unreasonably dangerous and defective if the danger associated with the use of the product outweighs the utility of the product," *Bragg v. Hi-Ranger, Inc.*, 319 S.C. 531, 543, 462 S.E.2d 321, 328 (Ct. App. 1995), and it requires a plaintiff to present evidence of a reasonable alternative design, which includes consideration of the (1) costs, (2) safety, and (3) functionality associated with the alternative design. *Branham*, 390 S.C. at 225, 701 S.E.2d at 16. A risk-utility "analysis asks the trier of fact to determine whether the potential increased price of the product (if any), the potential decrease in the functioning (or utility) of the product (if any), and the potential increase in other safety concerns (if any) associated with the proffered

⁵ In holding the risk-utility test is the exclusive test in a products liability design case, the South Carolina Supreme Court adhered to its "longstanding approval of the principle that a product is not in a defective condition unreasonably dangerous merely because it 'can be made more safe.'" *Branham*, 390 S.C. at 224, 701 S.E.2d at 16 (quoting *Marchant v. Mitchell Distrib. Co.*, 270 S.C. 29, 35, 240 S.E.2d 511, 513 (1977)).

alternative design are worth the benefits that will inhere in the proposed alternative design.” *Id.* at 225 n.16, 701 S.E.2d at 17 n.16.

Here, Plaintiff alleges the GHP guard was defectively designed, thereby causing the Heater to be unreasonably dangerous. In simplistic terms, the thrust of Plaintiff’s defective design claim is that the existing GHP guard did not extend far enough away from the reflector/burner of the Heater to protect users and their clothing from being unnecessarily exposed to extremely high temperatures capable of igniting clothing.

Plaintiff seeks to use the testimony of both Dr. Henderson and Dr. Durig—collaborating experts—to prove her design defect claim and establish an alternative feasible design for the guard, as required by the risk-utility test. To understand why Plaintiff is not using a single expert (such as just a mechanical engineer) but is instead using collaborating experts, it is necessary to understand (1) the nature of Plaintiff’s design defect claim and (2) the areas of expertise of Dr. Henderson and Dr. Durig.

Plaintiff makes the following allegation with respect to her design defect claim:

The Subject Heater was unreasonably dangerous and defective in that its design and construction did not incorporate a safety guard and/or safety cover sufficiently large enough to ensure that individuals coming in close proximity of the heater would not be subjected to temperatures capable of instantaneously igniting clothing, a technologically and economically feasible device that would have prevented the ignition and resulting injuries and damages to the Plaintiff in the present case.

Compl. at ¶ 22. Thus, the alleged defect was the insufficient size of the front guard on the Heater that did not protect users from “temperatures capable of instantaneously igniting clothing.” Obviously, expert testimony is needed to prove whether such extreme temperatures existed, whether a sufficiently large enough guard was “technologically and economically feasible,” and whether a larger guard would

have reduced temperatures at or near the top center of the front guard and prevented the instantaneous ignition of clothing such as that worn by Plaintiff. These required showings all relate to the risk-utility test and the necessary showing of an alternative feasible design applicable to a design defect claim.

The combination of Dr. Henderson's and Dr. Durig's particularized areas of expertise allow Plaintiff to satisfy the risk-utility test and show how the alternative guard design would have prevented the Heater from being unreasonably dangerous. Dr. Henderson has a Ph.D. in chemistry, whereas Dr. Durig has a Ph.D. in mechanical engineering. As will be explained in greater detail below, Dr. Henderson's expertise as a chemist enabled him to analyze the thermal temperatures associated with the GHP guard and to form an opinion about whether those temperatures measured at different distances from both the GHP guard and the alternative guard rendered the Heater unreasonably dangerous and in a defective condition; his expertise also enabled him to evaluate the temperatures associated with the alternative guard.⁶ Although Dr. Henderson is the proper expert to testify that the Heater was unreasonably dangerous due to the defectively designed guard, as the Court will explain, it is proper for him to rely on Dr. Durig's opinions in giving his opinion. In sum, the testimony of both Dr. Henderson and Dr. Durig will enable Plaintiff to establish her design defect claim by applying a risk-utility analysis and showing an alternative feasible design. With this context in mind, the Court will address Defendants' motions.

1. Defendants' Motion to Exclude the Expert Testimony of Bryan Durig

Defendants move to exclude the testimony of Bryan R. Durig, Ph.D., who Plaintiff has retained to provide expert testimony regarding (1) the cause and origin of the fire that injured Plaintiff and (2)

⁶ Significantly, Dr. Durig was *not* retained to test the temperatures associated with the GHP guard and the alternative guard; that was Dr. Henderson's responsibility and area of expertise.

an alternative design for the front guard on the Heater (i.e., the GHP guard). *See* Defs.’ Motion to Exclude Durig, ECF No. 43. Defendants argue Dr. Durig’s testimony regarding the alternative guard design should be excluded as unreliable under *Daubert* and Federal Rule of Evidence 702,⁷ and that his testimony as to cause and origin should be excluded under Federal Rule of Evidence 403. The Court will address each argument in turn.

a. Reliability: Testimony Regarding Alternative Guard Design

According to his expert report and deposition testimony, Dr. Durig worked with Dr. Richard W. Henderson to create an alternative design for the front guard on the Heater. *See* Durig Report, ECF No. 21-1; Durig Dep. Excerpts, ECF Nos. 43-2, 45-12, 47-7, 55-12, 56-8, 57-2, 58-5, 60-2, 61-7, 63-6, & 66-4. Dr. Durig sketched a design for a larger, oblong guard based on temperature measurements provided by Dr. Henderson. ECF No. 43-2 at 10-11, 24. Dr. Durig gave his sketch to Thermal Engineering (located in Columbia, South Carolina), which fabricated a prototype of the alternative guard based on the sketch. *Id.* at 11, 24. Dr. Durig noted in his expert report that “[t]he alternative guard design is fabricated with stainless steel wire similar to the GHP designed guard.” ECF No. 21-1 at 7.

In the GHP design, the top center of the front guard is approximately one inch *below* the top center of the metal reflector where the burner is; in the alternative design created by Dr. Durig and Dr. Henderson, the top center of the front guard is approximately three to four inches⁸ *above* the top center

⁷ Defendants do not contest Dr. Durig’s qualifications or the relevancy of his testimony; they only challenge the reliability of his opinions. Therefore, the Court need only consider the reliability of Dr. Durig’s testimony. *See Scurmont*, 2011 WL 2670575, at *8; *Schrom*, 2005 WL 3058454, at *3.

⁸ At his deposition, Dr. Durig testified the top center of the alternative guard is “three and a half or four inches” above the top center of the metal reflector. ECF No. 43-2 at 11.

of the metal reflector.⁹ Durig Report, ECF No. 21-1 at 7. Dr. Durig tested the stability of the alternative guard design by performing a tilt test to determine whether the Heater would remain stable or tip over when equipped with the alternative guard.¹⁰ *Id.* at 7-8. Dr. Durig confirmed the Heater remained stable, noting:

The alternative guard design passes the stability requirements stated in ANSI Z83.7-2011^[11] for a tank top heater with a tip-over shutoff device such as the subject Thermoheat Model TT15CL. The tip-over shutoff device was tested with the alternative guard design and it functioned properly as it did with the GHP guard.

The GHP guard weighs 2.4 ounces and the alternative guard design weighs 14.6 ounces. The increased weight of the alternative guard design did not cause the subject Thermoheat tank top heater to fail the stability requirements of ANSI Z83.7-2011.

Id. at 8. At his deposition, Dr. Durig referred to his expert report and testified the Heater “functions fine with the existing guard plus the same with the prototype guard.” ECF No. 59-7 at 2.

Defendants contend the reasoning and methodology underlying Dr. Durig’s proffered opinions regarding the alternative guard design are unreliable for the following reasons: (1) he admits the alternative guard design is not final and may have to be modified; (2) he is not familiar with the national standards applicable to the Heater; (3) the alternative guard design fails to comply with the applicable industry and safety standards promulgated for radiant tank top construction heaters; and (4) he did not

⁹ As explained below, the alternative guard also extends two inches laterally from the sides of the reflector. Henderson Aff., ECF No. 58-1 at ¶ 12(g).

¹⁰ Dr. Durig performed two tests, one where the Heater (equipped with the alternative guard) was hooked up to a propane tank weighing 29.6 pounds and the other where the Heater was hooked up to a propane tank weighing 35.4 pounds. Durig Report, ECF No. 21-1 at 7.

¹¹ ANSI Z83.7-2011, which is promulgated by the American National Standards Institute (“ANSI”), sets forth the standard for gas-fired construction heaters. *See* ANSI Z83.7-2011: American National Standard / CSA Standard for Gas-Fired Construction Heaters, ECF No. 57-7.

testify the as-built Heater was defective. Defs.’ Mem., ECF No. 43-1 at 6-13.

In response, Plaintiff asserts Defendants have not cited any authority for their argument that an alternative design must be in production and commercially available. Pl.’s Resp., ECF No. 57 at 11. Furthermore, Plaintiff maintains Dr. Durig tested the alternative guard by conducting tilt testing pursuant to the standard of ANSI Z83.7-2011 and determined the alternative guard design passed the stability requirements of that standard. *Id.* at 12. Plaintiff notes Defendants’ expert Mr. Dudden conducted the same tilt test and reached the same conclusion as Dr. Durig, and she argues that to the extent Dr. Durig and Mr. Dudden disagree on other aspects of the alternative guard, such disagreement is fodder for cross-examination but not a sufficient basis to exclude testimony under *Daubert*. *Id.* at 12-15. Finally, Plaintiff asserts she did not retain Dr. Durig to address or opine whether the as-built Heater was defective, and therefore Defendants’ argument to the contrary “is nonsensical.” *Id.* at 10 n.6.

The Court finds Dr. Durig’s proffered expert opinions are sufficiently reliable to warrant their admission at trial. Dr. Durig has not merely conceptualized an alternative design, but has actually had a prototype manufactured and has conducted tilt testing—in accordance with ANSI 83.7-2011—to verify that it could be affixed to the Heater without causing the Heater to tip over. *See Holland ex rel. Knox v. Morbark, Inc.*, 407 S.C. 227, 238, 754 S.E.2d 714, 720 (Ct. App. 2014) (recognizing a “plaintiff must introduce evidence that an alternative design is feasible and cannot rely upon mere conceptual design theories”). Although Dr. Durig admitted the prototype “wasn’t designed to go into production,” *see Durig Dep.*, ECF No. 43-2 at 21, the guard he created establishes the existence and functionality of a commercially *feasible* safer alternative design. *See Little v. Brown & Williamson Tobacco Corp.*, 243 F. Supp. 2d 480, 495 (D.S.C. 2001) (stating “the existence of a safer alternative design is a crucial

aspect of a product liability case in South Carolina”); *5 Star, Inc. v. Ford Motor Co.*, 408 S.C. 362, 367 n.3, 759 S.E.2d 139, 142 n.3 (2014) (noting “a plaintiff has the burden of presenting evidence of a reasonable alternative design” in a products liability case).

In analyzing design defect cases and the prerequisite of showing an alternative design, South Carolina courts speak in terms of commercially *feasible* alternative designs, not commercially *available* alternative designs. *See, e.g., Branham*, 390 S.C. at 222, 701 S.E.2d at 15 (“In reported design defect cases, our trial and appellate courts have placed their imprimatur on the importance of showing a *feasible* alternative design.” (emphasis added)); *Holland*, 407 S.C. at 238, 754 S.E.2d at 720 (stating a “plaintiff must introduce evidence that an alternative design is feasible”); *see also LaBelle ex rel. LaBelle v. Philip Morris, Inc.*, 243 F. Supp. 2d 508, 519 n.13 (D.S.C. 2001) (recognizing the plaintiff’s burden at summary judgment is to “show that the alternatives were commercially *feasible* and that the failure to incorporate the safer design was a proximate cause of the [plaintiff]’s injury” (emphasis added)); *see also Disher v. Synthes (U.S.A.)*, 371 F. Supp. 2d 764, 771-72 (D.S.C. 2005) (“In determining whether an alternative design is *practical or feasible*, courts will look to see whether a risk-utility analysis has been conducted to weigh the benefits of any new design against the costs and potentially adverse consequences of the design.” (emphasis added) (citing *Claytor v. Gen. Motors Corp.*, 277 S.C. 259, 265, 286 S.E.2d 129, 132 (1982))). Thus, it is not surprising that Defendants do not cite any cases supporting their argument that Plaintiff must show the alternative guard design was commercially “*available* or utilized by any other manufacturers in the industry.”¹² Defs.’ Mem., ECF

¹² In fact, Defendants support their argument by citing a case that undermines their position. Defs.’ Mem., ECF No. 43-1 at 9 (citing *Sorto-Romero v. Delta Int’l Mach. Corp.*, No. 05-CV-5172 SJF AKT, 2007 WL 2816191, at *7 (E.D.N.Y. Sept. 24, 2007)). In *Sorto-Romero*, the district court excluded the testimony of a plaintiff’s “expert [who] did not develop or test prototypes of alternatives that he recommends, nor did he create models or drawings, leading to the conclusion that his opinion is based on speculation.” 2007 WL 2816191, at *7. The instant case is wholly unlike the situation in *Sorto-Romero*, given that Dr. Durig designed, developed, and tested a prototype of the

No. 43-1 at 13 (emphasis added).

Moreover, Dr. Durig is sufficiently familiar with the applicable national standard for gas-fired construction heaters such as the Heater at issue, given that he tested the alternative guard for stability as required by ANSI 83.7-2011, stated in his expert report that he “reviewed . . . ANSI Z83.7,” and testified at his deposition about that standard. *See* ECF No. 21-1 at 5, 7-8; ECF No. 57-2 at 21-22; *Freeman v. Case Corp.*, 118 F.3d 1011, 1016 (4th Cir. 1997) (finding a mechanical engineering expert “did not simply opine on the basis of his “own subjective opinion,”” but instead “applied his experience and training” that including knowledge of “industry literature” and specifications and “identified specific published materials that had directly guided his analysis” (quoting and distinguishing *Alevromagiros v. Hechinger Co.*, 993 F.2d 417, 421 (4th Cir. 1993))). The appropriate means for Defendants to challenge Dr. Durig’s reliance on and application of the relevant ANSI standard is through cross-examination. *See Freeman*, 118 F.3d at 1017 (citing *Daubert*, 509 U.S. at 596). Finally, regarding Defendants’ argument that Dr. Durig did not testify the as-built Heater was defectively designed, the Court notes Plaintiff retained Dr. Durig to show there exists a reasonable alternative design for the front guard on the Heater and to give his opinion regarding the feasibility of the alternative guard design, not to opine that the design of the GHP guard caused the Heater to be unreasonably dangerous (that is Dr. Henderson’s task, as explained below). *See Pl.’s Resp.*, ECF No. 57 at 10. Thus, as Plaintiff points out, it necessarily follows that Dr. Durig would not have an opinion on whether the Heater was defectively designed.

In conclusion, the Court finds Dr. Durig’s testimony regarding the alternative guard is sufficiently reliable to be admissible at trial.

alternative guard.

b. Rule 403: Testimony Regarding Cause and Origin

Plaintiff also intends to call Dr. Durig to testify about the cause and origin of the fire. In his expert report, Dr. Durig made the following conclusions:

The area of fire origin of the fire event is the area above the burner assembly/front guard of the subject Thermoheat tank top heater. The cause of the fire/ignition of the shirt being worn by Ms. Marshall is the elevated temperatures the existing GHP burner assembly/front guard design allowed the shirt being worn by Ms. Marshall to be exposed to during the moment she stopped and turned around to look at the front of the store.

ECF No. 21-1 at 8.

Defendants assert the Court should exclude Dr. Durig's testimony regarding the cause and origin of the fire under Federal Rule of Evidence 403, arguing such testimony will not assist the jury in understanding the evidence or determining a fact in issue, is cumulative, has the potential to mislead, and has a prejudicial effect that substantially outweighs its probative value. Defs.' Mem., ECF No. 43-1 at 13-15. They contend the sole basis for Dr. Durig's conclusions is information provided to him by Plaintiff, who has no specific recollection of the events leading to the accident. *Id.* at 13-14. Defendants claim Dr. Durig's testimony that the Heater was the only possible source of ignition will merely parrot Plaintiff's testimony and is therefore not helpful to the trier of fact. *Id.* at 14.

In response, Plaintiff asserts Dr. Durig's testimony should not be excluded under Rule 403 because it is based upon generally accepted methodology for fire investigations, which includes witness observations, promulgated by the National Fire Protection Association ("NFPA"). Pl.'s Resp., ECF No. 57 at 5-9. Plaintiff contends Dr. Durig adhered to NFPA 921 in investigating the cause and origin of the fire and in formulating his conclusions. *Id.*

Expert testimony that is otherwise admissible under Rule 702 may be nonetheless excluded

under Rule 403 “if its probative value is substantially outweighed by a danger of one or more of the following: unfair prejudice, confusing the issues, misleading the jury, undue delay, wasting time, or needlessly presenting cumulative evidence.” Fed. R. Evid. 403; *see United States v. Dorsey*, 45 F.3d 809, 813 (4th Cir. 1995) (“In determining whether the evidence meets the second prong of the two-part [*Daubert*] test—that is, whether the evidence will be helpful to the trier of fact—the Supreme Court warned that throughout an admissibility determination, a judge must be mindful of other evidentiary rules, such as FRE 403” (citing *Daubert*, 509 U.S. at 595)).

The Court rejects Defendants’ challenge to Dr. Durig’s testimony regarding origin and cause of the fire. There is no indication from the record that Dr. Durig conducted his investigations and blindly formed his conclusions by *solely* relying on Plaintiff’s personal memory of the fire. Dr. Durig’s expert report details his endeavors to conduct an independent determination of the origin and cause of the fire. *See* ECF No. 21-1 at 5-6. Besides discussing the matter with Plaintiff—an investigative technique that is permissible under the methodology of NFPA 921, as discussed in the next paragraph—he went to the incident site at Mr. Microwave and photographed the area. *Id.* at 5. He reviewed the following documents and information: Plaintiff’s complaint, Defendants’ answer and discovery responses, Plaintiff’s answers to Local Rule 26.01 interrogatories, photographs of Plaintiff taken when she was admitted to the hospital, a Lowe’s quality assurance product review, the ANSI standards for gas-fired construction heaters, the user’s manual and operating instructions for the Heater, the alternative guard and testing of the alternative guard, photographs of the Heater, the cotton shirt Plaintiff was wearing at the time of the fire, and the Heater. *Id.* at 5-6. At his deposition, Dr. Durig testified he inspected the fire scene at Mr. Microwave (including the area where the Heater was allegedly located), photographed the scene and took measurements there, inspected the Heater both at

the scene and in his office, and prepared diagrams of the scene and the Heater. ECF No. 57-2 at 2-9, 14-17. Defendants' sweeping assertion that "Dr. Durig's fire investigation is wholly dependent on the testimony of [Plaintiff]" is incorrect. *See* Defs.' Mem., ECF No. 43-1 at 14.

Dr. Durig testified he followed the methodology of NFPA 921, which establishes "the guideline that fire investigators use to determine the origin of a fire *which is typically eye witness statements*, fire dynamics, hearth mapping and . . . fire patterns." *Id.* at 18 (emphasis added). Thus, to comply with NFPA 921, it was proper and necessary for Dr. Durig to interview Plaintiff—the sole witness to the fire—in order to form his conclusions as to the cause and origin of the fire. The Court finds the probative value of Dr. Durig's testimony regarding cause and origin is not substantially outweighed by the danger of unfair prejudice or its potential to confuse or mislead the jury, and will not be cumulative or needlessly time consuming. *See* Fed. R. Evid. 403.

For the foregoing reasons, the Court **DENIES** Defendants' motion to exclude the expert testimony of Dr. Durig.

2. Defendants' Motion to Exclude the Expert Testimony of Richard Henderson

Defendants move to exclude the testimony of Plaintiff's expert Richard W. Henderson, Ph.D., who will testify the Heater was defectively designed and in an unreasonably dangerous condition. *See* Defs.' Motion to Exclude Henderson Testimony, ECF No. 45. Defendants argue Dr. Henderson's testimony should be excluded because Dr. Henderson is not qualified and because his testimony is irrelevant and unreliable under *Daubert* and Federal Rule of Evidence 702.¹³

¹³ In their initial memorandum in support of their motion, Defendants did not contest Dr. Henderson's qualifications or the relevancy of his testimony; they only challenged the reliability of his opinions. However, at the hearing, Defendants indicated they were also challenging Dr. Henderson's qualifications and the relevancy of his

Plaintiff retained Dr. Henderson to evaluate the thermal characteristics of the Heater and an exemplar model, and to conduct ignition testing of the Heater and exemplar model with cloth items. Henderson Aff., ECF No. 58-1 at ¶ 10; Henderson Report, ECF No. 21-3 at ¶ 3. Dr. Henderson conducted his investigation and testing by applying NFPA 921¹⁴ and using both the GHP guard and the alternative guard. Henderson Report, ECF No. 21-3 at ¶ 3; Henderson Aff., ECF No. 58-1 at ¶ 12(b), (c).

Dr. Henderson found that when the Heater was equipped with the GHP guard and placed on the “medium” and “high” settings, it generated temperatures “on the order of 1000 degrees Fahrenheit” at the top center of the GHP guard; he opined such temperatures are “easily sufficient to ignite clothing materials, especially those comprised of 100% cotton, like that being worn by Mrs. Marshall at the time of the incident.” Henderson Report at ¶ 7; *see also* Henderson Aff., ECF No. 58-1 at ¶ 12(d). Dr. Henderson also tested the amount of time it took for several combustible fabric materials—including a piece of cheesecloth (the standard material used for ignition testing according to Underwriters Laboratories Standard 647 (“UL 647”)) and an exemplar fabric sample taken from a 100% cotton shirt similar to the one Plaintiff was wearing at the time of the incident—to ignite when placed at or near the top center of the GHP guard. Henderson Aff., ECF No. 58-1 at ¶ 12; Henderson Report, ECF No. 21-3 at ¶¶ 11-12. The ignition timing tests showed the cheesecloth ignited instantly while the exemplar cotton sample ignited within two to three seconds. Henderson Aff., ECF No. 58-1 at ¶ 12(e), (i). Based upon these test results, Dr. Henderson has concluded the Heater, as designed, is defective and

testimony. *See* Tr., ECF No. 75 at 35-51, 63-64. Because Plaintiff had an opportunity at the hearing to respond to Defendants’ new arguments regarding qualifications and relevancy, the Court will address qualification and relevancy in addition to reliability.

¹⁴ Dr. Henderson noted NFPA 921 “describes the scientific method as it is applied to fire investigations.” Henderson Report, ECF No. 21-3 at ¶ 3; Henderson Aff., ECF No. 58-1 at ¶ 12(c).

unreasonably dangerous because it fails to protect users from exposure to the excessively high temperatures present at or near the top center of the GHP guard, which can ignite fabric such as cotton clothing within a few seconds. Henderson Aff., ECF No. 58-1 at ¶ 13; Henderson Report, ECF No. 21-3 at ¶¶ 18-19.

Furthermore, as noted above, Dr. Henderson conducted temperature tests on the Heater and the exemplar model when they were equipped with the alternative guard that he and Dr. Durig designed. *See* Durig Report, ECF No. 21-1 at 7. Unlike the GHP guard, the alternative guard extends three to four inches above the metal reflector (where the greatest heat is released) and two inches laterally from the sides of the reflector. Henderson Aff., ECF No. 58-1 at ¶ 12(g). The tests with the alternative guard showed “a dramatic temperature reduction from those measured at the front of the original, factory-supplied guard; the reduction was on the order of some 800 degrees Fahrenheit.” *Id.* at ¶ 12(h); *see* Henderson Report, ECF No. 21-3 at ¶ 10.

Additional thermal testing by Dr. Henderson showed “there was a rapid decrease in temperature with an increase in distance from the heater. At just over three inches away from the heater, the temperature was down to approximately 250 degrees Fahrenheit, well below that required to ignite cotton and other cloth materials.” Henderson Aff. at ¶ 12(e), (g). Two fabric samples, one from a 100% cotton shirt and the other from a 65% polyester/35% cotton blend shirt, were placed three and a half inches away from the reflector (the same distance that the alternative guard extends from the reflector),¹⁵ but neither sample ignited even after continuous heat exposure for over twenty minutes.¹⁶ *Id.* at ¶ 12(j).

¹⁵ This particular test (involving the two fabric samples placed three and a half inches from the reflector) was conducted using an exemplar model of the Heater equipped with the GHP guard. Henderson Aff. at ¶ 12(j).

¹⁶ Dr. Henderson noted the two fabric samples “did evidence some heat effects, as expected.” Henderson Report, ECF No. 21-3 at ¶ 12.

Based upon these test results, Dr. Henderson has concluded the alternative guard sufficiently protects users from dangerous temperature levels that are otherwise present at or near the GHP guard and capable of rapidly igniting cloth materials. *Id.* at ¶ 17.

In their memorandum in support of their motion to exclude Dr. Henderson’s testimony, Defendants contend the reasoning and methodology underlying Dr. Henderson’s proffered opinions regarding the alternative guard design are unreliable for the following reasons: (1) the alternative guard design fails to comply with the applicable industry and safety standards—namely, ANSI standards—promulgated for radiant tank top construction heaters such as the Heater at issue; (2) Dr. Henderson is not familiar with those ANSI standards; and (3) both Dr. Henderson and Dr. Durig have admitted the alternative guard design is not final and may have to be changed. ECF No. 45-1 at 6-15. Defendants also present a fourth argument asserting there are not “‘good grounds’”¹⁷ for Dr. Henderson’s testimony that the alternative design would have prevented Plaintiff’s accident; specifically, Defendants claim Dr. Henderson’s testimony “constitutes nothing more than unsupported speculation” because he “has no specific information about where the plaintiff was standing in relation to the heater, but rather he had to test a range of possibilities with regard to the heat and distance to support his flawed opinions.” *Id.* at 15-22; *see id.* at 20 (“Because Dr. Henderson does not have any evidence to indicate the circumstances by which Ms. Marshall’s clothing ignited, he cannot say to a reasonable degree of scientific certainty that the alternative design would have prevented this accident.”). Additionally, at the hearing in this matter, Defendants lodged challenges to Dr. Henderson’s qualifications and the relevance of his testimony, which are discussed below. *See* Tr., ECF

¹⁷ *See Daubert*, 509 U.S. at 590 (stating an expert’s “[p]roposed testimony must be supported by appropriate validation—*i.e.*, ‘good grounds,’ based on what is known”).

No. 75 at 35-51, 63-64.

In response, Plaintiff argues that Dr. Henderson is qualified and that his testimony is sufficiently reliable and relevant. Pl.'s Resp., ECF No. 58 at 7-9; Tr., ECF No. 75 at 51-59, 63-64. Contending the Court should not countenance Defendants' "divide and conquer strategy as to these collaborating experts [Dr. Henderson and Dr. Durig]," Plaintiff acknowledges "Dr. Henderson's lack of familiarity with ANSI standards" but asserts it is proper for Dr. Henderson to rely on the facts, data, and conclusions of Dr. Durig to form an opinion on the Heater's design flaws, alternative design, and causation issues. *Id.* at 8. Additionally, Plaintiff contends the alternative guard designed by Dr. Henderson and Dr. Durig has not merely been conceptualized but has actually been fabricated in conformity with applicable industry and national safety standards, and that any disagreement between Plaintiff's experts and Mr. Dudden is fodder for cross-examination but not a sufficient basis to exclude testimony under *Daubert*. *Id.* at 9-14. Finally, Plaintiff argues Dr. Henderson's testimony is sufficiently grounded in fact because it is based on Dr. Durig's opinions regarding fire cause and origin as well as Dr. Henderson's own temperature and cloth ignition testing. *Id.* at 15-16.

a. Qualifications

Before a witness may be permitted to provide expert testimony, he must be qualified as an expert. Fed. R. Evid. 702.¹⁸ A person may qualify to give expert testimony through either knowledge, skill, experience, training, or education. *Id.* "Where the expert's qualifications are challenged, the test for exclusion is a strict one, and the purported expert must have neither satisfactory knowledge, skill, experience, training nor education on the issue for which the opinion is proffered." *Kopf v. Skyrms*, 993

¹⁸ The qualification of experts in diversity actions is controlled by the Federal Rules of Evidence. *Martin v. Fleissner GmbH*, 741 F.2d 61, 64 (4th Cir. 1984) (citing *Robbins v. Whelan*, 653 F.2d 47, 52 (1st Cir. 1981)).

F.2d 374, 377 (4th Cir. 1993). “The Fourth Circuit has held that a district court should be reluctant to exclude a witness on the basis of qualifications. Moreover, the trial court should not hold a proffered expert to the highest standard of knowledge[.]” *Nucor Corp. v. Bell*, No. C/A 206-CV-02972-DCN, 2008 WL 4442571, at *9 (D.S.C. Jan. 11, 2008) (internal citations omitted). “This liberal approach to qualifications under Rule 702 reflects the common-sense notion that a jury can adequately determine how much weight to assign a witness’s testimony according to the quantity and quality of his or her education, knowledge, skill, experience, and training.” *Id.*

“One knowledgeable about a particular subject need not be precisely informed about all details of the issues raised in order to offer an opinion.” *Id.* “[L]ack of direct experience is not a sufficient basis to reject [a proposed expert’s] testimony but may affect the weight that testimony is given.’ Experts may testify concerning applications of their specialized knowledge.” *Yates v. Ford Motor Co.*, No. 5:12-CV-752-FL, 2015 WL 3448905, at *5 (E.D.N.C. May 29, 2015) (alterations in original) (internal citation omitted) (quoting *Martin v. Fleissner GmbH*, 741 F.2d 61, 64 (4th Cir. 1984), a case involving the qualifications of experts who testified about design defects). “In a products liability action, an expert witness is not strictly confined to his area of practice, but may testify concerning related applications.” *Id.* (quoting *Wheeler v. John Deere Co.*, 935 F.2d 1090, 1100 (10th Cir. 1991)). “[A] lack of specialization does not affect the admissibility of the opinion, but only its weight.” *Wheeler*, 935 F.2d at 1100 (10th Cir. 1991) (collecting cases).

“While the fit between an expert’s specialized knowledge and experience and the issues before the court need not be exact, *see Wheeler*, 935 F.2d at 1101 (lack of perfect fit will go to the weight not the admissibility of expert testimony), an expert’s opinion is helpful to the trier of fact, and therefore relevant under Rule 702, ‘only to the extent the expert draws on some special skill, knowledge or

experience to formulate that opinion; the opinion must be an expert opinion (that is, an opinion informed by the witness' expertise) rather than simply an opinion broached by a purported expert.” *Shreve v. Sears, Roebuck & Co.*, 166 F. Supp. 2d 378, 392-93 (D. Md. 2001) (quoting *Ancho v. Pentek Corp.*, 157 F.3d 512, 518 (7th Cir. 1998)). “The fact that a proposed witness is an expert in one area, does not *ipso facto* qualify him to testify as an expert in all related areas.” *Id.* at 391. “As *Daubert* and *Kumho Tire* make clear, ‘the [trial court’s] gatekeeping inquiry must [therefore] be ‘tied to the facts’ [and issues] of the particular ‘case.’” *Id.* at 393 (alterations in original) (quoting *Kumho*, 526 U.S. at 150).

Defendants argue Dr. Henderson is not qualified to testify as to the alternative guard design. *See Tr.*, ECF No. 75 at 36-41, 50-51. They acknowledge Dr. Henderson, as a chemist, is qualified to testify about his thermal testing, but contend he is not qualified to give an opinion about the alternative guard design because he lacks the requisite mechanical engineering expertise. *Id.*

The Court has reviewed Dr. Henderson’s qualifications and finds he is qualified to testify as proposed in his expert designation. *See Henderson Report*, ECF No. 21-3. Dr. Henderson holds a Ph.D. in chemistry from Louisiana State University, is certified as a fire investigator by two national associations, is a certified professional chemist, and has held memberships in various national and international chemical and fire associations. *Id.* at 2, 8. He has investigated fires for approximately thirty years, has investigated numerous gas incidents, and has published various articles relating to combustion temperatures of flammable materials. *Id.* at 2, 12-14. Besides testing the temperature profiles of the subject Heater at issue, he has tested the temperature profiles of other propane tank top heaters. *Id.* Significantly, Dr. Henderson has been qualified as a design expert in another federal case involving a portable kerosene heater alleged to be defective and unreasonably dangerous. *See Cooper*

v. Toshiba Home Tech. Corp., 76 F. Supp. 2d 1269, 1275-79 (M.D. Ala. 1999).

Defendants take great issue with the fact that Dr. Henderson is not a mechanical engineer, and they argue he cannot render an opinion as to whether the Heater was defective and unreasonably dangerous, an opinion they assert requires mechanical engineering expertise. *See, e.g.*, Tr. at 36-37. However, review of Plaintiff's complaint shows the alleged unreasonably dangerous condition is the extremely high temperatures associated with the Heater and the lack of a sufficiently large enough safety guard or cover to prevent instantaneous clothing ignition. *See* Compl. at ¶ 22. One of the proper types of expert testimony needed to prove such an unreasonably dangerous condition is the opinion of a person skilled in measuring temperatures and conducting ignition tests. Dr. Henderson has knowledge, skill, experience, training, and education in measuring temperature profiles and conducting ignition tests, as Defendants conceded at the hearing. *See* Tr., ECF No. 75 at 39 ("THE COURT: He's certainly qualified to testify about the - - his testing, his thermal testing, his ignition testing, and the temperatures and the ignitions, all those tests results, he's certainly competent to testify to that. ATTORNEY LAFFITTE: Absolutely."). He therefore has the requisite expertise for opining whether the extremely high temperatures in the vicinity of the GHP guard were unreasonably dangerous and capable of rapidly igniting clothing materials, and for opining whether the much lower temperatures in the vicinity of the alternative guard prevent such ignition.¹⁹ These opinions address and are relevant to the ultimate issue in Plaintiff's alleged design defect claim: whether the design of the GHP guard, which created the risk

¹⁹ To the extent Defendants contend a mechanical engineer such as Dr. Durig is the proper type of expert to testify about the alleged design defect, *see* Tr. at 36-37, the Court reiterates the alleged unreasonably dangerous condition is the extremely high temperatures in the vicinity of the GHP guard. Dr. Durig does not possess the requisite expertise in thermal measurements to give such an opinion, and that is why Dr. Henderson has been retained to offer an opinion as to the unreasonably dangerous condition: thermal temperatures at or near the top center of the GHP guard capable of igniting cotton fabric. *See Shreve*, 166 F. Supp. 2d at 391 ("[T]here are many different kinds of experts, and many different kinds of expertise." *Kumho Tire*, 526 U.S. at 150. The fact that a proposed witness is an expert in one area, does not *ipso facto* qualify him to testify as an expert in all related areas.").

of extremely high temperatures at or near the top of the GHP guard that can ignite clothing materials in close proximity, caused the Heater to be in an unreasonably dangerous condition.²⁰ The Court finds Dr. Henderson has the requisite expertise to testify about (a) thermal temperature measurements relating to the Heater, the GHP guard, and the alternative guard, (b) fabric ignition testing, and (c) the dangers posed by temperatures associated with the Heater. He is therefore qualified to testify whether the Heater was defectively designed and unreasonably dangerous as the result of extremely high temperatures present in the vicinity of the GHP guard capable of instantaneously igniting clothing materials.

b. Reliability

The first prong of the *Daubert* inquiry requires the Court to examine whether the reasoning or methodology underlying Dr. Henderson’s proffered opinion is sufficiently reliable—“that is, whether it is supported by adequate validation to render it trustworthy.” *Westberry*, 178 F.3d at 260. The Court finds Dr. Henderson’s proffered expert opinions are sufficiently reliable to warrant their admission at trial.

Regarding Defendants’ arguments that the alternative guard design is not final and fails to comport with ANSI standards, the Court rejects those arguments for the reasons explained in its above analysis of Defendants’ motion to exclude Dr. Durig’s testimony. As for Defendants’ argument that Dr. Henderson is not familiar with the ANSI standards applicable to the Heater and the alternative guard, the Court notes Dr. Henderson and Dr. Durig collaborated to create an alternative feasible design for the front guard on the Heater. As mentioned above, Dr. Durig had Thermal Engineering fabricate a prototype of the alternative guard using stainless steel wire similar to that used in the GHP guard, and

²⁰ Dr. Henderson’s opinion is not objectionable simply because it embraces an ultimate issue. *See Fed. R. Evid. 704(a).*

he conducted tilt testing in accordance with ANSI 83.7-2011 to verify the heavier alternative guard could be affixed to the Heater without causing the Heater to tip over. Dr. Henderson and Dr. Durig designed the alternative guard together, with Dr. Henderson using his chemical expertise to measure temperatures and determine the larger dimensions needed for the alternative guard and with Dr. Durig sketching the guard *based on Dr. Henderson's temperature measurements*. It is proper for Dr. Henderson to opine whether the Heater has an unreasonably dangerous design defect by relying on his temperature and ignition testing *and* by relying on Dr. Durig's data and conclusions regarding the alternative guard, which the Court has already found sufficiently reliable for admission. *See* Fed. R. Evid. 703 (stating “[a]n expert may base an opinion on facts or data in the case that the expert has been made aware of”); *RG Steel Sparrows Point, LLC v. Kinder Morgan Bulk Terminals, Inc.*, 609 F. App'x 731, 739 (4th Cir. 2015) (“Although [the expert] relied on information provided by other witnesses at trial to devise his formula, the Federal Rules of Evidence specifically authorized him to do so. *See* Fed. R. Evid. 703.”); *Barris v. Bob's Drag Chutes & Safety Equip., Inc.*, 685 F.2d 94, 101 n.10 (3d Cir. 1982) (“Under Rule 703, an expert's testimony may be formulated by the use of the facts, data and conclusions of other experts.”); *Casey v. Geek Squad® Subsidiary Best Buy Stores, L.P.*, 823 F. Supp. 2d 334, 344 (D. Md. 2011) (recognizing an expert's opinion may be based on “the reliable opinions of other experts” (quoting Fed. R. Evid. 702 Advisory Committee Note); *Asad v. Cont'l Airlines, Inc.*, 314 F. Supp. 2d 726, 740 (N.D. Ohio 2004) (finding one expert “properly relied on [another] expert[']s opinion in expressing his own opinion on causation”). Any alleged weaknesses in Dr. Henderson's dependence on Dr. Durig's opinions under Rule 703 go to the weight of the evidence rather than its admissibility, and are matters for cross-examination rather than exclusion.

Finally, the Court finds no merit in Defendants' argument that Dr. Henderson's testimony is

“unsupported speculation” because he has no basis on which to determine how close Plaintiff was to the Heater or how the fire began. Dr. Henderson’s temperature and ignition testing is “ground[ed] in the methods and procedures of science,” *Daubert*, 509 U.S. at 590, and these tests—conducted in accordance with NFPA 921—enabled him to develop his hypothesis that the extreme temperatures present at or near the GHP guard are capable of rapidly igniting cloth materials such as the cotton shirt that Plaintiff was wearing at the time of the incident. Although Defendants claim Plaintiff cannot conclusively testify how her clothing became on fire, Dr. Henderson is not going to testify about the cause and origin of the fire (that is Dr. Durig’s task). Instead, his testimony regarding temperature and ignition will enable the jury to determine whether Plaintiff has proven the allegedly defective GHP guard on the Heater could have ignited cotton fabric.²¹ Accordingly, the Court finds Plaintiff has satisfied the reliability prong of *Daubert*.

c. Relevancy

The second prong of the *Daubert* inquiry requires the Court to determine whether Dr. Henderson’s proffered opinion is relevant to the facts at issue. *See Westberry*, 178 F.3d at 260. “Evidence is relevant if: (a) it has any tendency to make a fact more or less probable than it would be without the evidence; and (b) the fact is of consequence in determining the action.” Fed. R. Evid. 401. In South Carolina, a plaintiff alleging a design defect claim must show “the product, as designed, was in a defective condition unreasonably dangerous to the user when it left the control of the defendant, and the defect caused his injuries.” *Madden v. Cox*, 284 S.C. 574, 579-80, 328 S.E.2d 108, 112 (Ct.

²¹ To survive summary judgment on proximate cause, Plaintiff must present evidence from which a jury could conclude the GHP guard did not extend far enough away from the reflector/burner and thus did not protect users from temperatures sufficient to quickly ignite common clothing such as cotton, and that this defect was the proximate cause of Plaintiff’s burn injuries. *See Bray v. Marathon Corp.*, 356 S.C. 111, 116, 588 S.E.2d 93, 95 (2003) (“A products liability plaintiff must prove the product defect was the proximate cause of the injury sustained.”). Dr. Henderson’s testimony will enable Plaintiff to do that.

App. 1985). “[I]n a product liability design defect action, the plaintiff must present evidence of a reasonable alternative design. ***The plaintiff will be required to point to a design flaw in the product and show how his alternative design would have prevented the product from being unreasonably dangerous.*** This presentation of an alternative design must include consideration of the costs, safety and functionality associated with the alternative design.” *Branham*, 390 S.C. at 225, 701 S.E.2d at 16 (2010) (emphasis added).

The Court finds Dr. Henderson’s testimony is relevant. Dr. Henderson’s *design flaw* testimony—that the excessively high temperatures present at or near the top of the GHP guard can ignite cotton fabric within a few seconds—will help the jury understand the allegedly flawed design of the GHP guard and thereby help the jury determine whether the GHP guard created an unreasonably dangerous condition for users of the Heater. Likewise, Dr. Henderson’s *alternative design* testimony—that the alternative guard (which extends three to four inches from the top center of the reflector shield) can sufficiently protect users from dangerous temperature levels present at or near the top center of the GHP guard that are capable of rapidly igniting cotton—will help the jury understand how the alternative design would have prevented the Heater from being unreasonably dangerous. Dr. Henderson’s testimony is therefore relevant because it tends to make the existence of both (1) an unreasonably dangerous condition and (2) an alternative design more or less probable than it would be without the evidence. His testimony is also relevant because it enables Plaintiff to establish her design defect claim using a risk-utility analysis by showing an alternative feasible design. Accordingly, the Court finds Plaintiff has satisfied the relevancy prong of *Daubert*.

d. Similar Case

The Court’s rulings regarding the qualifications of Dr. Henderson and the sufficient reliability

and relevancy of his testimony find support in a somewhat factually analogous scenario in the case of *Santoro ex rel. Santoro v. Donnelly*, 340 F. Supp. 2d 464 (S.D.N.Y. 2004). In *Santoro*, the plaintiffs brought a products liability action alleging, among other claims, a defect in the design of a gas fireplace heater that severely burned a one-year old child who touched the glass panel covering the heater.²² 340 F. Supp. 2d at 469-71, 487. The plaintiffs presented evidence including: (1) the fireplace heater was unreasonably dangerous because the glass panel “reaches temperatures of up to 432 degrees Fahrenheit in the center and 260 degrees Fahrenheit in the corners; (2) “that at high enough temperatures, people can sustain second or third degree burns within seconds of contact with a hot surface”; and (3) “the fireplace heater did not come equipped with guards to prevent accidental contact with the glass.” *Id.* at 487. The plaintiffs retained a design expert who planned to testify, among other opinions,²³ “that the fireplace heater presented an unreasonable risk of contact burns” and that the unsafe condition of the fireplace heater was the direct cause of the child’s injuries. *Id.* at 477, 479-80, 483.

The defendant manufacturer of the gas fireplace heater filed a *Daubert* motion to exclude the design expert’s testimony. *Id.* at 472, 477-83. The district court denied the motion, finding the expert was qualified and that his testimony was sufficiently reliable and relevant. *Id.* at 477-83. First, as to the expert’s qualifications, the court noted he had a bachelor’s degree in chemical engineering, had extensive experience with gas-fired consumer appliances, and could “make himself an expert on

²² The district court applied New York law to the design defect claim. *Id.* at 484-85, 487-88. Like South Carolina law, New York law requires application of the risk-utility test with the required showing of a feasible alternative design. *Id.* at 484-85.

²³ The expert provided other opinions not relevant here. *Id.* at 477, 480-82. The district court did exclude one of those opinions, namely that the fireplace heater was defective due to the lack of guards. *Id.* at 481. The court found the expert’s opinion “is not sufficiently reliable because his methodology is not sufficiently trustworthy,” noting the expert based his opinion in part on a cost-benefit report concerning the cost of adding a panel screen or warning label to the fireplace heater, *which was written by an individual whose resume made no mention of educational background* and listed only two years of work experience as a consultant. *Id.* Such a situation is not present in the current case before this Court.

fireplace heaters through reading, calculations, and reasoning from known scientific principles.” *Id.* at 477-78 (internal quotation marks omitted). Next, the court found the expert’s opinion “that the fireplace heater presents an unreasonable risk of contact burns, even though it meets ANSI standards” was sufficiently reliable, citing the expert’s “temperature-time response curve, which depicts the contact time it would take for a person to develop second or third degree burns at specific surface temperatures.” *Id.* at 478-80. Finally, the court found the expert’s opinion regarding the contact burn hazard was relevant because it went “to the issues of the dangerousness of the product and the negligence of the manufacturer and installer.” *Id.* at 483. The district court subsequently denied the defendant’s motion for summary judgment on the design defect claim. *Id.* at 487-88, 493.

Like the design expert in *Santoro*, who was not a mechanical engineer, Dr. Henderson’s expertise in chemistry enabled him to take temperature readings and obtain thermal test results relating to the GHP guard and the alternative guard. He is qualified, and his opinions are sufficiently reliable, relevant, and helpful to the trier of fact.

For the foregoing reasons, the Court **DENIES** Defendants’ motion to exclude the expert testimony of Dr. Henderson.

B. Plaintiff’s Motion to Exclude the Expert Testimony of Mr. Dudden

Plaintiff moves to exclude the expert testimony of Allen W. Dudden, P.E., who Defendants have retained to rebut the opinions of Dr. Henderson and Dr. Durig. *See* Pl.’s Motion to Exclude Dudden Testimony, ECF No. 55. Plaintiff argues Mr. Dudden is not qualified to render an expert opinion and that his testimony should be excluded as unreliable under *Daubert* and Federal Rule of Evidence 702.²⁴

According to his resume, Mr. Dudden is a “Professional Engineer in the State of California in

²⁴ Plaintiff does not challenge the relevancy of Mr. Dudden’s testimony.

the field of Safety (SF1434)” and a “Certified Gas Engineer (CGE 093).” Dudden Report, ECF No. 25-1 at 18. He has worked for Gas and Mechanical, LLC in Missoula, Montana, since 1966. *Id.* He spent three years working towards a mechanical engineering degree at California State Polytechnic College, but did not complete his studies because he was drafted into the military. Dudden Dep., ECF No. 65-1 at 9. He has given depositions and court testimony in cases involving various types of commercial and residential appliances, both oil and gas-fired. Dudden Report, ECF No. 25-1 at 20-22. At his deposition, Mr. Dudden testified he has “been deposed many times[,] . . . in excess of 35 to 40 times” and has testified at trial as a fossil fuel appliance expert “in excess of . . . 25 times.” Dudden Dep., ECF No. 65-1 at 2-3. He admitted that before becoming involved in this case, he had no specific experience with tank top construction heaters. Dudden Dep., ECF No. 55-2 at 2.

In preparing his report, Mr. Dudden reviewed ANSI and NFPA standards, Plaintiff’s complaint, Dr. Durig’s report, Dr. Henderson’s report, Dr. Ornstein’s report, and various other documents and industry regulations. Dudden Report, ECF No. 25-1 at 1-3. Mr. Dudden examined an exemplar model of the Heater and the prototype alternative guard (the one designed by Dr. Durig and Dr. Henderson), and he conducted tilt testing and fabric ignition testing of the Heater when equipped with the alternative guard. *Id.* at 13-16. Regarding the ignition testing, Mr. Dudden noted there is no clothing ignition potential test in ANSI Z83.7 (the standard for gas-fired construction heaters), which he states is the standard applicable to the Heater. *Id.* at 15-16. Nevertheless, Mr. Dudden conducted clothing ignition potential tests on the alternative guard by applying the ANSI Z21 and UL 647 standards; and he determined that when cheesecloth was placed over the complete Heater when equipped with the alternative guard, it ignited and thus failed the clothing ignition potential test of ANSI Z21 and UL 647. *Id.* Based on his investigation and testing of the Heater and alternative guard, Mr. Dudden offers,

among others, the following opinions:

- (1) The Heater—as manufactured with the GHP guard—was safe because it met or exceeded the ANSI Z83.7-2009 standard for gas-fired construction heaters, was not defectively designed, and did not fail to operate properly.
- (2) The prototype alternative guard does not comply with the ANSI Z83.7-2009 standard for gas-fired construction heaters.
- (3) Plaintiff’s use of the Heater was improper and unsafe. Specifically, Plaintiff misused the Heater—which is for construction use—by operating it in a small business that was neither under construction nor being altered or repaired. The proper type of heater should have been an unvented room heater, not a construction heater.

Id. at 17.

1. Qualifications

Plaintiff contends Mr. Dudden is not qualified to testify as an expert or to render any opinions. Pl.’s Mem., ECF No. 55-1 at 7-12. She claims Mr. Dudden cannot definitively specify his area of expertise in this case other than to generally aver he is ““an appliance expert.”” *Id.* (quoting Dudden Dep., ECF No. 55-2 at 6). She argues he lacks an engineering degree, has no experience in designing or manufacturing tank top propane heaters, has never provided testimony involving such heaters, and that prior to this case had never tested any appliance for compliance with ANSI Z83.7 standards. *Id.* at 8-9. She contends the mere fact that Mr. Dudden is a licensed engineer does not automatically qualify him to testify as an expert about a product with which he has never worked or about a standard he has never tested. *Id.* at 9-10.

In response, Defendants argue Mr. Dudden is qualified to testify despite not having a formal

degree in engineering. Defs.' Resp., ECF No. 65 at 2-6. They point out he is a licensed professional engineer in California and a certified gas engineer, and has more than forty-eight years of experience with all types of fossil fuel appliances. *Id.* at 2-3. Defendants acknowledge Mr. Dudden had never worked with the Heater at issue prior to becoming involved in this case, but contend this fact itself does not preclude him from being qualified as an expert, given that he has consulted and testified in numerous other cases involving similar kinds of heaters, other gas appliances, and other ANSI standards. *Id.* at 3-6.

The Court finds Mr. Dudden is qualified to offer expert opinions in this case. As Defendants acknowledge, Mr. Dudden has never obtained a formal degree in engineering but that fact alone does not automatically preclude him from being qualified as an expert. *See* Fed. R. Evid. 702 advisory committee's note (stating "the expert is viewed, not in a narrow sense, but as a person qualified by 'knowledge, skill, experience, training or education'" (emphasis added)); *see, e.g., Harper v. Pub. Serv. Comm'n of W. Virginia*, No. 2:03-CV-00516, 2006 WL 5249719, at *2 (S.D.W. Va. Feb. 16, 2006) ("Regarding [the proffered expert witness], Rule 702 explicitly provides that a witness is qualified as an expert by 'knowledge, skill, experience, training, or education[,]'" Fed. R. Evid. 702, and as such, the fact that he does not possess a degree in economics does not automatically disqualify him as an expert."). Mr. Dudden has extensive experience working with various gas appliances, including gas-fueled "overhead radiant-type heaters," "patio-type . . . gas fired" heaters, tank top catalytic heaters mounted on propane tanks, and various other types of radiant heaters fired by oil, propane, and other gases. Dudden Report, ECF No. 25-1 at 20-22; Dudden Dep., ECF No. 65-1 at 3, 5-8, 12. As explained

above,²⁵ the Fourth Circuit Court of Appeals has expressly rejected the notion that an expert is not qualified to testify merely because he has no prior experience with the particular product at issue. *See Friendship Heights Associates v. Vlastimil Koubek, A.I.A.*, 785 F.2d 1154, 1159 (4th Cir. 1986); *Garrett v. Desa Indus., Inc.*, 705 F.2d 721, 724-25 (4th Cir. 1983). Similarly, although Mr. Dudden has never worked with the exact ANSI standard applicable to the Heater, he is still qualified to testify about this standard because he has a background in testing fossil fuel appliances subject to various other ANSI standards. Mr. Dudden testified he has tested industrial, commercial, and residential appliances and their applicable ANSI standards for nearly fifty years. Dudden Dep., ECF No. 65-1 at 10-11. Accordingly, the Court finds he has the requisite knowledge, skill, and experience to aid the jury in understanding the highly technical evidence in this case. *See Fed. R. Evid. 702.*

2. Reliability

Plaintiff argues the Court should exclude or limit Mr. Dudden's testimony regarding testing of the Heater and the ANSI standards because these opinions are unreliable and lack a sufficient factual basis. Pl.'s Mem., ECF No. 55-1 at 12-18. Plaintiff claims Mr. Dudden applied the incorrect ANSI standard in forming his opinion about the alternative guard design and the related tilt test. *Id.* at 13-15. Additionally, Plaintiff contends Mr. Dudden's opinions arising from his fabric ignition testing are unreliable and not based on sufficient data. *Id.* at 16.

In response, Defendants maintain Plaintiff's arguments are meritless. Defs.' Resp., ECF No. 65 at 6-8. They argue Plaintiff "essentially asserts that Mr. Dudden is not qualified to testify because his testimony contradicts her experts. This is obviously not any basis to exclude his testimony." *Id.* at

²⁵ The Court notes Plaintiff's arguments mirror many of the arguments that Defendants made in their motions to exclude Plaintiff's experts. The Court reject these arguments for the same reasons explained in its analysis of Defendants' motions.

8.

The Court finds Mr. Dudden's proffered opinions are sufficiently reliable to warrant their admission at trial. Plaintiff's challenges to Mr. Dudden's proposed testimony all go to its weight, not its admissibility. Plaintiff can cross-examine Mr. Dudden about his application of the pertinent ANSI standard(s), his opinions on the alternative design, his tilt test, and his fabric ignition testing. Plaintiff cannot, however, properly seek exclusion of such opinions simply because they conflict with those of her experts. *See Smith v. Ortho Pharm. Corp.*, 770 F. Supp. 1561, 1569 (N.D. Ga. 1991) ("Conflicts in expert testimony typically go to the weight rather than the admissibility of expert opinions. The weighing of one expert's testimony against another is a function which must ordinarily remain the responsibility of the fact finder. Thus, generally, it is for the jury with the assistance of vigorous cross-examination to measure the worth of conflicting expert opinions." (citing *Singer Co. v. E. I. du Pont de Nemours & Co.*, 579 F.2d 433, 443 (8th Cir. 1978))).

For the foregoing reasons, the Court **DENIES** Plaintiff's motion to exclude the expert testimony of Mr. Dudden.

II. Defendants' Motion for Summary Judgment

Defendants move for summary judgment on the design defect claim that Plaintiff has brought under theories of strict liability, negligence, and breach of warranty.

A. Summary Judgment Standard

Summary judgment is appropriate when no genuine issue of material fact exists and the moving party is entitled to judgment as a matter of law. *Reyazuddin v. Montgomery Cty., Md.*, 789 F.3d 407, 413 (4th Cir. 2015); *see* Fed. R. Civ. P. 56(a) ("The court shall grant summary judgment if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as

a matter of law.”). “A party asserting that a fact cannot be or is genuinely disputed must support the assertion by: (A) citing to particular parts of materials in the record . . . ; or (B) showing that the materials cited do not establish the absence or presence of a genuine dispute, or that an adverse party cannot produce admissible evidence to support the fact.” Fed. R. Civ. P. 56(c)(1). The facts and inferences to be drawn from the evidence must be viewed in the light most favorable to the non-moving party, *Reyazuddin*, 789 F.3d at 413, but the Court “cannot weigh the evidence or make credibility determinations.” *Jacobs v. N.C. Admin. Office of the Courts*, 780 F.3d 562, 569 (4th Cir. 2015).

Moreover, “the mere existence of *some* alleged factual dispute between the parties will not defeat an otherwise properly supported motion for summary judgment; the requirement is that there be no *genuine* issue of *material* fact.” *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 247-48 (1986). “A dispute of material fact is ‘genuine’ if sufficient evidence favoring the non-moving party exists for the trier of fact to return a verdict for that party.” *Seastrunk v. United States*, 25 F. Supp. 3d 812, 814 (D.S.C. 2014). A fact is “material” if proof of its existence or nonexistence would affect disposition of the case under the applicable law. *Anderson*, 477 U.S. at 248.

At the summary judgment stage, “the moving party must demonstrate the absence of a genuine issue of material fact. Once the moving party has met his burden, the nonmoving party must come forward with some evidence beyond the mere allegations contained in the pleadings to show that there is a genuine issue for trial.” *Baber v. Hosp. Corp. of Am.*, 977 F.2d 872, 874-75 (4th Cir. 1992) (internal citation omitted). Summary judgment is not warranted unless, “from the totality of the evidence, including pleadings, depositions, answers to interrogatories, and affidavits, the [C]ourt believes no genuine issue of material fact exists for trial and the moving party is entitled to judgment as a matter of law.” *Whiteman v. Chesapeake Appalachia, L.L.C.*, 729 F.3d 381, 385 (4th Cir. 2013);

see also *Celotex Corp. v. Catrett*, 477 U.S. 317, 322-23 (1986).

B. Analysis

Plaintiff asserts four causes of action against both Defendants: strict liability, negligence, negligence per se, and breach of express and implied warranties. Compl. at ¶¶ 18-38.

Under South Carolina law, a plaintiff may bring a products liability claim under several theories, including strict liability, negligence, and breach of warranty, which Plaintiff has done in this case. See *Rife v. Hitachi Const. Mach. Co.*, 363 S.C. 209, 215, 609 S.E.2d 565, 568 (Ct. App. 2005). Regardless of the theory on which Plaintiff seeks recovery, she must prove the following three elements: (1) she was injured by the Heater; (2) the Heater, at the time of the accident, was in essentially the same condition as when it left the hands of the Defendants; and (3) the injury occurred because the Heater was in a defective condition unreasonably dangerous to the user. See *Branham*, 390 S.C. at 210, 701 S.E.2d at 8 (citing *Madden*, 284 S.C. at 579, 328 S.E.2d at 112).

A plaintiff in a products liability lawsuit can allege three types of defects: (1) a manufacturing defect, (2) a design defect, and (3) a warning defect. *Watson*, 389 S.C. at 444, 699 S.E.2d at 174. In this case, Plaintiff is pursuing a design defect claim against Defendants.²⁶ “When a design defect claim is made, a plaintiff alleges that the product at issue was defectively designed, thus causing an entire line of products to be unreasonably dangerous.” *Id.*

1. Strict Liability Claim for Design Defect

Plaintiff asserts a strict liability claim against both Defendants for the allegedly defective design of the guard on the Heater. Compl. at ¶¶ 18-25.

²⁶ Although Plaintiff initially pursued both a design defect claim and a warning defect claim, she withdrew the warning defect claim at the hearing in this matter and confirmed she was proceeding solely on a design defect theory. Tr., ECF No. 75 at 1-4.

To recover under a strict liability theory, Plaintiff must establish that (1) she was injured by the Heater; (2) the Heater, at the time of the accident was in essentially the same condition as when it left the hands of the Defendants, who were engaged in the business of selling such a product; and (3) the injury occurred because the Heater was in an unreasonably dangerous, defective condition. *See Anderson v. Green Bull, Inc.*, 322 S.C. 268, 270, 471 S.E.2d 708, 710 (Ct. App. 1996). In the strict liability context, “[t]he focus here is on the condition of the product, without regard to the action of the seller or manufacturer.” *Bragg*, 319 S.C. at 540, 462 S.E.2d at 326. As noted above, Plaintiff alleged a *design* defect in the front guard covering the Heater created an unreasonably dangerous condition.

a. Adequate Warnings

Defendants argue Plaintiff’s design defect claim fails as a matter of law because the Heater was supplied with adequate warnings and because Plaintiff has produced no evidence that these warnings were deficient. Defs.’ Mem., ECF No. 47-1 at 16-18. As previously mentioned, Plaintiff has abandoned and withdrawn her warning defect claim and is proceeding solely on a design defect claim; Defendants assert that as a result of her abandoning the warning defect claim, Plaintiff cannot go forward on her other claims. Tr., ECF No. 75 at 90-91.

Defendants’ argument relies on comment j to section 402A of the *Restatement (Second) of Torts* and several cases interpreting comment j.²⁷ *Id.* at 17. Comment j provides in relevant part: “Where warning is given, the seller may reasonably assume that it will be read and heeded; and a product bearing such a warning, which is safe for use if it is followed, is not in defective condition, nor is it

²⁷ By statute, South Carolina has adopted verbatim section 402A of the *Restatement (Second) of Torts* and incorporated by reference the comments to section 402A. *See* S.C. Code Ann. §§ 15-73-10, -30 (2005).

unreasonably dangerous.” *Restatement (Second) of Torts* § 402A cmt. j (1965).²⁸ Defendants point out the South Carolina Court of Appeals has applied comment j and held “a defendant is not liable for a design defect in a product if the product is accompanied by adequate warnings.” *Curcio v. Caterpillar, Inc.*, 344 S.C. 266, 275 n.10, 543 S.E.2d 264, 269 n.10 (Ct. App. 2001) (“*Curcio I*”) (citing *Allen v. Long Mfg. NC, Inc.*, 332 S.C. 422, 427, 505 S.E.2d 354, 357 (Ct. App. 1998), and *Anderson*, 322 S.C. at 270, 471 S.E.2d at 710), *rev’d on other grounds*, 355 S.C. 316, 585 S.E.2d 272 (2003) (“*Curcio II*”); *see also Aldana v. RJ Reynolds Tobacco Co.*, No. CIV.A. 2:06-3366-CWH, 2008 WL 1883404, at *1 (D.S.C. Apr. 25, 2008) (citing comment j and *Curcio I* and rejecting the plaintiff’s argument “that an adequate warning does not preclude liability for a defective design claim”).²⁹

²⁸ Professor David G. Owen wrote two excellent articles discussing the ambiguity and confusion generated by the last sentence in comment j (quoted above). *See* David G. Owen, *The Puzzle of Comment j*, 55 *Hastings L.J.* 1377 (2004); David G. Owen, *Warnings Don’t Trump Design: The Rise and Fall of § 402A Comment j*, 153 *Products Liability Advisory* 1 (Nov. 2001). Professor Owen expounded upon the proper application of comment j in design defect cases, stating, “[B]ecause warnings reduce the risk of injury from design hazards, the presence of a warning is one factor—sometimes an important one—to be balanced in the calculus of considerations involved in a determination of design defectiveness. Stated otherwise, in balancing the risk factors relevant to design defectiveness, a trier of fact should consider among other factors whether the design hazard was obvious, warned about, or generally known.” Owen, *The Puzzle of Comment j*, at 1395-96. Moreover, the United States Court of Appeals for the Fourth Circuit recently cited Professor Owens’s discussion of comment j and emphasized a jury question can still arise regarding whether a product was defectively designed, even in the face of allegedly adequate warnings. *See Eskridge v. Pac. Cycle, Inc.*, 556 F. App’x 182, 188-89 (4th Cir. 2014) (applying West Virginia law).

²⁹ Defendants cited these cases in their supporting memorandum. *See* Defs.’ Mem., ECF No. 47-1 at 17. At the hearing, counsel for Defendants referred to these cases and argued “there is a line of cases that we cited in our brief about product[s] accompanied by adequate warnings cannot be considered defective.” The Court asked, “[S]o you’re saying the other claims are all dependent on a warning claim?”; and counsel for Defendants responded, “Well there are a couple of South Carolina cases that do say that” Tr., ECF No. 75 at 90-91. The Court asked counsel for Plaintiff to address Defendants’ argument. *Id.* at 92. Counsel for Plaintiff asserted, “[I]f the case law is to be interpreted the way the defendants read it, that means any design defect claim in South Carolina would be predicated on [a] successful warnings claim. . . . We interpret the case law to say that a product is made safe by an adequate warning where the warning can actually be effective[.]” *Id.*

Contrary to Defendants’ response at the hearing, Plaintiff correctly recognizes a design defect claim is separate and distinct from a warning defect claim. *See* Owen, *Warnings Don’t Trump Design*, *supra* note 24 (“Few principles of modern products liability law are as axiomatic as the nearly universal view that product defectiveness is comprised of three separate types of defect—manufacturing defects, design defects, and warnings (and instructions) defects—each of which has its own standard of liability and its own set of secondary principles. . . . That the three types of defect beget distinct and largely independent obligations would seem to be so obvious as to be beyond dispute.” (internal footnote omitted)); *id.* at n.20 (“Not surprisingly, defense lawyers argue that comment j should

In *Allen v. Long Manufacturing*, one of the cases cited by Defendants, the South Carolina Court of Appeals applied comment j to a design defect claim and stated, “Once it is established that a product must display a warning to be safe, the question of the adequacy of the warning is one of fact for the jury as long as evidence has been presented that the warning was inadequate.” 332 S.C. at 428, 505 S.E.2d at 357. Likewise, the South Carolina Supreme Court has since reiterated, “The adequacy of a warning is generally a jury question.” *Curcio II*, 355 S.C. at 320, 585 S.E.2d at 274 (citing *Allen*, reversing the Court of Appeals’ decision in *Curcio I*, and holding the trial court erred in ruling as a matter of law that the warning was sufficiently adequate to preclude the plaintiff’s design defect claim).

Defendants argue, “[P]laintiff has failed to produce any evidence that establishes that the warnings on the heater were insufficient.” Defs.’ Mem., ECF No. 47-1 at 17. That is simply not true. Plaintiff has presented evidence regarding the adequacy of the Heater’s warnings that creates a genuine issue of material fact. For example, Dr. Henderson states in his expert report:

7. I tested the temperatures reached in proximity to the subject heater In this testing, the heater was lit, and its operation was viewed. I observed the flame at various settings, from High to Low, and found that due to the highly-efficient

be interpreted to mean that providing warnings shields manufacturers from design defect responsibility.”); *Watson*, 389 S.C. at 444, 699 S.E.2d at 174 (“[T]here are three defects a plaintiff in a products liability lawsuit can allege: 1) a manufacturing defect, 2) a warning defect, and 3) a design defect. . . . When a warning defect claim is made, a plaintiff alleges that he was not adequately warned of dangers inherent to a product. When a design defect claim is made, a plaintiff alleges that the product at issue was defectively designed, thus causing an entire line of products to be unreasonably dangerous.”). Comment j and the South Carolina cases interpreting it simply recognize an adequate warning *may* preclude liability for a defective design claim. They do not stand for the proposition that a plaintiff must maintain a warning defect claim to proceed on a design defect claim. *See Owen, Warnings Don’t Trump Design*, *supra* note 24 (“[I]t is abundantly clear that a manufacturer is subject to liability for a product’s manufacturing defects, no matter how clear the product’s warnings may be or how perfect its design; for warning defects, no matter how perfectly the product may be manufactured or how impeccably designed; and for design defects, no matter the quality of its manufacture or the abundance of its warnings.” (internal footnotes omitted)). Although Plaintiff has withdrawn her failure to warn claim (for which she bore the burden to prove the warnings supplied with the Heater were inadequate), such withdrawal of a *warning* defect claim does not preclude her from maintaining a *design* defect claim. Defendants are simply asserting an adequate warning *defense* to Plaintiff’s design defect claim, and they therefore must carry the burden to show the warnings were adequate.

combustion process, although there was a red glow in the mesh screen in the recessed part of the reflector, the flame and hot gases being produced and emitted by the heater were essentially colorless and were not detectable visually. I tested the temperatures present at the grille, and found that they reached levels on the order of 1000 degrees Fahrenheit at the “High” and “Medium” settings, while the temperatures at the “Low” setting were about half that level. These temperatures are easily sufficient to ignite clothing materials, especially those comprised of 100% cotton, like that being worn by Ms. Marshall. ***Other than an impression in the metal at the bottom of the reflector that says “Hot,” and one at the top of the reflector that says “Caution Hot,” there were no notices or markings on the heater advising consumers concerning the extremely high temperatures present in the vicinity of the heater’s grille.***

....

19. It is also my opinion and conclusion that the grille supplied with the subject heater is grossly inadequate to protect the consumer from exposure to those temperature levels. ***In addition, there are no instructions or labeling on the heater informing the user of the extremely high temperatures in the vicinity of the grille, which temperatures can easily ignite cotton and other common clothing materials.***

20. In addition, it is concluded that, ***given the instructions provided by the manufacturer***, the heater cannot be used either for proximity warming from radiant energy, nor for area warming by an increase of the ambient temperatures. Accordingly, the heater does not have utility for its intended purpose.

ECF No. 21-3 at 2-5, 7 (emphases added). Additionally, Dr. Henderson states in his affidavit:

Other than an impression in the metal at the bottom of the reflector that says “Hot,” and one at the top of the reflector that says “Caution Hot,” there were no notices or markings on the heater advising consumers concerning the extremely high temperatures present in the vicinity of the heater’s factory-supplied guard.

ECF No. 59-6 at ¶ 12(d). Dr. Henderson’s statements clearly indicate the warnings supplied with the

Heater were insufficient because they did not forewarn a user of the excessively high temperatures present at or near the GHP guard that can ignite a user's clothing. These statements constitute sufficient evidence of the inadequacy of the warnings to create a genuine issue of material fact to be decided by a jury in relation to Plaintiff's design defect claim. *See Curcio II*, 355 S.C. at 320-21, 585 S.E.2d at 273-74 (finding the plaintiff's expert's testimony created a jury issue as to the adequacy of the warning and holding the issue of whether the product's design was defective should have been submitted to the jury, not decided as a matter of law); *Allen*, 332 S.C. at 429-33, 505 S.E.2d at 358-60 (finding the plaintiff presented "sufficient evidence [by way of expert testimony] of the warning's inadequacy to create a genuine issue of material fact for the jury" and holding "[t]he trial court erred in granting summary judgment based on the warning's legal adequacy"). Accordingly, the Court cannot conclude as a matter of law that the warnings supplied with the Heater were sufficiently adequate to shield Defendants from liability for the alleged design defect. To hold otherwise would require improper weighing of the evidence (i.e., balancing the given warnings versus Dr. Henderson's opinions regarding their alleged insufficiency), and summary judgment is impermissible on this basis.

b. Open and Obvious Danger

Defendants also contend Plaintiff "has produced no evidence that . . . the danger complained of was one that was not open and obvious, or that [P]laintiff otherwise failed to understand the danger of which was complained." Defs.' Mem., ECF No. 47-1 at 17 (citing *Claytor*, 277 S.C. at 265, 286 S.E.2d at 132, which states "the obviousness of danger" is a factor to be considered in determining whether a product is unreasonably dangerous). Whether a danger is open and obvious is ordinarily a question of a fact to be decided by the jury. *See Kennedy v. Custom Ice Equip. Co.*, 271 S.C. 171, 175, 246 S.E.2d 176, 177-78 (1978) (applying the open and obvious danger rule to a design defect claim and finding the

trial court did not err in submitting a negligent design claim to the jury “[s]ince the evidence was conflicting”); *Madden*, 284 S.C. at 581, 328 S.E.2d at 113 (citing *Marchant v. Lorain Div. of Koehring*, 272 S.C. 243, 248, 251 S.E.2d 189, 192 (1979)). Having considered the conflicting evidence in this case, particularly Dr. Henderson’s and Mr. Dudden’s expert testimony, the Court cannot conclude as a matter of law that the danger posed by the alleged design defect in the Heater was open and obvious to the user.

c. Risk-Utility Test

Defendants argue Plaintiff’s design defect claim fails because she has not provided a reasonable alternative design for the Heater. Defs.’ Mem., ECF No. 47-1 at 18-24. Referring to the risk-utility test set forth in *Branham* and reiterating arguments similar to those made in their motions to exclude, Defendants assert Plaintiff has not provided a reasonable alternative design for the guard on the Heater because the alternative guard designed by Dr. Durig and Dr. Henderson fails to comply with applicable industry safety standards (namely, the ANSI standards).³⁰ *Id.* Defendants further argue Plaintiff has failed to present any evidence that the alternative guard design would have prevented the accident. *Id.* at 24-25. Finally, Defendants contend Plaintiff has produced no evidence that the Heater’s design is unreasonably dangerous, and they argue she “has provided no evidence of the costs or desirability of manufacturing a guard like the one her experts propose.”³¹ *Id.* at 25-30. In short, Defendants claim the alternative guard fails the risk-utility test set forth in *Branham*.

³⁰ As a threshold matter, Defendants argue the Court should grant summary judgment as to the design defect claim if it excludes the testimony of Dr. Durig and Dr. Henderson regarding the alternative guard design. Defs.’ Mem., ECF No. 47-1 at 21-22. Because the Court has found their expert testimony admissible, the Court rejects Defendants’ argument.

³¹ Defendants cite the testimony of Don Jamieson, GHP’s corporate representative, who testified the changes to the current design would defeat the utility of the Heater. *See* Jamieson Dep., ECF No. 47-13.

In response, Plaintiff argues Defendants are strictly liable because they sold the Heater in an unreasonably dangerous and defective condition. Pl.’s Resp., ECF No. 59 at 12-15. Plaintiff contends Defendants failed to design the Heater with a guard of sufficient size that would prevent users from coming close enough to the heat source to encounter extremely high temperatures that can instantaneously ignite common clothing worn by users. *Id.* at 12-13. Plaintiff maintains she has provided a feasible and practical alternative design for the guard, as established by the expert testimony of Dr. Durig and Dr. Henderson: she asserts the alternative guard satisfies the risk-utility test because it is not more expensive than the GHP guard, is only approximately three inches larger than the GHP guard, weighs only 12.2 ounces more than the GHP guard, passes the tilt test required by ANSI standards,³² and most importantly, prevents users from coming too close to the extreme temperatures present at the metal reflector that can ignite clothing. *Id.* at 14.

In South Carolina, “the exclusive test in a products liability design case is the risk-utility test with its requirement of showing a feasible alternative design.” *Branham*, 390 S.C. at 220, 701 S.E.2d at 14.

In sum, in a product liability design defect action, the plaintiff must present evidence of a reasonable alternative design. The plaintiff will be required to point to a design flaw in the product and show how his alternative design would have prevented the product from being unreasonably dangerous. This presentation of an alternative design must include consideration of the costs, safety and functionality associated with the alternative design.

.....

The analysis asks the trier of fact to determine whether the potential increased price of the product (if any), the potential decrease

³² Plaintiff also points out that Mr. Dudden, Defendants’ expert, admitted the alternative guard passed the tilt test required under ANSI standards. Pl.’s Resp. in Oppos. to Defs.’ Motion for Summ. Judgmt., ECF No. 59 at 14.

in the functioning (or utility) of the product (if any), and the potential increase in other safety concerns (if any) associated with the proffered alternative design are worth the benefits that will inhere in the proposed alternative design.

Id. at 225 & n.16, 701 S.E.2d at 16 & n.16. To survive summary judgment on a design defect claim, a plaintiff must demonstrate that a feasible alternative design exists for the product at issue. *Disher*, 371 F. Supp. 2d at 771. At the summary judgment stage, the district court must determine whether there is evidence tending to create genuine issues of material fact on each of the factors (safety, costs, and functionality) relevant to the risk-utility analysis and its required showing of an alternative feasible design, in accordance with *Branham*. See *Quinton v. Toyota Motor Corp.*, No. 1:10-CV-02187-JMC, 2013 WL 1680555, at *4 (D.S.C. Apr. 17, 2013). “Whether this evidence satisfies the risk-utility test is ultimately a jury question.” *Branham*, 390 S.C. at 219, 701 S.E.2d at 13-14.

Viewing the facts and inferences in the light most favorable to Plaintiff, the Court finds she has presented a genuine issue of material fact as to whether the GHP guard was unreasonably dangerous as the result of a design defect, primarily by way of Dr. Henderson’s expert testimony regarding temperature and ignition testing associated with the GHP guard. Additionally, the Court finds she has presented some evidence tending to create genuine issues of material fact on each of the factors relevant to the risk-utility test, by way of both Dr. Henderson’s and Dr. Durig’s expert testimony described in detail above. Regarding both safety and functionality, Dr. Durig conducted tilt testing, determined the alternative guard design passes the ANSI stability requirement for a gas-fired construction heater with a tip-over shutoff device, and opined “[t]he tip-over shutoff device [when] tested with the alternative guard design . . . functioned properly as it did with the GHP guard.” Durig Report, ECF No. 21-1 at 8. Dr. Henderson conducted temperature and ignition testing and concluded the alternative guard

sufficiently protects users from dangerous temperature levels that are otherwise present at or near the GHP guard and capable of rapidly igniting their clothing. Henderson Report, ECF No. 21-3 at 5; Henderson Aff., ECF No. 58-1 at 4; Henderson Dep., ECF No. 59-9 at 8. Dr. Henderson further determined that when fabric samples were placed three and one-half inches away from the reflector (the same distance that the alternative guard extends from the reflector) while the Heater was on the “high” setting, the samples did not ignite even after being exposed to direct heat for over twenty minutes; the samples did, however, “evidence some heat effects,” thereby indicating the Heater still had the ability to perform its intended function: provide radiant heat. Henderson Aff., ECF No. 58-1 at 4; *see also* Henderson Report, ECF No. 21-3 at 5. Viewing Plaintiff’s evidence of costs in the light most favorable to her, although weak and lacking a specific dollar figure, the evidence allows an inference to be drawn that use of the alternative guard design would not cost substantially more than the GHP guard design. Dr. Durig stated that “[t]he alternative guard design is fabricated with stainless steel wire similar to the GHP designed guard,” that the alternative guard is only approximately three to four inches larger in diameter than the GHP guard, and that “[t]he GHP guard weighs 2.4 ounces and the alternative guard design weighs 14.6 ounces.” Durig Report, ECF No. 21-1 at 7-8; Durig Dep., ECF No. 43-2 at 11. The foregoing expert testimony tends to create genuine issues of material fact on each factor—functionality, safety, and costs—of the risk-utility test.

In conclusion, Plaintiff has met the requirements of *Branham* by conducting a risk-utility analysis and proffering a feasible alternative design for the front guard on the Heater. “Whether this evidence satisfies the risk-utility test is ultimately a jury question.” *Branham*, 390 S.C. at 219, 701 S.E.2d at 13-14.

d. Proximate Cause

Defendants argue Plaintiff has not presented sufficient evidence tending to create a genuine issue of material fact as to whether the allegedly defective Heater was the proximate cause of her injuries. Defs.' Mem., ECF No. 47-1 at 24-25; Defs.' Reply, ECF No. 61 at 7-8. Defendants maintain Plaintiff has failed to present any evidence that the alternative design would have prevented the clothing ignition in this case, claiming Plaintiff's experts have admitted the alternative design does not prevent all clothing ignition scenarios and have conceded clothing can hang within the spaces of the grille of the alternative guard.³³ *Id.* Defendants contend the alternative guard would have offered little or no additional protection for Plaintiff. *Id.*

"A products liability plaintiff must prove the product defect was the proximate cause of the injury sustained." *Bray v. Marathon Corp.*, 356 S.C. 111, 116, 588 S.E.2d 93, 95 (2003). "Proximate cause requires proof of both causation in fact and legal cause, which is proved by establishing foreseeability." *Id.* at 116-17, 588 S.E.2d at 95.

Although Plaintiff's evidence as to proximate cause is somewhat weak, the Court finds Plaintiff has nonetheless presented some evidence tending to create a genuine issue of material fact that the Heater ignited her cotton shirt and that the alternative guard could have prevented such ignition. As Defendants themselves point out, Dr. Durig theorized that Plaintiff may have been *beside* the Heater at the time of ignition because, as her former employee Charles Lorenz testified, Plaintiff would sometimes approach the Heater *from the side* for warmth. *See* Defs.' Reply, ECF No. 61 at 8 (citing depositions of Dr. Durig and Lorenz). Plaintiff's alternative guard design, which extends the lateral and vertical distance between the reflector/burner and the outer edges of the front guard and thereby greatly

³³ At the hearing, counsel for Defendants argued Plaintiff's long cotton shirt tail could have hung between the gaps in the grille. Tr., ECF No. 75 at 66-67.

reduces temperatures that would otherwise ignite users' clothing, allows an inference to be drawn that the alternative guard would have prevented Plaintiff from coming too close to the Heater and thus from being set on fire. Accordingly, the Court finds a genuine issue of material fact exists as to whether the as-built Heater—equipped with the GHP guard—was the proximate cause of Plaintiff's injuries.

e. Conclusion

The Court **DENIES** Defendants' motion for summary judgment as to Plaintiff's strict liability claim based on an alleged design defect as to both Defendants.

2. Negligence Claims for Design Defect

Plaintiff alleges Defendants were negligent in designing the Heater. Compl. at ¶¶ 26-33. She asserts an ordinary negligence claim, as well as a negligence per se claim alleging Defendants violated section 15-73-10 of the South Carolina Code. *Id.*

On any negligence claim, including one for products liability, the plaintiff must prove the defendant failed to exercise reasonable care.³⁴ *Branham*, 390 S.C. at 210, 701 S.E.2d at 9. Unlike strict liability, the focus in a negligent products liability claim “is on the conduct of the seller or manufacturer, and liability is determined according to fault.” *Id.* (quoting *Bragg*, 319 S.C. at 539, 462 S.E.2d at 326)). When pursuing a products liability claim under a negligent design theory, a plaintiff must establish the three requisite elements of a strict products liability claim listed above³⁵ and the additional element that

³⁴ In a negligence suit, the plaintiff must establish duty, breach of duty, causation, and damages. *Moore v. Barony House Rest., LLC*, 382 S.C. 35, 42, 674 S.E.2d 500, 504 (Ct. App. 2009) (negligent products liability claim).

³⁵ Again, those elements are (1) the plaintiff was injured by the product; (2) the injury occurred because the product was in a defective condition that was unreasonably dangerous to the user; and (3) the product, at the time of the accident, was in essentially the same condition as when it left the hands of the defendant. *Rife*, 363 S.C. at 215, 609 S.E.2d at 568. If a strict liability claim is dismissed and the basis for dismissal rests on a common element shared by a companion negligence claim, the companion negligence claim must also be dismissed. *Branham*, 390 S.C. at 212, 701 S.E.2d at 9.

the manufacturer or supplier failed to exercise reasonable care to adopt a safe design. *5 Star*, 408 S.C. at 366-67, 759 S.E.2d at 141 (negligent design claim). This additional “burden may be met by showing that the manufacturer [or supplier] was aware of the danger and failed to take reasonable steps to correct it.” *Madden*, 284 S.C. at 580, 328 S.E.2d at 112. “In evaluating a negligence claim, the focus may be either on the presence of conduct or the absence of conduct.” *5 Star*, 408 S.C. at 369, 759 S.E.2d at 143. Both industry standards and the state of the art at the time of manufacture are relevant to show the reasonableness of the product’s design. *Bragg*, 319 S.C. at 543, 462 S.E.2d at 328.

a. Ordinary Negligence Claim

i. Defendant Lowe’s

Lowe’s argues the negligence claim against it must be dismissed because there is no evidence that it breached any duty to Plaintiff or had any input in the design of the Heater. Defs.’ Mem., ECF No. 47-1 at 31-32. Plaintiff does not specifically respond to this argument; instead, she only argues her “negligence claims present a question of material fact as to whether *GHP* was negligent in not adopting a safer design.” Pl.’s Resp., ECF No. 59 at 15 (emphasis added). Thus, it appears Plaintiff has abandoned her negligent design claim against Lowe’s. Nevertheless, the Court has considered the merits of Lowe’s argument, and it agrees with Defendants that Lowe’s cannot be held liable on a theory of negligent design.

In *Marchant v. Mitchell Distributing Co.*, which Lowe’s cites, the South Carolina Supreme Court held a distributor that “had nothing to do with designing or assembling the” product could “not be held liable on the theory of negligent design,” and it affirmed the trial court’s grant of summary judgment to the distributor. 270 S.C. 29, 37, 240 S.E.2d 511, 514 (1977) (citing Hursch and Bailey, *American Law of Products Liability* 2d § 9:13 (1974)). Similarly, in *Rife v. Hitachi Construction*

Machinery Co., the South Carolina Court of Appeals relied on *Marchant*, found the distributor of a product could not be held liable on a theory of negligent design, and affirmed the trial court's grant of summary judgment to the distributor. 363 S.C. at 219-20, 609 S.E.2d at 571. See also *McCain Mfg. Corp. v. Rockwell Int'l Corp.*, 528 F. Supp. 524, 529 (D.S.C. 1981) ("Under the law of South Carolina, as elsewhere, a seller who did not participate in the design or manufacture of a defective product is not liable in negligence for defective design." (citing *Marchant*)), *vacated on other grounds*, 695 F.2d 803 (4th Cir. 1982).

In this case, as in *Marchant* and *Rife*, there is no evidence upon which a jury could conclude Lowe's was negligent in designing the Heater. Factually, Lowe's was a distributor that had no input regarding the design of the Heater.³⁶ Accordingly, Lowe's may not be held liable on a theory of negligent design, and the Court **GRANTS** Defendant Lowe's motion for summary judgment as to Plaintiff's negligent design claim.

ii. Defendant GHP

GHP first argues Plaintiff's negligence claim fails for the same reasons her strict liability claim fails. Defs.' Mem., ECF No. 47-1 at 30-32. Specifically, GHP contends that because Plaintiff has not provided sufficient evidence to show the Heater was unreasonably dangerous, her negligence claim (which shares with the strict liability claim the common element of showing the product was in a defective condition unreasonably dangerous to the user) likewise fail. *Id.* at 31. The Court rejects this argument because, as discussed above, Plaintiff has created a jury question as to whether the Heater was defectively designed and unreasonably dangerous.

³⁶ Notably, GHP's corporate representative Jamieson testified at his Rule 30(b)(6) deposition that he designed the Heater with the assistance of a Korean factory in 2009. ECF No. 47-13 at 3, 8.

Defendants next argue Plaintiff has not produced any evidence showing GHP breached a duty of reasonable care in adopting a safe design for the Heater, asserting the Heater complies with the ANSI Z83 standard for gas-fired construction heaters. *Id.* at 31; *see* ANSI Z83.7, ECF No. 47-11. In response, Plaintiff asserts:

GHP was aware of ANSI Z21, which is a national standard governing indoor residential heaters. ANSI Z21 mandates indoor residential heaters pass a cloth ignition test. The standard requires a cloth be placed in contact with the heater and must not catch fire within the specified time. While not applicable to outdoor heaters, the subject heater would not pass ANSI Z21's cloth ignition test. Defendants maintain that the subject heater was not an indoor residential heater, however, Dr. Henderson testified that the subject heater is "worthless" outside. Henderson Depo., 210:2-3. Additionally, the subject heater's box state[s] in clear and unambiguous terms that the heater can be used safely and provides "**fast convenient heat to accompany you in any activity.**" Henderson Depo. 238: 18-19. GHP seeks to avoid the standards applicable to indoor residential heaters by calling the subject heater an outdoor construction heater, yet it has designed and sold a heater which is only effective for indoor use, a heater which it advertises as for use with "any activity." GHP's awareness of a national standard applicable to residential heaters designed to ensure sufficient distance between the heating element and guard to prevent instantaneous cloth ignition is further evidence of negligence.

GHP also failed to conduct any testing on the subject heater to determine if clothing would ignite. This evidence taken in [the] light most favorable to Plaintiff, clearly presents a question of fact on Defendants' negligence.

Pl.'s Resp., ECF No. 59 at 16; *see* ANSI Z21 Excerpts, ECF Nos. 55-9, 57-10, & 58-8.

Having reviewed the evidence, the Court finds no genuine issue of material fact exists as to whether GHP failed to exercise reasonable care to adopt a safe design for the Heater. Distilled to its essence, Plaintiff's two-fold argument regarding negligent design is that (1) the Heater was actually an indoor residential heater and (2) that GHP was aware of ANSI Z21, a standard governing indoor

residential space heaters, yet failed to exercise due care to conduct clothing ignition testing as mandated by ANSI Z21.

However, Plaintiff is incorrect in arguing GHP was aware of ANSI Z21, the national standard that governs “Portable Type Gas Camp Heaters” and requires “Evaluation of Clothing Ignition Potential,”³⁷ and in asserting GHP failed to conduct the requisite clothing ignition tests prior to releasing the Heater on the consumer market. There is no testimony by Mr. Dudden (Defendants’ design expert) or Mr. Jamieson (GHP’s corporate representative who participated in designing the Heater) that the ANSI Z21 standard applies to the Heater. Instead, Mr. Dudden opines the ANSI Z83 standard for gas-fired construction heaters applies to the Heater, notes ANSI Z21 (and UL 647) applies to unvented room heaters, and specifies the Heater “is not intended for use as a Room Heater.” Dudden Report, ECF No. 25-1 at 15, 17; *see Bragg*, 319 S.C. at 543, 462 S.E.2d at 328 (stating industry standards are relevant to show the reasonableness of the product’s design). Although Mr. Dudden ultimately conducted a clothing ignition potential test using the prototype alternative guard and applying both the ANSI Z21 and UL 647 standards, he did this testing only to rebut Dr. Henderson’s expert opinion,³⁸ and he emphasized neither ANSI Z21 nor UL 647 applied to the Heater because it was a gas-fired *construction* heater (per ANSI Z83), not an unvented *room* heater (per ANSI Z21 and UL 647). *Id.* at 15, 17. Significantly, Mr. Jamieson testified he designed and wrote the instructions for the Heater using the ANSI Z83 standard, *see Jamieson Dep.*, ECF No. 47-13 at 3, and Defendants note Mr. Jamieson “was never asked about and never testified regarding the ANSI Z21 standard.” Defs.’ Reply, ECF No. 61 at

³⁷ See ANSI Z21 Excerpts, ECF No. 58-8 at 1 & 7.

³⁸ Mr. Dudden determined the alternative guard did not comply with either ANSI Z21 or UL 647 because the cheesecloth failed the test for clothing ignition potential. Dudden Report, ECF No. 25-1 at 15.

10.

Moreover, although Plaintiff relies on Dr. Henderson's deposition testimony when discussing ANSI Z21 in her argument quoted above, there is no testimony by either Dr. Henderson or Dr. Durig that the ANSI Z21 standard applies to the Heater. Dr. Henderson conducted his investigation and testing by using the NFPA 921 and UL 647 standards, but nowhere in his expert report or deposition testimony does he indicate familiarity with or application of ANSI Z21. In fact, when asked about ANSI Z21 at his deposition, Dr. Henderson testified the Heater was "not designated as a room heater" and stated, "I don't think it would be classified as such." ECF No. 61-5 at 5-7. Notably, Dr. Durig conducted tilt testing by applying the ANSI Z83 standard, the same standard Defendants assert is applicable to the Heater, and he testified at his deposition that the Heater was "designed to meet Z83," not ANSI Z21. *See* Durig Dep., ECF No. 61-7 at 8 ("Q: Do you consider the TT15CL to be a propane room heater? A: As defined by Z21.11, no. It's marketed as a construction heater."); *id.* ("But it [the Heater] would not be that under that standard [ANSI Z21]; is that right? A: No."). In sum, Plaintiff's unsubstantiated assertion that ANSI Z21 applies to the Heater and required GHP to conduct cloth ignition testing lacks support in the evidentiary record before the Court.

The Court finds Plaintiff has failed to present a material question of fact as to whether GHP exercised due care in designing the Heater. Accordingly, the Court must **GRANT** GHP's motion for summary judgment as to the negligent design claim.

c. Negligence Per Se Claim

Both GHP and Lowe's argue Plaintiff's negligence per se claim based on section 15-73-10 of the South Carolina Code (2005) must be dismissed because "the statute's essential purpose is to set forth when recovery may be allowed, rather than to protect from a specific harm." Defs.' Mem., ECF

No. 47-1 at 32. Plaintiff has not responded to this argument or otherwise rebutted Defendants' motion for summary judgment on her negligence per se claim.

“Strict liability in tort for defective products is recognized under § 15-73-10” of the South Carolina Code. *Claytor*, 277 S.C. at 262, 286 S.E.2d at 131. In her complaint, Plaintiff brings her first cause of action for strict products liability under section 15-73-10, and she brings her third cause of action for negligence per se for violation of section 15-73-10. Compl. at ¶¶ 18-25, 30-33. Plaintiff's negligence per se claim is based on the same theory of recovery as her strict liability claim, and therefore the negligence per se claim is duplicative of her strict liability claim. Accordingly, the Court will **GRANT** summary judgment for both Defendants as to the “negligence per se claim” asserted against them, as it is simply duplicative of her strict liability claim on which the Court has denied summary judgment.

3. Breach of Warranty Claims for Design Defect

Plaintiff alleges Defendants breached implied and express warranties by selling the Heater in an unreasonably dangerous and defective condition. Compl. at ¶¶ 34-38.

“In an action based on strict tort *or warranty*, plaintiff's case is complete when he has proved the product, as designed, was in a defective condition unreasonably dangerous to the user when it left the control of the defendant, and the defect caused his injuries.” *Madden*, 284 S.C. at 579-80, 328 S.E.2d at 112 (emphasis added). The South Carolina Commercial Code establishes three types of warranties: the implied warranty of merchantability, the implied warranty of fitness for a particular purpose, and express warranty. *See* S.C. Code Ann. §§ 36-2-313, 36-2-314, & 36-2-315 (2003).

“A common element of actions for strict liability and breach of *implied warranty* is proof the product was not reasonably fit or safe for its intended use.” *Livingston v. Noland Corp.*, 293 S.C. 521,

524, 362 S.E.2d 16, 18 (1987) (emphasis added) “The proof must be sufficient to show not only that the product was defective but that the defect was the direct and efficient cause of plaintiff’s injury.” *Id.*

Citing *Livingston*, Defendants argue Plaintiff’s *implied* warranty claims must be dismissed for the same reasons as her other claims: she has not presented evidence that the Heater was not reasonably fit or safe for its intended use or that alleged defect was the cause of her injury. Defs.’ Mem., ECF No. 47-1 at 33. Defendants argue Plaintiff’s *express* warranty claims must be dismissed because Plaintiff has failed to produce any evidence of specific warranties made by the Defendants or any violations thereof. *Id.*

In response, Plaintiff asserts that because the evidence is sufficient to sustain the action for strict product liability, it naturally follows that her warranty claims should survive summary judgment. Pl.’s Resp., ECF No. 59 at 17.

Because the evidence is sufficient to withstand Defendants’ motion for summary judgment as to Plaintiff’s design defect claim in strict liability, the Court finds Plaintiff’s breach of warranty claims should survive summary judgment. Plaintiff has demonstrated a genuine issue that the Heater, as designed, was in a defective condition unreasonably dangerous to the user when it left the control of Defendants, and the defect caused her injuries. *See Madden*, 284 S.C. at 579-80, 328 S.E.2d at 112. Specifically, regarding the alleged breach of an implied warranty of merchantability, the Court finds a genuine issue of material fact exists as to whether the Heater suffers from a defect that renders it unfit for its ordinary purpose. *See S.C. Code Ann. § 36-2-314* (2003). Regarding the alleged breach of an implied warranty of fitness for a particular purpose, the Court finds a genuine issue of material fact exists as to whether Defendants had reason to know of the particular purpose for which the Heater was required and that the buyer—Plaintiff—was relying on Defendants’ skill and judgment to select or

furnish the Heater. *See* S.C. Code Ann. § 36-2-315 (2003). Regarding the alleged breach of an express warranty, the Court finds a genuine issue of material fact exists as to whether an express warranty exists and formed the basis of the bargain. *See* S.C. Code Ann. § 36-2-313 (2003). The Court therefore **DENIES** Defendants' motion for summary judgment as to Plaintiff's breach of warranty claims.

Conclusion

The Court has thoroughly reviewed the entire record, including all pleadings, pending motions, briefs, and exhibits, and it has considered the law applicable to this case. For the reasons set forth above, the Court

- (1) **DENIES** Defendants' motion to exclude the expert testimony of Dr. Durig [ECF No. 43];
- (2) **DENIES** Defendants' motion to exclude the expert testimony of Dr. Henderson [ECF No. 45];
- (3) **DENIES** Plaintiff's motion to exclude the expert testimony of Mr. Dudden [ECF No. 55]; and
- (4) **GRANTS IN PART AND DENIES IN PART** Defendants' motion for summary judgment [ECF No. 47]. Specifically, the Court **DENIES** summary judgment regarding Plaintiff's strict liability design defect claim as to both Defendants and breach of warranty claims as to both Defendants. The Court **GRANTS** summary judgment regarding Plaintiff's negligent design defect claim as to both Defendants and Plaintiff's negligence per se claim as to both Defendants.

The Court **DIRECTS** the parties to submit a proposed amended scheduling order within ten

days of the filing of this Order.³⁹

IT IS SO ORDERED.

Florence, South Carolina
August 10, 2016

s/ R. Bryan Harwell
R. Bryan Harwell
United States District Judge

³⁹ On April 25, 2016, the Court entered a text order granting the parties' consent motion to stay the deadlines in the Consent Fifth Amended Scheduling Order. ECF No. 72.