IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

AOS HOLDING COMPANY and A. O. SMITH CORPORATION,	:	
Plaintiffs,	:	
v.	:	C.A. No. 18-412-LPS-CJB
BRADFORD WHITE CORPORATION,	:	
Defendant.	:	

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MEMORANDUM OPINION

June 4, 2019
Wilmington, Delaware

STARK, U.S. District Judge:

Plaintiffs AOS Holding Company ("AHC") and A. O. Smith Corporation (collectively, "AOS" or "Plaintiffs") filed suit against Defendant Bradford White Corporation ("BWC" or "Defendant") on March 16, 2018, alleging infringement of U.S. Patent No. 8,375,897 ("the '897 patent"). (D.I. 1) The '897 patent "relates to a gas water heater, and more particularly to a gas water heater that utilizes a power burner and an exhaust plenum to permit natural convection exhaust of products of combustion." ('897 patent at 1:11-15) Defendant moved for a "Super-Early Claim Construction Hearing" because the single patent-at-issue has only a single claim, which Defendant believed to be indefinite. (D.I. 24-1 at 1) The Court issued its early claim construction order and opinion on January 25, 2019, construing the disputed term, "substantially entirely under the influence of natural convection," to mean "at a pressure near or below atmospheric pressure and without the influence of the power burner, such that a Category I venting system can be used." (D.I. 61, 62) On the present claim construction disputes, the parties completed briefing on March 11, 2019 (D.I. 64, 65, 68, 69) and the Court held a claim construction hearing on April 1, 2019. (*See* D.I. 73) ("Tr.")

I. LEGAL STANDARDS

A. CLAIM CONSTRUCTION

The ultimate question of the proper construction of a patent is a question of law. *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 837 (2015) (citing *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 388-91 (1996)). "It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (citation and internal quotation marks omitted). "[T]here is no magic formula or catechism for conducting claim construction."

Id. at 1324. Instead, the court is free to attach the appropriate weight to appropriate sources "in light of the statutes and policies that inform patent law." *Id.*

"[T]he words of a claim are generally given their ordinary and customary meaning. . . . [which is] the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Id.* at 1312-13 (internal citations and quotation marks omitted). "[T]he ordinary meaning of a claim term is its meaning to the ordinary artisan after reading the entire patent." *Id.* at 1321 (internal quotation marks omitted). The patent "specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

While "the claims themselves provide substantial guidance as to the meaning of particular claim terms," the context of the surrounding words of the claim also must be considered. *Phillips*, 415 F.3d at 1314. Furthermore, "[o]ther claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment . . . . [b]ecause claim terms are normally used consistently throughout the patent." *Id.* (internal citation omitted).

It is likewise true that "[d]ifferences among claims can also be a useful guide . . . . For example, the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim." *Id.* at 1314-15 (internal citation omitted). This "presumption is especially strong when the limitation in dispute is the only meaningful difference between an independent and dependent claim, and one party is urging that the limitation in the dependent claim should be read into the independent claim." *SunRace Roots Enter. Co., Ltd. v. SRAM Corp.*, 336 F.3d 1298, 1303 (Fed. Cir. 2003).

It is also possible that "the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor's lexicography governs." *Phillips*, 415 F.3d at 1316. It bears emphasis that "[e]ven when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction." *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1372 (Fed. Cir. 2014) (quoting *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004)) (alteration in original) (internal quotation marks omitted).

In addition to the specification, a court "should also consider the patent's prosecution history, if it is in evidence." *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370 (1996). The prosecution history, which is "intrinsic evidence," "consists of the complete record of the proceedings before the [Patent and Trademark Office] and includes the prior art cited during the examination of the patent." *Phillips*, 415 F.3d at 1317. "[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." *Id.*

"In some cases, . . . the district court will need to look beyond the patent's intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period." *Teva*, 135 S. Ct. at 841. "Extrinsic evidence consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." *Markman*, 52 F.3d at 980. For instance, technical dictionaries can assist the court in determining the meaning of a term to those of skill in the relevant art because such dictionaries "endeavor to

collect the accepted meanings of terms used in various fields of science and technology." *Phillips*, 415 F.3d at 1318. In addition, expert testimony can be useful "to ensure that the court's understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field." *Id.* Nonetheless, courts must not lose sight of the fact that "expert reports and testimony [are] generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence." *Id.* Overall, while extrinsic evidence "may be useful to the court," it is "less reliable" than intrinsic evidence, and its consideration "is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence." *Id.* at 1318-19. Where the intrinsic record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper. *See Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1308 (Fed. Cir. 1999) (citing *Vitronics*, 90 F.3d at 1583).

Finally, "[t]he construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998). It follows that "a claim interpretation that would exclude the inventor's device is rarely the correct interpretation." *Osram GmbH v. Int'l Trade Comm'n*, 505 F.3d 1351, 1358 (Fed. Cir. 2007) (quoting *Modine Mfg. Co. v. U.S. Int'l Trade Comm'n*, 75 F.3d 1545, 1550 (Fed. Cir. 1996)).

B. INDEFINITENESS

A patent claim is indefinite if, "viewed in light of the specification and prosecution history, [it fails to] inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014).

A claim may be indefinite if the patent does not convey with reasonable certainty how to measure a claimed feature. *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 789 F.3d 1335, 1341 (Fed. Cir. 2015). But "[i]f such an understanding of how to measure the claimed [feature] was within the scope of knowledge possessed by one of ordinary skill in the art [POSA or POSITA], there is no requirement for the specification to identify a particular measurement technique." *Ethicon Endo–Surgery, Inc. v. Covidien, Inc.*, 796 F.3d 1312, 1319 (Fed. Cir. 2015).

II. CONSTRUCTION OF DISPUTED TERM

The asserted claim reads:

> A method of interfacing a natural convection vent construction with a water heater, the method comprising:
>
> providing a water heater having a burner, a blower, and a flue;
>
> creating products of combustion with the burner;
>
> forcing the products of combustion into the flue under positive pressure with the blower;
>
> interposing an ***exhaust plenum*** between the flue and the ***natural convection*** vent construction;
>
> dropping the pressure of the products of combustion ***to near atmospheric pressure*** within the ***plenum***; and
>
> permitting the products of combustion to rise out of the ***plenum*** and into the ***natural convection*** vent construction substantially entirely under the influence of ***natural convection***;
>
> wherein the natural convection vent construction includes a draft hood, the method further comprising mixing ambient air with the products of combustion as the products of combustion flow into the draft hood.

('897 patent at 6:9-27) (Claim 1) (emphasis added)

A. "exhaust plenum"/"plenum"

Plaintiffs Plain and ordinary meaning, *or if a construction is necessary*: "a compartment or chamber within the 'water heater' where the 'products of combustion' collect before being exhausted"
Defendant "Space" *Alternatively*: "a compartment or chamber"
Court a compartment or chamber within the water heater where the products of combustion collect before being exhausted

The Court's construction of "exhaust plenum/plenum" is consistent with the term's description in the specification, its depiction in pictured embodiments, and the Court's prior claim construction opinion. (*See* '897 patent at Abstract, 1:12-17, 1:35-42, 1:54-64, 2:50-53, 3:9-11, 3:21-28, 3:38-49, 3:58-67, 4:1-19, 5:19-29, 6:1-5, Figs. 2-5) The specification makes clear that the purpose and function of the plenum is to lower the pressure of the products of combustion, before "permitting" the products to exit the plenum. (*Id.* at 1:54-64; Tr. at 6-7) A skilled artisan would thus understand that the products must collect in the plenum, so that they may expand and then rise "substantially entirely under the influence of natural convection." (D.I. 65 at 10) Figure 3 of the patent depicts a plenum structure consistent with this understanding, with products of combustion traveling through an enclosed chamber in an elongated, weaving, and repetitive path before exiting a narrow opening. ('897 patent at Fig. 3) Beyond this intrinsic evidence, further support for the Court's construction is found in the National Fuel Gas Code, which "defines the word 'plenum' as 'a compartment or chamber to which one or more ducts are connected and that forms part of the air distribution system.'" (D.I. 65 at 11-12) (quoting D.I. 43-1 at 17) The claims and specification likewise describe the plenum

as a structure connected in sequence with the flue and vent construction, "confirming that the 'plenum' is a distinct structural component of the recited 'water heater.'" (*Id.* at 12)

Defendant primarily disputes whether the "products of combustion ***'collect'*** in the plenum 'before being exhausted.'" (D.I. 68 at 2 (emphasis added); Tr. at 18-23) Defendant argues that the patent provides no definition or requirement that the products ***collect***, but rather "FIG. 3 suggests that the combustion products continuously move through the plenum." (D.I. 68 at 2) Defendant contends that "[a]dding this functional requirement to an otherwise unambiguous structural term would create, rather than resolve, disputes over the scope of the asserted claim." (*Id.* at 3; *see also* Tr. at 22 (Defendant "do[esn't] believe that a functional requirement for the plenum is required"))[1] However, in the Court's view, both the specification as a whole and Figure 3 in particular support the conclusion that the path of the products of combustion is significantly diverted and prolonged, meaning the products are delayed in exiting the water heater via their passage through the plenum; that is, there is collection in the plenum.

Defendant lastly appears to dispute that the plenum must be located ***within*** the hot water heater. But it is clear from the specification that "the plenum ***is in*** the top of the water heater." ('897 patent at Abstract; *see also id.* at Fig. 1, 1:35-36) Specifically, the exhaust plenum is "interpos[ed] . . . between the flue and the natural convection vent construction." (*Id.* at 1:58-59)

[1] Defendant contends that even if the plenum is a "pressure reducer," it may fulfill this function by moving the gas products into a larger area, instead of allowing the gas products to collect. (*See* Tr. at 35) In the Court's view, however, as described above, there is ample support in the patent for the conclusion that the plenum of the claims is a device that reduces pressure by allowing the products of combustion to collect.

B. "near atmospheric pressure"

Plaintiffs Plain and ordinary meaning, *or if a construction is necessary*: "a pressure sufficient to allow 'the products of combustion to rise out of the plenum . . . substantially entirely under the influence of natural convection'"
Defendant Indefinite under 35 U.S.C. § 112
Court a pressure sufficient to allow the products of combustion to rise out of the plenum substantially entirely under the influence of natural convection

Consistent with the Court's January 25, 2019 claim construction order, "near atmospheric pressure" is not indefinite under 35 U.S.C. § 112. As the Court previously wrote, "[t]he asserted claim involves a sequence of steps; 'near atmospheric temperature' relates to the state of the products of combustion at an earlier step than 'near or below atmospheric temperature.'" (D.I. 61 at 7; *see also* Tr. at 23-24 ("[T]his is the first of the two sequential steps that were referenced and argued at the super-early claim construction.")) "[T]he skilled artisan would understand what the disputed term means from the context of the processes and functions at play." (D.I. 65 at 14) Defendant argues that "[t]he word 'near' is a word of degree" (D.I. 64 at 6; Tr. at 24) and insufficiently specified, but the Court agrees with Plaintiff that a POSA would understand with reasonable certainty "near atmospheric pressure" in the context of the products rising out of the plenum under the power of natural convection. (*See* D.I. 69 at 6; Tr. at 11-13).[2] Just as

[2] Defendant also restates arguments made (and rejected) during the earlier claim construction proceedings, including that "Category I testing . . . take[s] place outside of and downstream from the water heater," so the patent lacks objective standards. (*See* D.I. 64 at 7-8; Tr. at 27; D.I. 45 at 9 ("[A] POSITA would not have tied claim limitations relating to the rising flow of combustion products out of a plenum to 'the ability to use a Category I venting system,' which is determined based on pressure measurements conducted outside of a water heater and downstream of a water heater's outlet.")) The Court has already construed the term "substantially entirely under the influence of natural convection" to mean "at a pressure near or below atmospheric pressure and without the influence of the power burner, ***such that a Category I venting system can be used***."

"Category I venting requirements provide a baseline for evaluating whether the products of combustion are permitted to rise 'substantially entirely under the influence of natural convection,' they provide a baseline for determining whether pressure has been dropped near atmospheric pressure." (D.I. 69 at 6) The stepwise sequence of claimed events do not "lead in a circle" (D.I. 68 at 6) as Defendant contends, but provide "sufficient qualitative guideposts" (D.I. 65 at 16) to a person of ordinary skill.

C. "natural convection"

Plaintiffs "fluid motion compatible with use of a Category I venting system"
Defendant "fluid motion occurring only due to temperature gradients in the fluid"
Court fluid motion compatible with use of a Category I venting system

The Court will construe "natural convection" consistent with its construction of "substantially entirely under the influence of natural convection." Although Defendant now focuses the Court on "natural convection," these two words were also involved in the parties' prior dispute, which the Court resolved by expressly tying the term to Category I venting. The Court agrees with Plaintiff's that "one of the purposes of the invention is to retrofit a power burner water heater with a Category I venting system (exhaustion by natural convection)." (D.I. 65 at 19 (citing '897 patent at 5:26-29); *see also* D.I. 69 at 9-10 (citing '897 patent at 4:12-19); Tr. at 13-14))

Defendant asks the Court to ignore the intrinsic evidence in favor of a dictionary definition for convection, because "'natural convection' has an ordinary and customary meaning which would be understood by a POSITA without the need to incorporate the confusing claim

(D.I. 62) (emphasis added) Thus, the Court expressly found that Category I venting can provide an objective standard.

language of the '897 Patent." (*See* D.I. 64 at 10-11 (citing Merriam-Webster Collegiate Dictionary, "convection," 11th Ed. (2003)); Tr. at 28-29 (arguing that "[t]here is no evidence defining 'natural convection' with respect to Category I in the patent")) In so doing, Defendant attempts to inject the limitation that convection occurs "***only*** due to temperature gradients in the fluid." (Tr. at 27) But the patent contains ample intrinsic evidence of the meaning of natural convection (*see* '897 patent at Abstract, 1:12-17, 1:35-42, 1:54-64; 2:1-8, 4:3-19, 5:19-29, 6:1-5, and Fig. 3), and "the claims, specification and prosecution history are more important [than extrinsic evidence] when ascertaining claim meaning" (D.I. 69 at 11). *See also Pitney Bowes, Inc.*, 182 F.3d at 1308. Furthermore, the claim language "***substantially*** entirely" is inconsistent with Defendant's absolutist position of "***only*** due to temperature." As the Court wrote earlier, "without the influence of the power burner does not ignore potential other influences in the combustion products," but "nothing else is going to be a significant influence." (D.I. 61 at 7) (internal quotation marks omitted)

III. CONCLUSION

The Court will construe the disputed term as explained above. An appropriate Order follows.

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Plaintiffs,	:	
v.	:	C.A. No. 18-412-LPS-CJB
BRADFORD WHITE CORPORATION,	:	
Defendant.	:	

ORDER

At Wilmington this **4th** day of **June, 2019**:

For the reasons set forth in the Memorandum Opinion issued this date,

IT IS HEREBY ORDERED that the following terms in Claim 1 of U.S. Patent No. 8,375,897 are construed as follows:

Claim Term	Court's Construction
exhaust plenum/plenum	a compartment or chamber within the "water heater" where the "products of combustion" collect before being exhausted
near atmospheric pressure	a pressure sufficient to allow the products of combustion to rise out of the plenum substantially entirely under the influence of natural convection
natural convection	fluid motion compatible with use of a Category I venting system

UNITED STATES DISTRICT JUDGE