

United States District Court,
D. Massachusetts.

FLEXHEAD INDUSTRIES, INC. and PNM, Inc,
Plaintiffs.

v.

EASYFLEX, INC.; Victaulic Company; AF USA LLC; Midland Steel, Inc.; and Greensket, Inc,
Defendants.

Flexhead Industries, Inc. and PNM, Inc,
Plaintiffs.

v.

The Viking Corporation; Supply Network, Inc.; Gateway Tubing, Inc.; and Yong Won USA, Inc,
Defendants.

Civil Action Nos. 06-11897-DPW, 06-11898-DPW

Nov. 3, 2008.

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MEMORANDUM AND ORDER

DOUGLAS P. WOODLOCK, District Judge.

Plaintiffs FlexHead Industries, Inc. ("FlexHead") and PNM, Inc. ("PNM") have filed two patent infringement cases against nine defendants. The first case, docketed as Civil Action No. 06-11897, is against Easyflex, Inc. ("Easyflex"), Victaulic Company ("Victaulic"), AF USA LLC, Midland Steel, Inc., and Greensket, Inc. ("Greensket"), and the second, docketed as Civil Action No. 06-11898, is against The Viking Corporation, Supply Network, Inc., Gateway Tubing, Inc. ("Gateway"), and Yong Won USA, Inc. ("Yong Won") (both groups collectively the "Defendants"). The Plaintiffs allege that the Defendants are infringing four patents for a fire protection sprinkler head support system. PNM is the owner of the four patents, United States Patent Nos. 6,119,784 ("784 Patent"), 6,488,097 ("097 Patent"), 6,752,218 ("218 Patent"), and 7,032,680 ("680 Patent"), and FlexHead licenses these patents from PNM. The Defendants in turn have filed counterclaims seeking declaratory judgments of non-infringement and invalidity of the Plaintiffs' patents.

Patent infringement analysis involves two steps: 1) claim construction and 2) comparison of "the properly construed claim to the accused device to determine whether all of the claim limitations are present either literally or by a substantial equivalent." *Renishaw PLC v. Marposs Societa' Per Azioni*, 158 F.3d 1243, 1247-48 (Fed.Cir.1998). This litigation is currently before me in the claim construction phase. After extended consideration of the submissions of the parties, I now construe each claim term the parties have

contested at some point in their various claim construction submissions. The disputed terms and my constructions are summarized in the Appendix to this Memorandum and Order.

I. Background

The Plaintiffs invented a support system for fire protection sprinklers that can be installed in ceilings, walls, and floors and patented their invention with the '784, '097, '218, and '680 Patents. The first patent, the '784 Patent entitled "Support System for Fire Protection Sprinklers," was issued on September 19, 2000. The second patent, the '097 Patent entitled "Fire Protection Sprinkler Head Support," was issued on December 3, 2002. The '218 Patent is a continuation of the '097 Patent and was issued on June 22, 2004. Finally, the '680 Patent, a continuation of the '218 Patent, was issued on April 25, 2006.

When a sprinkler head is in operation, its support system experiences "tremendous side, rotational, and torsional forces, which are capable of changing the position of the sprinkler head." ('784 Patent, col. 1:50-53.) This increases the risk that the fluid will be diverted away from the intended target. (*Id.*, col. 1:53-54.) The Plaintiffs' invention is said to be configured to resist sprinkler head movement during operation "by distributing the forces to four spaced-apart points." (*Id.*, col. 1:55-56.)

The sprinkler head support invention includes a central hub with a plate and a sleeve. ('097 Patent, col. 1:38.) "[T]he central hub provides increased stability and versatility to the sprinkler head. The plate provides additional stability and support to the sleeve, and thus the sprinkler head, rendering the combination better able to operate effectively when high fluid pressures are utilized." (*Id.*, col. 1:38-43.)

II. Legal Standards for Claim Construction

Patent claims "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), *cert denied*, 546 U.S. 1170, 126 S.Ct. 1332, 164 L.Ed.2d 49 (2006) (en banc). The initial step of claim construction involves review of the intrinsic evidence, which includes the claim language itself, the specification, and the prosecution history if admitted into evidence. *Vitronics Corp. v. Conceptronc, Inc.*, 90 F.3d 1576, 1582 (Fed.Cir.1996); *see Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186 (Fed.Cir.1998). If the intrinsic evidence resolves any ambiguity in the disputed claim term, then the analysis is complete, and further examination of extrinsic evidence is unnecessary and improper. *Vitronics*, 90 F.3d at 1583. If the claim term remains ambiguous, however, courts may rely on external sources such as expert and inventor testimony, dictionaries, and learned treatises for further illumination. *See Phillips*, 415 F.3d at 1317.

The inquiry into the meaning of a particular term necessarily starts with the language of the disputed claim. *Comark*, 156 F.3d at 1186; *see Phillips*, 415 F.3d at 1314 ("[T]he claims themselves provide substantial guidance as to the meaning of particular claim terms."). A claim term is construed to have the ordinary and customary meaning that "the term would have to a person of ordinary skill in the art in question at the time of the invention." *Phillips*, 415 F.3d at 1313. The meaning of the term is determined "not only in the context of the particular claim in which the disputed term appears, but [also] in the context of the entire patent, including the specification." *Id.* Ultimately, the specification language is considered to be the "single best guide to the meaning of a disputed term." *Vitronics*, 90 F.3d at 1582; *Phillips*, 415 F.3d at 1315 (quoting *Vitronics*).

The claim and specification language are closely linked to one another. "[C]laims must be read in view of the specification, of which they are a part, and [t]he construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be ... the correct construction." *Ormco Corp. v. Align Tech., Inc.*, 498 F.3d 1307, 1313 (Fed.Cir.2007) (citations and emphasis omitted). The Federal Circuit has emphasized two canons of construction that outline the relationship between the claim and the specification: "a) one may not read a limitation into a claim from the [specification], but b) one may

look to the [specification] to define a term already in a claim limitation." Renishaw, 158 F.3d at 1248. With these standards in mind, I turn to construction of the disputed claim terms at issue in this litigation.

III. Disputed Terms

A. "hub" and "central hub"

The term "hub" or "central hub" appears in the claims of all four patents. The parties agree that "hub" and "central hub" should have the same construction FN1 but disagree as to what that construction should be. The Plaintiffs argue that a hub should be defined by its functional terms as a "structure for receiving and supporting a fire-protection sprinkler head." The Defendants focus on structural terms and argue the hub should be interpreted to be "a combination of plate and sleeve attached to the plate and configured to receive a sprinkler head."

FN1. Accordingly, I will use the term "hub" in this section to refer to both a "hub" and a "central hub."

The Defendants rely heavily on the written description in the Summary of the Invention section of the patents.FN2 The Summary of the Invention is "a concise description of the entire claimed invention as conceived at the time of filing." *Cytec Corp. v. Tripath Imaging, Inc.*, No. 03-11142-DPW, 2005 WL 3177877, at (D.Mass. Nov.28, 2005). But the Defendants only cite to a portion of the Summary of the Invention and not the entire section. The portion they rely on states: "According to *one aspect of the invention*, the invention features a central hub that includes a plate and a sleeve attached to the plate and adapted to receive a sprinkler head." (' 097 Patent, col. 1:31-33 (emphasis added).) The next paragraph describes "another aspect" of the invention. (' 097 Patent, col. 1:34.) Both of these paragraphs refer to a plate and a sleeve that is attached to the plate.

FN2. The Defendants are referring to the '680, '097 and '218 patents that are entitled "fire protection sprinkler head support."

The Defendants cite a line of cases that limits the scope of patent claims based on statements in the Summary of the Invention section discussing "the invention" or "the present invention." I find these cases distinguishable, however, because they refer to language that describes inventions *as a whole*. *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 864 (Fed.Cir.2004) (holding that "[s]tatements that describe the invention as a whole, rather than statements that describe only preferred embodiments, are more likely to support a limiting definition of a claim term"); *see also Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1308 (Fed.Cir.2007) ("When a patent thus describes the features of the 'present invention' as a whole, this description limits the scope of the invention."); *Honeywell Int'l, Inc. v. ITT Indus., Inc.*, 452 F.3d 1312, 1318 (Fed.Cir.2006) (holding that the term "fuel injection system component" is limited to a fuel filter where the "written description refers to the fuel filter as 'this invention' or 'the present invention' " and it "does not indicate that a fuel filter is merely a preferred embodiment of the claimed invention"); *Genzyme Corp. v. Transkaryotic Therapies, Inc.*, 346 F.3d 1094, 1099 (Fed.Cir.2003) (finding that the Summary of the Invention limited a claim term when it explicitly stated "present invention" and was "not merely a preferred embodiment").

Statements describing "one aspect" or "another aspect" of the invention cannot reasonably be read to describe the invention "as a whole." They are more properly treated as embodiments of the invention. *See Moore U.S.A., Inc. v. Standard Register Co.*, 229 F.3d 1091, 1111 (Fed.Cir.2000), *cert. denied*, 532 U.S. 1008, 121 S.Ct. 1734, 149 L.Ed.2d 659 (2001) (treating a reference in the patent to "one aspect of the present invention" as a preferred embodiment). Embodiments described in the specification do not limit claim terms. *Sandisk Corp. v. Memorex Prods., Inc.*, 415 F.3d 1278, 1286 (Fed.Cir.2005), *cert. denied*, 546

The first four paragraphs of the Summary of the Invention, taken together, can be viewed as a description of the entire invention. Following those paragraphs, the summary states that "embodiments of these aspects of the invention may include one or more of the following features." ('097 Patent, col. 1:48-49.) But the use of language that limits the second and third paragraphs to "one aspect" or "another aspect" of the invention indicates that these particular paragraphs do not describe the invention as a whole. Instead, I look to the first and fourth paragraphs for guidance. The first paragraph gives a general overview of the invention and makes no reference to a hub, but the fourth paragraph provides further description. (*See* '097 Patent, col. 1:28-30.) The paragraph states:

By providing a central hub with the plate and sleeve, the central hub provides increased stability and versatility to the sprinkler head. The plate provides additional stability and support to the sleeve, and thus the sprinkler head, rendering the combination better able to operate effectively when high fluid pressures are utilized.

('097 Patent, col. 1:38-43.) The paragraph describes the "hub with the plate and sleeve" as a "combination," but there is no reference to the sleeve being "attached" to the plate.

This description is reflected in the claim language. The claims that describe the components of a hub consistently state that it has at least two parts—the plate and the sleeve. (*See* '097 Patent, claims 1, 21, 24, 27, 29, 31, 33, 58, 67, 68, 70, 71, 74-77, 80, 99 '218 Patent, claims 7, 11.) They do not, however, uniformly state that the sleeve must be attached to the plate. *Compare* '097 Patent, claim 1 ("a sleeve defining an opening extending through the broad surface of the plate"), *with* '097 Patent, claim 24 ("a telescoping sleeve attached to the plate"). Based on the claim language and the description in the Summary of the Invention, I find the first part of the Defendants' proposed construction to be correct. However, the claim language contradicts the requirement that the sleeve be attached to the plate. Accordingly, I adopt the more precise language proposed by the Defendants and construe the terms "hub" and "central hub" to mean "a combination of a plate and sleeve." FN3

FN3. I do not include the remaining language "configured to receive a sprinkler head" because, as will be discussed below, this language is incorporated into my construction of the term "sleeve." To include the language in the construction of "hub" would be redundant.

B. "sleeve"

The parties disagree regarding whether the term "sleeve" should be construed to include something as simple as an opening or hole in the plate. The term "sleeve" is recited in certain asserted claims of all four of the Plaintiffs' patents. The Plaintiffs argue that a "sleeve" is "the portion of the hub or support system adapted to receive a sprinkler head," whereas the Defendants argue for two interpretations, both of which require the sleeve to be distinct from the plate. Specifically, the Defendants assert that a sleeve is (depending on the type of claim at issue) either: 1) "a physical structure distinct from the plate that is configured to receive a sprinkler head," or 2) "an opening in a structure distinct from the plate that is configured to receive a sprinkler head." Under the Defendants' interpretation, a sleeve could never be merely an opening in the plate.

The Defendants' two proposed constructions of "sleeve" would have me interpret the term differently in claims 7 and 9 of the '680 Patent. But a claim term that appears in multiple claims must be construed consistently. *Inverness Med. Switzerland v. Princeton Biomeditech Corp.*, 309 F.3d 1365, 1371 (Fed.Cir.2002); *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1579 (Fed.Cir.1995), *cert. denied*, 516 U.S. 987, 116 S.Ct. 515, 133 L.Ed.2d 424 (1995). In claim 7, the Plaintiffs claimed "the sleeve defining

an opening configured to receive the fire-protection sprinkler head." ('680 Patent, col. 11:47-48.) In claim 9, they claimed "the sleeve being an opening configured to receive the fire-protection sprinkler head." ('680 Patent, col. 11:52-53.) No matter how I interpret the term "sleeve," however, the construction should be the same for both of these claims.

The parties' differing constructions hinge on three issues: whether the "sleeve" is a structure, an opening created by a structure, or both; whether the "sleeve" requires a structure that is distinct from the plate; and whether the "sleeve" is configured to receive a sprinkler head, or is instead adapted to receive a sprinkler head.

With respect to the first issue, the Plaintiffs criticize the Defendants' first construction for failing to apply consistently to all uses of the term. Although the Defendants' first proposal, that a "sleeve" is a "structure distinct from the plate," addresses claims where the sleeve defines an opening, the interpretation fails to adequately address the "sleeve *being* an opening" language of claims. ('680 Patent, col. 11:52 (emphasis added).)

In their Sur-Reply, the Defendants counter that they ultimately request a single construction that is "broad enough to include both usages in the claims—a structure or an opening in the structure." According to the Defendants, any construction of "sleeve," including the Plaintiffs', must grapple with the "different and inconsistent alternatives" presented by the use of "sleeve" in the four patents. (*Id.* at 7.) The Defendants recite in their Sur-Reply the seemingly contradictory references to "sleeve" in the claims—sometimes as a "sleeve defining an opening" and at other times as a "sleeve being an opening."

Because of the general obligation that I interpret "sleeve" uniformly, my construction of the term must encompass both references to the term in the respective patents. Construing "sleeve" as requiring a structure satisfies this requirement. A structure can have an opening as part of its features. Such a construction is also supported by the history and interrelationship of the four patents. In their Sur-Reply, the Defendants submit evidence showing that the "sleeve being an opening" language was not submitted until the '218 Patent, which was a continuation of the '097 Patent. In a submission to the patent examiner, the inventors indicated that the "attached claims are similar to those that were granted in related applications that issued as [the '784 and '097 Patents]." Specifically, claim 11 of the '218 Patent is an amended version of claim 80 of the '097 Patent. The only change was the replacement of the word "defining" with the word "being," to create the claim "a sleeve being an opening extending through a broad surface of the plate." I therefore construe the term "sleeve" to include the requirement of a structure that has an opening.

The second issue is whether this structure must be distinct from the plate. The Plaintiffs argue that the Defendants' second proposed construction also fails, because it does not adequately interpret claim 11 of the '218 Patent, which claims "a sleeve being an opening extending through a broad surface of the plate, the sleeve configured to receive the fire-protection sprinkler head." ('218 Patent, col. 12:5-7.) Since the sleeve can be an opening that extends through the plate itself, the Plaintiffs argue that the claim language does not limit a sleeve to an opening in a structure distinct from the plate.

The Defendants point to the Summary of the Invention for support that the sleeve must be part of a separate structure that is distinct from the plate. The Summary states: "According to one aspect of the invention, the invention features a central hub including a plate and a sleeve attached to the plate and adapted to receive a sprinkler head." ('218 Patent, col. 1:42-44.) As discussed above, this description in the Summary of the Invention does not refer to the invention *as a whole*, rather it clearly states that it refers to *one aspect of the invention*. By discussing only one aspect of the invention, the language describes an embodiment, and "without more the court will not limit claim terms to a preferred embodiment described in the specification." *Sandisk*, 415 F.3d at 1286; *see Moore*, 229 F.3d at 1111 (holding that "references to the preferred embodiment ... are not claim limitations") (citations omitted). The description of the invention in the Summary of the Invention does not contradict the plain meaning of claim 11 of the '218 Patent. *Sandisk*, 415

More persuasive is the language found in the '097 patent. Claim 11 of the '218 Patent is based on claim 80 of the '097 Patent, and as stated, similar claim terms should be interpreted in the same manner. Claim 80 claims a "sleeve defining an opening extending through a broad surface of the plate." This language indicates that the sleeve is a distinct structure that passes through the plate. Because the inventors stated that claim 11 was similar to claim 80, the "sleeve" recited in claim 11 also should be a distinct structure. Thus, I construe the plain meaning of the term "sleeve" to include a requirement that it be distinct from the plate.

The third issue is how to construe the relationship to the fire protection sprinkler head. In the claims, the "sleeve" consistently refers to an opening in the plate that is "configured to receive the fire protection sprinkler head." Thus, a structure must be "configured to receive the fire protection sprinkler head" before it can be a "sleeve." The Plaintiffs argue for the use of "adapted" instead of "configured" but fail to provide support other than arguing that "adapted" is not improper. Absent some reason to the contrary, I will not deviate from the language used in the claims themselves.

Based on the discussion above, I construe the term "sleeve" to be "the structure distinct from the plate that is configured to receive a sprinkler head."

C. "configured to receive the fire protection sprinkler head"

The Defendants argue that the plain and ordinary meaning of "configured to receive" requires further guidance. They rely on prosecution history to argue that "configured to receive" means "actually taking in." The prosecution history shows that the patent examiner rejected claims 1-23, 28, and 29 as being indefinite. The examiner further noted that in claims 1, 3, 6, 9, 14, 28, and 29:

[T]he use of the language "adapted to" does not constitute a limitation in any patentable sense. An element that is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform. It is not clear if the elements actually perform the functions as claimed.

In their amended claims, the inventors stated in the Remarks section: "The Examiner has rejected claims 1-23, 28, and 29 as being indefinite. We have addressed the Examiner's concerns in the amendments to the claims."

A reading of this section shows that the inventors were responding to the patent examiner's concerns that the claims were indefinite but not thereby agreeing to adopt a new definition for "configured to receive," as the Defendants claim. The examiner's comments do not change the ordinary meaning of "configured to receive." I view the ordinary and customary definition of "configure" to be as phrased in the *Webster's Ninth New Collegiate Dictionary* 275 (1987): "to set up for operation especially in a particular way." The ordinary meaning of this language acts as a positive limitation on the invention requiring more than an ability to perform. The invention must be set up in a particular manner to receive sprinkler heads, but this does not mean that it must actually receive the sprinkler head. Accordingly, I construe the ordinary meaning of "configured to receive the fire protection sprinkler head" to be "set up in a particular way to receive the fire protection sprinkler head."

D. "plurality of sleeves"

The term "plurality of sleeves" appears in the asserted claims of the '680 Patent and the '097 Patent. Both parties agree that "plurality of sleeves" means more than one sleeve, but the Defendants seek to include an additional limitation that each sleeve be "capable of receiving a sprinkler head separately from the other sleeves." The Defendants point to Figure 18A, an embodiment in the specification to support their proposed interpretation. Specifically, they note the written description: "Alternatively, as shown in FIG. 18A, plate 44

may support more than one sleeve 46, allowing multiple sprinkler heads 32, or simply offering the installer the choice of which sleeve to place the sprinkler head 32 into." ('097 Patent, col. 10:14-18.) But reliance on the written description to read a limitation into a claim term is misplaced, because "one may not read a limitation into a claim from the written description." *Renishaw*, 158 F.3d at 1248. The "written description part of the specification itself does not delimit the right to exclude. That is the function and purpose of claims." *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed.Cir.1995), *aff'd*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996).

The fact that Figure 18A is only one embodiment that illustrates and describes the possibility of multiple sleeves does not allow me to read an additional limitation into the claim term based solely on that embodiment. I construe "plurality of sleeves" based on its ordinary and customary meaning, which is "more than one sleeve."

E. "plate"

The term "plate" appears in the claims of all four of the patents. Although the parties agree that a plate is "flat" and "thin," the Defendants assert that the Plaintiffs' proposal that a plate be "a piece with a generally thin, flat portion" is overly broad. They argue the term should instead be construed to be "a flat, thin structure with a broad surface." FN4 For reasons I discuss below, I construe the term "plate" to be "a generally flat, thin structure."

FN4. Although Easyflex, Victaulic, and Greensket are amenable to this construction, they would prefer a construction of "a flat, thin structure with a broad horizontal surface." I note that in the Summary of the Invention for all four patents, the invention is described as a fire sprinkler head support or support system that can be positioned on "a ceiling, floor or wall." Given that the invention can be positioned on a wall, there is no reason why a plate should be limited to being horizontal.

1. Flat and Thin

The Defendants' proposed construction fails for a number of reasons. The requirement that the plate be flat and thin instead of generally flat and thin fails due to the embodiment in Figure 19. Claim terms generally are not interpreted in a manner that would exclude embodiments listed in the specification. *Verizon*, 503 F.3d at 1305; *see also MBO Labs., Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1333 (Fed.Cir.2007) ("[A] claim interpretation that excludes a preferred embodiment from the scope of the claim is rarely, if ever, correct.") (internal citation omitted). In the Detailed Description section, Figure 19 is described as having a plate that "can be formed to include a flat section 180 and two bent sections 182, 184. The bent sections 182, 184 can be bent at approximately a 90[(deg.)] angle to the flat section, and are thus designed to slide over and attach to legs 36, 38." ('680 Patent, col. 10:29-32.) Figure 19 depicts both a flat section and two bent sections. The Defendants argue that " 'bent sections' are nonetheless flat and thin." While this may be true, it is difficult to imagine "a flat, thin structure" having both flat and bent sections. Accordingly, I adopt the Plaintiffs' proposed language that the plate be "generally flat" and "thin."

2. Broad Surface

The Defendants argue that the specification and the prosecution history support the construction that a "plate" includes a broad surface. I find this argument unpersuasive.

The claim language, specification, and prosecution history all support the Plaintiffs' assertion that a plate need not have a broad surface. Certain claims in the patents require the plate to have a broad surface while others do not. *Compare* '097 Patent, col. 11:9 (Claim 1) (describing a central hub as comprising inter alia "a plate having a broad surface"), *with* '097 Patent, col. 12:32 (Claim 24) (describing a central hub as comprising inter alia "a plate"). This difference among the claims counsels against construing the term

"plate" to require "a broad surface." *See* Phillips, 415 F.3d at 1314 ("The claim in this case refers to 'steel baffles,' which strongly implies that the term 'baffles' does not inherently mean objects made of steel."); *Wilson Sporting Goods Co. v. Hillerich & Bradsby Co.*, 442 F.3d 1322, 1329 (Fed.Cir.2006) (finding that the use of the term "rigid" only once in describing the term "insert" "implies that the term 'insert,' when used elsewhere in the patent, does not inherently carry a 'rigid' limitation").

The Defendants rely on the Summary of the Invention for the proposition that a plate must be able to (1) support a sleeve and (2) maintain spacing between the legs. They state: "Every embodiment shows a plate having both features, and both features can only be possible with a plate that has a broad surface." Although the Plaintiffs do not argue this point, I note that Figure 18 in the '097 Patent refutes the Defendants' assertion. "In alternative embodiments, as shown in FIG. 18, plate 44 can simply be a narrow strip 190." ('097 Patent, col. 10:12-13.) I reiterate that "a claim interpretation that excludes a preferred embodiment from the scope of the claim is rarely, if ever, correct." *MBO Labs.*, 474 F.3d at 1333.

Finally, the Defendants misconstrue the '097 Patent prosecution history. The patent examiner cited fourteen instances where certain claims were anticipated. The Defendants argue that the claims were only approved after the inventor amended the term "sleeve" to include a "broad surface" limitation. But one of the claims rejected in each of the fourteen instances, Claim 24, was eventually approved by the patent examiner, and its amended form does not include a "broad surface" limitation for the term "plate." ('097 Patent, col. 12:32.) Thus, I decline to adopt the Defendants' proposed limitation that a "plate" require "a broad surface."

F. "broad surface"

The Defendants seek to define the ordinary meaning of "broad" further. Relying on *Merriam-Webster's Collegiate Dictionary* 144 (10th ed.1998), they argue that a "broad" surface should be a surface that is "wide in extent from side to side." A court may properly decline to construe a term further if the ordinary meaning of the term is apparent. *See* *Biotec Biologische Naturverpackungen v. Biocorp, Inc.*, 249 F.3d 1341, 1349 (Fed.Cir.2001) (holding that the meaning of "melting" did not require construction nor did it depart from its ordinary meaning); *Mentor H/S, Inc. v. Med. Device Alliance, Inc.*, 244 F.3d 1365, 1380 (Fed.Cir.2001) (finding that the district court properly instructed a jury that the terms "irrigating" and "frictional heat" should receive their ordinary meanings). The ordinary meaning for "broad" is easily understood, and no additional clarification is necessary. Accordingly, I agree with the Plaintiffs that the term "broad surface" has an ordinary meaning requiring no further definition.

G. "suspended ceiling" FN5

FN5. The claims generally refer to the term "T-bar grid" as part of a "suspended ceiling." The Plaintiffs proposed a construction for "T-bar grid" in their claim construction brief. The Defendants did not address this term in their own brief nor did the Plaintiffs raise the issue again in their Reply. I assume there is no longer a dispute regarding the construction of this term.

1. Meaning of "suspended ceiling"

The parties disagree on whether a ceiling attached rigidly to the building structure can still be construed to be a "suspended ceiling." The Plaintiffs argue that the term "suspended ceiling" is "a hanging ceiling including a grid for supporting ceiling tiles. The grid is directly hung from and supported by the building structure, and *not rigidly attached* to the building structure." The Defendants counter that any "ceiling hung from the structure above" is a "suspended ceiling" including those that are rigidly attached.FN6

FN6. The Defendants do not address whether a "suspended ceiling" includes "a grid for supporting ceiling tiles" as the Plaintiffs propose. I will assume that the Defendants have agreed to this construction.

The parties agree that a "suspended ceiling" is hung from and separate from the building structure, but dispute whether someone of ordinary skill in the art at the time of the invention would understand a "suspended ceiling" to include a ceiling that was rigidly attached to the building structure. The parties rely on the patent specification, documents discussed during the patent prosecution, and extrinsic evidence for support.

The language of the patents provides little guidance. Although the detailed description of the '784 Patent discusses situations where parts of the ceiling frame might collapse or where the suspended ceiling might be torn down, the specification does not indicate that the suspended ceiling must be non-rigidly attached. ('784 Patent, col. 7:38-46.) Although it likely is easier to remove a non-rigidly attached ceiling, this does not preclude the existence of rigidly attached ceilings that are also removable.

Two prior art patents discussed during the patent prosecution show the existence of rigidly attached suspended ceilings as early as 1971. The Federal Circuit has established that "prior art ... cited in the prosecution history of the patent constitutes intrinsic evidence." *V-Formation, Inc. v. Benetton Group SpA*, 401 F.3d 1307, 1311 (Fed.Cir.2005) (quoting *Kumar v. Ovonic Battery Co., Inc.*, 351 F.3d 1364, 1368 (Fed.Cir.2003)). The first patent, U.S. Patent No. 3,685,235 (a reference cited in the '218, '097, and '680 Patents) was issued in 1972 and describes an embodiment of its invention depicted in Figure 3:

The reach bolt 53 may be threaded into a connector 54 which, in turn, threadably engages a suspension stem 56 that is anchored to a ceiling joist, together to constitute suspension assembly 126.

(col.6:61-65.) The Plaintiffs argue that it is unclear from the written description whether suspension stem 56 is rigid or non-rigid. But the depiction in Figure 3 appears to show a system rigidly anchored to the ceiling. Reach bolt 53 and suspension stem 56 are depicted in the same manner, as metal screws that have been twisted into the connector 54.

The second patent the Defendants rely upon is U.S. Patent No. 3,558,091 (a reference cited in the '680 Patent), which was issued in 1971. In the Background of the Invention section, the patent states:

Suspended ceiling grid systems must be supported or suspended from the other elements in a building structure. *Conventionally, the grid system members are suspended by wires.* However, the building codes of some jurisdictions prohibit the use of wires and require the use of black channels which are positioned about four feet apart.

The ceiling grid members must be supported from these channels by a means which is safe, strong, easily and quickly attached to the channel and to the ceiling grid member, and *which locks securely in place.*

(Ex. G, col.1:8-17.) Although the Plaintiffs assert that their inventors and any person of ordinary skill in the art at the time of the invention would both view a "suspended ceiling" with the conventional understanding, they fail to provide reliable support for this argument.

The Plaintiffs rely on extrinsic evidence in the form of an article and several guides to support their argument that a "suspended ceiling" must be non-rigidly attached. Although "extrinsic evidence can shed useful light on the relevant art, ... it is less significant than the intrinsic record in determining the legally operative meaning of claim language." *Phillips*, 415 F.3d at 1317 (citations omitted). Extrinsic evidence is disfavored, in part, because it is not "created at the time of patent prosecution for the purpose of explaining the patent's scope and meaning." *Id.* at 1318. The Plaintiffs submit an article indicating that firemen carry wire cutters to cut zinc-coated wires used in suspended ceilings. In addition, they submit two guides on the installation and components of a suspended ceiling. Both guides depict suspended grids hung by wire to the ceiling. Although the extrinsic evidence submitted by the Plaintiffs shows that non-rigidly attached

suspended ceilings may be the far more common approach, it fails to show that suspended ceilings cannot also be rigidly attached.

The Plaintiffs have failed to show that the ordinary meaning of a "suspended ceiling" should be limited exclusively to non-rigidly attached ceilings. Accordingly, I construe the term "suspended ceiling" to mean "a ceiling including a grid for supporting ceiling tiles that is hung from and supported by the building structure."

2. Claim Limitation

The parties disagree on whether the term "suspended ceiling" is a claim limitation. The term is recited in the claim body of each asserted claim and in the preamble of some of the claims. "In general, a preamble limits the invention if it recites essential structure or steps, or if it is 'necessary to give life, meaning, and vitality' to the claim." *Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed.Cir.2002) (quoting *Pitney-Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed.Cir.1999)). But if the body of the claim sets forth the invention and limitations in their entirety, and the preamble simply states the purpose or intended use of the invention, then the preamble does not provide any further limitation on the scope of the claim. *Pitney-Bowes*, 182 F.3d at 1305; *see Eaton Corp. v. Rockwell Int'l Corp.*, 323 F.3d 1332, 1339 (Fed.Cir.2003). This preamble limitation analysis is a fact-intensive process that is evaluated based on the claim as a whole and the invention described in the patent. *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 952 (Fed.Cir.2006). The Plaintiffs argue that "suspended ceiling" acts as a claim limitation for each of the asserted claims. I address the two disputed claims to determine whether "suspended ceiling" limits the particular asserted claim.FN7

FN7. The disputed claims are claim 80 of the '097 Patent and claim 88 of the '784 Patent. The parties agree that "suspended ceiling" limits claims 1, 7, 11, and 16 of the '218 Patent as well as claims 16 and 45 of the '680 Patent.

The Defendants argue that in claims 1 and 31 of the '680 Patent, the term "suspended ceiling" recited in the claim body is not a claim limitation. The Plaintiffs do not address these claims in their Claim Construction or Reply. One of the clauses in the claim body describes "a fastening device attached to the end of leg, the fastening device for removably attaching the leg to a T-bar grid of a suspended ceiling." ('680 Patent, col. 11:14-16.) The clause in which the "suspended ceiling" is located describes the purpose of the fastening device and not the scope of the actual invention itself. I find that "suspended ceiling" does not limit these claims, and I also note that there appears to be no dispute over this issue.

Claim 88 of the '784 Patent refers to a "suspended ceiling" in both its preamble and its body. The claimed support system attaches "to a suspended ceiling grid including orthogonal sets of parallel rails." ('784 Patent, col. 17:50-51.) The claim body includes "a pair of legs spanning the distance between one of the sets of parallel rails; a clip ... for gripping one of the parallel rails; a platform ... having a sleeve oriented transversely with respect to the suspended ceiling grid." ('784 Patent, col. 17:53-59.) In order for any of the clauses in the claim body to make sense, the suspended ceiling grid including orthogonal sets of parallel rails recited in the preamble must be a claim limitation.

Claim 80 of the '097 Patent, in its claim body, describes the sprinkler support system as being "adapted to be attached to" and "independent from [the] ceiling support structure that includes a plurality of support members forming a suspended ceiling." ('097 Patent, col. 17:30-32.) Relationship to the suspended ceiling is what characterizes and gives meaning to the sprinkler support system. Thus, I find that the term "suspended ceiling" does limit Claim 80 of the '097 Patent.

H. "leg" and "pair of legs"

1. "leg"

The Defendants focus on the need for the "leg" to be a distinct structure. They argue that a "leg" is "a distinct support member that is longer than it is wide," while the Plaintiffs focus entirely on the purpose of the leg, arguing that it is "a structure for supporting a hub, plate and/or sleeve." For a variety of reasons, I find that the parties' alternative proposed interpretations are overly broad.

I start by noting that I have construed a "hub" to be "a combination of a plate and sleeve." Based on this construction, a leg necessarily supports a "plate" and a "sleeve" when it supports the "hub." In the Summary of the Invention section of the '680, '097, and '218 Patents, the fourth paragraph states: "The central hub is generally attached to a support structure by some mechanism, such as a leg." ('680 Patent, col. 1:58-60.) The language describes a leg that is separate from the hub, and hence, separate from the plate and sleeve as well. I agree with the Plaintiffs' argument though that the Defendants' proposed construction is overly broad because "a distinct support member" requires the leg to be distinct from all other structures, not merely the sleeve and plate. The language "a structure for supporting a hub" describes the functionality of the leg while maintaining its distinctness from the sleeve and plate.

The Defendants argue that the leg must be "longer than it is wide." They rely on the specifications that indicate a leg must span the distance between each side of a ceiling grid. But ceiling grid sizes may deviate and the leg may be used for a support structure in a floor or wall as well as a ceiling. In addition, the specification describes the legs in Figure 2: "[T]heir shape and thickness will depend on system requirements." ('680 Patent, col. 3:49-50.) In Figure 12, "each leg can be U shaped and connect to the same frame side at two locations." ('680 Patent, col. 8:61-62.) Instead of a U shape, a square shape could arguably be used as well. No language in the claims or the specifications requires the leg to be longer than it is wide. Thus, I construe "leg" to be "a structure for supporting a hub."

2. "pair of legs"

Although the Defendants go to great length in citing different locations in the '784 Patent that describe two legs, I fail to see how any of the citations indicate there is any confusion over the ordinary meaning of a "pair of legs." A "pair of legs" is a "pair of [structures for supporting a hub]." I agree with the Plaintiffs that "pair of legs" should be interpreted based on its ordinary meaning and no further guidance as to the ordinary meaning is necessary.

I. "connecting [the first or second end of] the leg to the T-bar grid"

The parties agree that "connecting" should be construed to mean "fastening" when used in the phrase "connecting [the first or second end of] the leg to the T-bar grid" in claims 16 and 26 of the '218 Patent. Although the Defendants argue for construing the term "connecting" to mean "fastening" wherever it appears in the claims, I agree with the Plaintiffs that the term "connecting" by itself requires no further construction beyond its ordinary meaning.

J. "tongue"

The term "tongue" only appears in dependent claims and as such, it incorporates the limitations of the referenced independent claims. A dependent claim "shall be construed to incorporate by reference all the limitations of the claim to which it refers." 35 U.S.C. s. 112, para. 4. In general, the dependent claim is more narrow in scope than the independent claim it references. *Intamin, Ltd. v. Magnetar Techs., Corp.*, 483 F.3d 1328, 1335 (Fed.Cir.2007).

"Tongue" appears in dependent claims 2, 17, 32, and 46 of the '680 Patent. The language used in each claim is similar: "the first portion [of the fastening device] comprises a tongue" ('680 Patent, col. 11:31-32; 13:27-28); "the first portion forms a tongue" (*id.*, col. 12:31-32); and "providing a tongue to the first portion" (*id.*, col. 14:34.) The Plaintiffs assert that given the Federal Circuit interpretation of "comprising," the term "tongue" does not need to be the same as the description of the "first portion" of the fastening device in the

independent claims. While this is true, "tongue" must still be construed more narrowly than the description of the "first portion."

Easyflex, Victaulic, and Greensket (the "Easyflex Defendants") propose a construction of "tongue" based on the language used in the referenced independent claims to define the "first portion." In claims 1 and 16, the first portion of the fastening device is described as having a generally vertically or downwardly "extending sidewall with a lower end for engaging one side of the T-bar grid." ('680 Patent, col. 11:18-20; 12:19-21.) Claims 31 and 45 further state that the first portion is configured or adapted to move relative to the second portion. (*Id.*, col. 13:25-26; 14:27-28.) The Easyflex Defendants propose construing "tongue" to be "a first portion of the fastening device having an elongated sidewall with a lower end for engaging one side of a ceiling grid, and being movable with respect to a second sidewall."

The Plaintiffs counter that this definition is confusing, but their offered construction, "a projecting strip," fails because it potentially allows the tongue to be broader than the first portion of the fastening device described in the independent claims.FN8 Thus, I construe "tongue" to be "a portion of the fastening device having an extending sidewall with a lower end for engaging one side of the T-bar grid, and able to move relative to a second sidewall."

FN8. The non-Easyflex Defendants, (the "Remaining Defendants") have agreed to the Plaintiffs' proposed construction for "tongue."

K. "cantilever spring"

The Plaintiffs and the Remaining Defendants agree that the construction of "cantilever spring" should be "a spring consisting of a projecting piece supported at only one end," while the Easyflex Defendants argue the term should be construed to mean "a flat spring supported at one end and holding a load at the other end." The term "cantilever spring" appears in asserted claims 17, 32, and 46 of the '680 Patent and appears once in each of the four patent specifications. The specification states: "Tongue 52 serves as a cantilever spring that can be bent away from gap 56 to allow the frame side of frame section 8 to be positioned in the gap." ('680 Patent, col. 4:30-33.) Here, although the "tongue" is "serving as a cantilever spring" ('680 Patent, col. 12:32), the cantilever spring is not limited by the scope of the "tongue."

A "tongue" may be flat but there is no requirement that the "cantilever spring" also be flat. The claim language and specification merely state that the tongue serves as a cantilever spring. In addition, when the cantilever spring is not in use, it remains a spring even though it is not carrying a load. The Plaintiffs' proposed construction fairly describes the cantilever spring as it is depicted in Figure 4 of the patents, accordingly I construe "cantilever spring" to be "a spring consisting of a projecting piece supported at only one end."

L. "clip"

The parties dispute whether a "clip" must be a spring mechanism. The Plaintiffs argue that a "clip" is "a device for gripping or holding things together." In contrast, the Remaining Defendants assert that a "clip" is "a spring mechanism for grasping," and the Easyflex Defendants argue that it should be "a flat spring mechanism for grasping." The term appears in asserted claims of all four patents.

The Defendants rely on the description of Figure 4 to support their argument that a "clip" is a spring mechanism. Since the clip in Figure 4 includes a tongue, which serves as a cantilever spring, they argue that the clip must also be a spring. But the specification also contemplates other types of clips. Aside from the clip in Figure 4, "[f]astening devices include ... *other clips*." ('680 Patent, col. 9:14-15.) Thus, the Defendants' reading of the specification is too narrow.

The claim language states the purpose of a "clip." In claim 88 of the '784 Patent, a "clip" is "for gripping one of the parallel rails." ('784 Patent, col. 17:55-56.) Accordingly, I construe a "clip" to be "a device for gripping."

M. "fitting"

The dispute over the construction of "fitting" centers on whether a fitting must be separate from the conduit and sprinkler head. The Defendants argue that a "fitting" must be "a part for connecting a conduit to a sprinkler head" while the Plaintiffs assert it can be "a connection between parts of a sprinkler system." The term is recited in asserted claim 80 of the '097 Patent; claims 8 and 11 of the '218 Patent; and claims 12, 27, 41, and 55 of the '680 Patent.

A review of each of the asserted claims shows that the term "fitting" is a separate part that is either attached or attachable to other parts of the sprinkler system. The Plaintiffs argue that claim 58 of the '097 Patent shows that a fitting can be integral with a flexible conduit. Claim 58 describes a method that provides "a flexible conduit having a fitting." ('097 Patent, col. 14:48.) A flexible conduit that has a fitting does not mean the flexible conduit and fitting cannot be separate parts. They could have already been attached, perhaps by having the contractor or manufacturer pre-connect the parts as described in the '097 Patent specification. ('097 Patent, col. 9:15-18.) The Defendants' proposal does not prevent the fitting and other parts from forming something larger such as a flexible sprinkler assemblage while still maintaining their status as individual parts.

The Plaintiffs further contend that the fitting may be welded or glued to other parts. But welding or gluing two parts together does not change the fact that there are two parts attached to each other; they simply are attached in a more permanent manner. I find that the specification and claim language support the Defendants' argument that a "fitting" is a separate part from the conduit and sprinkler head.

There is ample evidence that a fitting connects more than a conduit and a sprinkler head. The Defendants rely on the asserted claim language but the claim term should be evaluated in light of the entire patent. The '680 Patent specification describes a conduit attached to a pipe by a rigid fitting. ('680 Patent, col. 5:28-29.) In addition, the specific language of the asserted claims shows that a fitting can be attached to other parts. Claim 80 of the '097 Patent and claim 11 of the '218 Patent both describe "a fitting attached to the flexible conduit and the sleeve." ('097 Patent, col. 17:27-28; '218 Patent, col. 12:11.) Accordingly, I construe a "fitting" to be "a part for connecting other parts of a sprinkler system."

N. "flexible sprinkler assemblage"

There are two issues that the parties dispute regarding this term: 1) whether a flexible sprinkler assemblage must connect the sprinkler head, fitting, and conduit; and 2) whether they must all be pre-connected prior to arrival at the installation site. The Plaintiffs define a "flexible sprinkler assemblage" to be a "combination of a flexible conduit and either or both a fitting and a fire-protection sprinkler head connected to the flexible conduit." The Defendants argue that it must be a "combination of sprinkler head, fitting, and flexible conduit pre-connected before arrival at the installation site."

The Defendants rely on a definition of a flexible sprinkler assemblage included in the Summary of the Invention section of the '784 Patent:

The support system further includes a flexible sprinkler assemblage, which includes a flexible conduit, a fitting attached to the flexible conduit, and the sprinkler head attached to the fitting. A flexible sprinkler assemblage has several advantages, including reduced installation time and increased reliability, as the connections can be pretested at the factory.

('784 Patent, col. 2:17-23.) But this description follows limiting preceding text: "Embodiments of these aspects of the invention may include one or more of the following features." (*Id.*, col. 1:64-65.) The description represents an embodiment of the invention, not the inventor's overall definition for a "flexible sprinkler assemblage."

The asserted claim language shows that a conduit is the only part consistently included in a flexible sprinkler assemblage. Claims 1 and 16 of the '680 Patent state that a flexible sprinkler assemblage includes a flexible conduit that is attached or attachable to the fire protection sprinkler head. ('680 Patent, col. 11:11-12; col. 12:12-14.) Claim 80 of the '097 Patent and claim 11 of the '218 Patent state that a flexible sprinkler assemblage includes a flexible conduit and "a fitting attached to the flexible conduit and the sleeve," ('097 Patent, col. 17:24-28; '218 Patent, col. 12:8-11), while Claim 8 of the '218 Patent states that a flexible sprinkler assemblage includes a flexible conduit, "a fitting attached to the flexible conduit, and the sprinkler head attached to the fitting." ('218 Patent, col. 11:50-54.) The claim language of the '218 Patent shows that the inventor envisioned a flexible sprinkler assemblage that was made up of various parts. In claim 11, the assemblage has a fitting that is attached to the conduit and the sleeve with no mention of a sprinkler head, and in claim 8, the assemblage is made up of a conduit, fitting, and sprinkler head. Accordingly, I find that a "flexible sprinkler assemblage" only requires a flexible conduit and either or both a fitting and sprinkler head. There is no requirement that a combination of all three parts exist in order for there to be an assemblage.

The Defendants' assertion that the assemblage must be pre-connected before arrival at the installation site is flawed. All four patents include the following language: "Sprinkler head 32, fitting 66, and conduit 20 can be pre-connected, either by a contractor while on the ground, or by the manufacturer at the factory, and provided as a flexible sprinkler assemblage." ('097 Patent, col. 9:15-21; '680 Patent, col. 9:23-29; '218 Patent, col. 9:25-31; '784 Patent, col. 10:59-65.) The language allows for both pre-connection by the contractor at the installation site as well as pre-connection by a manufacturer before arrival at the installation site. The language does not preclude connection after the parts have arrived at the installation site. Thus, I construe a "flexible sprinkler assemblage" to be a "combination of a flexible conduit and either or both a fitting and a sprinkler head connected to the flexible conduit."

O. "annular opening"

The Defendants argue for a construction of "annular opening," a term that appears in asserted claim 1 of the '218 Patent and claims 5, 20, 35, and 49 of the '680 Patent, as a "ring-shaped opening defined by two concentric closed line segments." This is a construction that would make the patent invention inoperable. The Plaintiffs argue that an "annular opening" is "a generally ring-shaped opening." Under the Defendants' construction, an "annular opening" would have a core consisting of material, a ring-like gap around this core, and additional material surrounding the ring-like gap. No sprinkler head could fit through this opening since the center would be solid, making the opening inoperable. Because "it is unlikely that an inventor would define the invention in a way that excluded the preferred embodiment, or that persons of skill in this field would read the specification in such a way," *Hoechst Celanese Corp. v. BP Chemicals Ltd.*, 78 F.3d 1575, 1581 (Fed.Cir.1996), *cert. denied*, 519 U.S. 911, 117 S.Ct. 275, 136 L.Ed.2d 198 (1996), I find the Plaintiffs' interpretation of "annular opening" to be more persuasive.

Although the Defendants rely on the ordinary meaning of "annular" in their construction, the claims support the Plaintiffs' interpretation. In claim 1 of the '218 Patent, there is "a hub defining an annular opening configured to receive the fire-protection sprinkler head." ('218 Patent, col. 11:16-17.) Dependent claim 2 claims "[t]he support system of claim 1, wherein the opening is circular." (*Id.*, col. 11:21-22.) Since the dependent claim is further limiting claim 1, the language shows that the inventor used the term "annular opening" to include a larger set of openings, of which a "circular opening" is a subset. Accordingly, I construe "annular opening" to be "a generally ring-shaped opening."

P. "positioning and attaching the fire-protection sprinkler head within the opening"

The parties disagree over the meaning of "within the opening" and how a sprinkler head is positioned and attached "within the opening." The Plaintiffs propose "positioning the fire-protection sprinkler head and attaching it (directly or indirectly) in the opening" while the Defendants counter with "locating a portion of the fire protection sprinkler head within the opening." The term is recited in one asserted claim, claim 16 of the '218 Patent.

The Defendants propose a literal definition that would make the claimed invention inoperable, which implies that a person of ordinary skill in the art likely would not interpret the term in the same manner. In the '218 Patent specification describing Figure 3, the specification states: "The height of sprinkler head 32 may be adjusted within sleeve 46 by any of the commonly known attachment methods, e.g. by the loosening and tightening of a set screw." ('218 Patent, col. 4:57-60.) After reviewing Figure 3, I find it appears the screw loosens and tightens into fitting 66 and not sprinkler head 32. The intrinsic evidence supports the view that a person of ordinary skill in the art would understand the term to mean that, in a situation where the sprinkler head is not long enough to extend through the suspended ceiling, another part instead is attached within the opening. Thus, I construe "positioning and attaching the fire-protection sprinkler head within the opening" to mean "positioning the fire-protection sprinkler head and attaching it directly or indirectly within the opening."

Q. "platform"

The Plaintiffs argue that "platform" should be construed to have its ordinary meaning with no further guidance from me; the Defendants, except Gateway, argue that a "platform" should be "a flat, horizontal support structure." Gateway argues that a "platform" is "a raised, flat, horizontal structure." The term appears in a single asserted claim, claim 88 of the '784 Patent. The claims refer to a "plate" repeatedly, but in this one claim, the language recites a "platform" instead of the "plate" normally recited. "There is presumed to be a difference in meaning and scope when different words ... are used in separate claims." *U.S. v. Teletronics, Inc.*, 857 F.2d 778, 783 (Fed.Cir.1988), *cert. denied*, 490 U.S. 1046, 109 S.Ct. 1954, 104 L.Ed.2d 423 (1989). Given this difference, further clarification of the meaning of "platform" appears necessary.

In the Summary of the Invention section, a portion of an embodiment is described as "a platform (e.g. formed as a plate) mounted across the legs having a sleeve oriented transversely with respect to grid." ('784 Patent, col. 3:52-54.) The language indicates that a platform can be a plate. I have construed a plate to be "a generally flat, thin structure." I view the ordinary and customary term "platform" to be as phrased in *Webster's Ninth Collegiate Dictionary* 901 (1987) to mean "a horizontal flat surface usu[ally] higher than the adjoining area." Accordingly, I construe a "platform" to be "a generally raised, flat structure."

R. "frame"

Both parties agree that the term "frame" should be construed to have its ordinary meaning, but the Defendants seek further guidance since there are many articulations of the term "frame." I consider the customary definition to be that in *Webster's Ninth Collegiate Dictionary* 489 (1987): "an open case or structure made for admitting, enclosing, or supporting something." The Defendants propose defining a "frame" to be "a structure made for enclosing and supporting." I construe a "frame" to be "a structure made for enclosing or supporting something."

S. "fastening device" and "fixing device"

The Plaintiffs propose construing a "fastening device" and a "fixing device" based on their ordinary meanings without any further guidance. The Defendants propose construing each device to mean a

"mechanical part used for attachment." I do not believe the ordinary meaning here is so obvious that additional guidance is not necessary or helpful.

The specification states: "The specific fastening device will depend on what building component the support system must be attached to, and include all known attachment methods known in the art. Fastening devices include nails, ... clips, bolts, screws, slotted connections, tab and slot connections, and other connection styles known in the art." ('680 Patent, col. 9:11-16.) The description refers to both attachment methods and connection styles. The term "mechanical parts" does not adequately capture the described scope. Based on the specification description, I construe a "fastening device" and a "fixing device" to be "a part or method used for attachment or connection."

APPENDIX

Term	Proposed Construction by Plaintiffs	Proposed Construction by Defendants	Court Construction
hub and central hub	structure for receiving and supporting a fire-protection sprinkler head	a combination of plate and sleeve attached to the plate and configured to receive a sprinkler head	a combination of a plate and sleeve
sleeve	the portion of the hub or support system adapted to receive a sprinkler head	a structure distinct from the plate, or an opening in a structure distinct from the plate, that is configured to receive a sprinkler head	the structure distinct from the plate that is configured to receive a sprinkler head
configured to receive the fire protection sprinkler head	ordinary meaning	actually taking in the fire protection sprinkler head	set up in a particular way to receive the fire protection sprinkler head
plurality of sleeves	more than one sleeve	more than one sleeve, each sleeve capable of receiving a sprinkler head separately from the other sleeves	more than one sleeve
plate	a piece with a generally thin, flat portion	All Defendants: a flat, thin structure with a broad surface	a generally flat, thin structure
		Preferred by Easyflex Defendants: a flat, thin structure with a broad, horizontal surface	
broad surface	ordinary meaning	a surface that is wide in extent from side to side	ordinary meaning
suspended ceiling	a hanging ceiling including a grid for supporting ceiling tiles. The grid is directly hung from and supported by the building structure, and not rigidly attached to the building structure.	a ceiling hung from the structure above	a ceiling including a grid for supporting ceiling tiles that is hung from and supported by the building structure
			Claim limitation for Claim 88 of the '784 Patent and Claim 80 of the '097 Patent
leg	a structure for supporting a	a distinct support member that is	a structure for supporting a

	hub, plate and/or sleeve	longer than it is wide	hub
pair of legs	ordinary meaning	two distinct support members, each longer than it is wide	ordinary meaning
connecting [the first or second end of] the leg to the T-bar grid	fastening [the first or second end of] the leg to the T-bar grid	fastening [the first or second end of] the leg to the T-bar grid	fastening [the first or second end of] the leg to the T-bar grid

tongue	a projecting strip	Easyflex Defendants: a first portion of the fastening device having an elongated sidewall with a lower end for engaging one side of a ceiling grid, and being movable with respect to a second sidewall	a portion of the fastening device having an extending sidewall with a lower end for engaging one side of the T-bar grid, and able to move relative to a second sidewall
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		Remaining Defendants: a projecting strip	
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cantilever spring	a spring consisting of a projecting piece supported at only one end	Easyflex Defendants: a flat spring supported at one end and holding a load at the other end.	a spring consisting of a projecting piece supported at only one end
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		Remaining Defendants: a spring consisting of a projecting piece supported at only one end	
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clip	a device for gripping or holding things together	Easyflex Defendants: a flat spring mechanism for grasping	a device for gripping
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		Remaining Defendants: a spring mechanism for grasping	
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fitting	a connection between parts of a sprinkler system	All Defendants except Gateway: a part for connecting a conduit to a sprinkler head	a part for connecting other parts of a sprinkler system
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flexible sprinkler assemblage	combination of a flexible conduit and either or both of a fitting and a fire-protection sprinkler head connected to the flexible conduit	combination of sprinkler head, fitting, and flexible conduit pre-connected before arrival at the installation site	combination of a flexible conduit and either or both of a fitting and a sprinkler head connected to the flexible conduit
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annular opening	a generally ring-shaped opening	ring-shaped opening defined by two concentric closed line segments	a generally ring-shaped opening
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positioning and attaching the fire-protection sprinkler head within the opening	positioning the fire-protection sprinkler head and attaching it (directly or indirectly) in the opening	All Defendants except Gateway: locating a portion of the fire protection sprinkler head within the opening	positioning the fire-protection sprinkler head and attaching it directly or indirectly within the opening
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platform	ordinary meaning	a flat, horizontal support	a generally raised, flat
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structure

structure

		Preferred by Gateway: a raised, flat, horizontal structure	
frame	ordinary meaning	All Defendants except Gateway and Yong Won: plain and ordinary meaning: a structure made for enclosing and supporting	a structure made for enclosing or supporting something
fastening device and fixing device	ordinary meaning	mechanical part used for attachment	a part or method used for attachment or connection

D.Mass.,2008.
Flexhead Industries, Inc. v. Easyflex, Inc.

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