UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SIMPSON STRONG-TIE COMPANY INC.,
Petitioner

v.

COLUMBIA INSURANCE COMPANY,
Patent Owner

Case PGR2023-00047
U.S. Patent No. 11,649,626

PETITIONER SIMPSON STRONG-TIE COMPANY INC.'S REPLY TO PATENT OWNER'S RESPONSE

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PETITIONER'S UPDATED EXHIBIT LIST

Exhibit No.	Description
1001	U.S. Patent No. 11,649,626 to Brekke et al. ("the '626 patent")
1002	Prosecution History of the '626 patent
1003	Declaration of W. Andrew Fennell in Support of Petition for Post-Grant Review of U.S. Patent No. 11,649,626
1004	*Curriculum Vitae* of W. Andrew Fennell
1005	U.S. Publication No. 2002/0078656 to Leek et al. ("Leek")
1006	U.S. Patent No. 10,024,049 to Brekke et al. ("Brekke'049")
1007	U.S. Patent No. 9,394,680 to Bundy et al. ("Bundy")
1008	U.S. Publication No. 2005/0155307 to Timony et al. ("Timony")
1009	Japanese Application No. 19991014482 to Tsukamoto ("Tsukamoto")
1010	U.S. Patent No. 4,261,155 to Gilb ("Gilb'155")
1011	U.S. Patent No. 4,230,416 to Gilb ("Gilb'416")
1012	U.S. Patent No. 4,827,684 to Allan ("Allan")
1013	U.S. Publication No. 2014/0338282 to Sidhu ("Sidhu")
1014	U.S. Patent No. 10,184,242 to Brekke et al. ("Brekke'242")
1015	U.S. Publication No. 2001/0054270 to Rice ("Rice")
1016	*Fire-Rated Assemblies in Commercial Construction ("The Purple Book")*, National Gypsum Properties, LLC (November 5, 2013)
1017	*GA-600-2012 Fire Resistance Design Manual, 20th Ed.*, Gypsum Association (June 2012).
1018	*2012 International Building Code*, International Code Council, June 2011 ("IBC-2012")
1019	Prosecution History of Brekke'049

Exhibit No.	Description
1020	Prosecution History of the Brekke'242
1021	U.S. Patent No. 804,451 to Carlson
1022	U.S. Patent No. 3,601,428 to Gilb
1023	U.S. Patent No. 3,633,950 to Gilb
1024	U.S. Patent No. 3,752,512 to Gilb
1025	U.S. Patent No. 4,480,941 to Gilb
1026	U.S. Patent No. 4,717,279 to Commins
1027	U.S. Publication No. 2015/0184370 to Brekke ("Brekke'370")
1028-1029	*Intentionally Left Blank*
1030	G. Waller and D.J. Cochrane, "Stainless Steel for Durability, Fire-resistance and Safety," Nickel Development Institute, Technical Series 10042, Toronto, Ontario, Canada
1031	Patent Owner's Infringement Claim Chart, *Columbia Insurance Company et al v. Simpson Strong-Tie Company Inc.*, 3-19-cv-04683 (N.D. Cal.), filed August 12, 2019.
1032	U.S. Patent No. 4,005,942 to Gilb ("Gilb'942")
1033	English-language Translation of Japanese Patent Application Publication No. H7-229225, with attached translator's certification.
1034	Complaint for Patent Infringement, *Columbia Insurance Company et al v. Simpson Strong-Tie Company Inc.*, 3-19-cv-04683 (N.D. Cal.), filed August 12, 2019.
1035	U.S. Patent No. 4,422,792 to Gilb ("Gilb'792")
1036	U.S. Patent No. 10,316,510 to Brekke *et al*. ("the '510 Patent")
1037	Oxford Compact English Dictionary, Second Edition, Oxford University Press, (2000).
1038	U.S. Patent No. 11,021,867 to Brekke et al. ("the '867 patent")

Exhibit No.	Description
1039	GB Patent App. Pub. No. 2,451,853A (Cullen)
1040	EP Patent No. 0210744 B1 to Adams (Adams)
1041	Japanese Design Patent No. D1213894 to Yamaguchi (Yamaguchi) with attached certified English-language translation
1042	Complaint for Patent Infringement, Columbia Insurance Company et al v. Simpson Strong-Tie Company Inc., 3-23-cv-02432 (N.D. Cal.), filed May 17, 2023.
1043	U.S. Patent No. 5,341,619 to Dunagan et al. (Dunagan)
1044	U.S. Patent No. 5,220,766 to Hills, Sr. (Hills)
1045	Simpson Strong-Tie, "Connector Update," Vol. 2, No. 3 (November 1990)
1046	Second Declaration of W. Andrew Fennell in Support of Petitioner's Reply
1047	Deposition Transcript of December 22, 2022 Deposition of Dr. Reynaud Serrette in PGR2019-00063
1048	FWH Series Hangers – Mitek Residential Construction Industry (available at https://www.mitek-us.com/products/ewp-hangers/fire-wall-hangers/fwh/)

I. INTRODUCTION

Patent Owner's Response gives no reason for the Board to depart from its initial findings in the Institution Decision.

First, the Petition and its accompanying declaration (EX1003) by expert Mr. Fennell stand **unrebutted** by any expert declaration or cross-examination testimony. Instead, Patent Owner only raises unsupported attorney arguments against the Petition.

Second, Patent Owner does not dispute that the prior art meets nearly all of the limitations of the challenged claims. Patent Owner's arguments are directed to one limitation common to all challenged claims: "the extension portion spacing the channel-shaped portion from the back flange plane by a distance sized large enough to permit the two layers of 5/8-inch-thick drywall of the fire separation wall to be received between the channel-shaped portion and the back flange plane."

But Patent Owner's arguments are flawed by: (1) relying on unduly narrow claim constructions that impermissibly import unclaimed features into independent claims 1 and 53, (2) attacking the references individually rather than in the applied combinations, and (3) mischaracterizing the references in an attempt to distract the Board from the merits of the Petition.

In short, Patent Owner fails to refute the Petition's compelling showing of unpatentability. The Board should cancel all challenged claims as being unpatentable.

II. PATENT OWNER'S ARGUMENTS LACK EVIDENTIARY SUPPORT.

As a threshold matter, the Board's findings in its Institution Decision should be carried forward to its final written decision because Patent Owner did not submit an expert declaration in support of its arguments. *See Enzo Biochem, Inc. v. Gen-Probe, Inc.*, 424 F.3d 1276, 1284 (Fed. Cir. 2005) ("Attorney argument is no substitute for evidence."); *Wasica Fin. GmbH v. Cont'l Auto. Sys., Inc.*, 853 F.3d 1272, 1284-85 (Fed. Cir. 2017) ("a party's 'unsworn attorney argument … is not evidence' and thus cannot rebut record evidence*."*); *Gemtron Corp. v. Saint-Gobain Corp.*, 572 F.3d 1371, 1380 (Fed. Cir. 2009) ("[U]nsworn attorney argument … is not evidence and cannot rebut … other admitted evidence.").

This reason alone is sufficient to dispense with Patent Owner's Response and affirm the Board's findings in the Institution Decision as a final written decision cancelling all the challenged claims. Nevertheless, Petitioner replies to Patent Owner's Response arguments below. Petitioner's Reply, unlike Patent Owner's Response, is supported by the testimony of Petitioner's expert declarant Mr. Fennell, who has more than twenty years of experience in the field. *See* EX1046, ¶¶1-68.

III. CLAIM CONSTRUCTION

A. "channel-shaped portion"

Patent Owner alleges that the "channel-shaped portion" should be construed to mean a "portion of the hanger that forms a channel configured to receive the structural component." POR, 19. Patent Owner, however, attempts to unduly narrow the recited "channel-shaped portion" by further alleging that "all portions of the hanger which directly bound the channel that receives the structural component constitute the channel shaped portion." POR, 19.

Patent Owner's construction of "all portions of the hanger which directly bound the channel" is not supported from the '626 patent specification. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) ("[C]laims must be construed so as to be consistent with the specification."). Here, the '626 patent specification describes the "channel-shaped portion" as "includ[ing] a seat or base 44 and a pair of side panels 46 extending upward from the base," which "form a channel 52 configured to receive the floor truss 12." EX1001, 4:39-47. Nowhere does the '626 patent specification describe that all portions of the hanger directly bounding channel 52 constitute the channel-shaped portion. *See* EX1046, ¶¶16-18. Nor does Patent Owner support its construction of "channel-shaped portion" with expert testimony.

For purposes of this Reply, Petitioner does not dispute Patent Owner's initial construction that the "channel-shaped portion" should be construed to mean a portion of the hanger that forms a channel configured to receive the structural component. But Patent Owner's attempt to further limit the "channel-shaped portion" as corresponding to all portions of the hanger that directly bound the channel should be rejected for lacking support from the '626 patent specification. EX1046, ¶18.

Furthermore, Patent Owner's claim construction improperly focuses on the wall assembly intended to be used with the recited hanger. The claims, however, are directed to a hanger, not a wall assembly. When assessing what part of a hanger constitutes a "channel-shaped portion" and an "extension portion," a person of ordinary skill in the art (POSITA) would consider the physical features of the hanger itself and the natural divisions between those features. A POSITA would not assess the claim language and its application to the prior art by speculating how an installer might later install the hanger with a joist or an entire wall assembly, which may differ from installation to installation. EX1046, ¶19.

Here, claim 1 requires that the hanger include "a channel-shaped portion configured to receive the structural component" and an "extension portion spacing the channel-shaped portion from the back flange plane" by a certain distance. EX1001, 12:18-33. When applying the claim language to the cited art, a POSITA

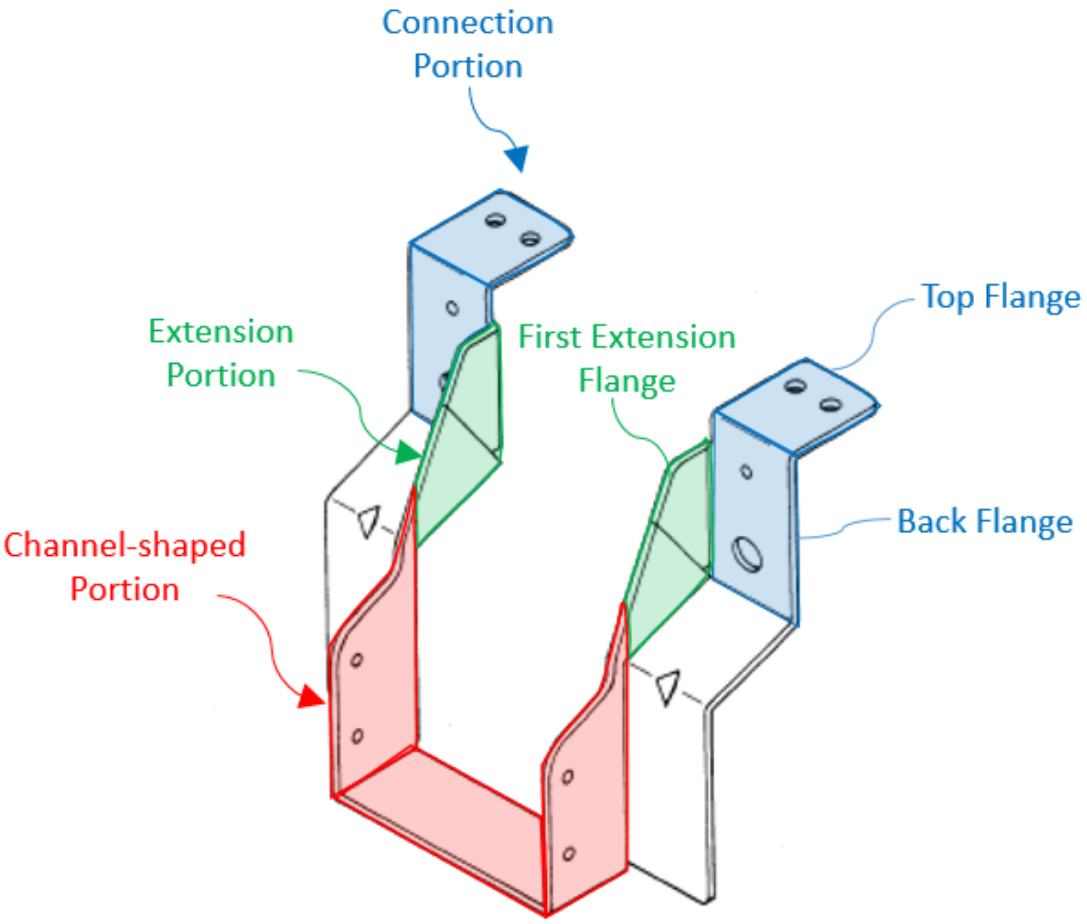
would look to the divisions naturally present in the hanger, such as where the hanger starts to change direction from vertical to angled (shown by the side flap of Yamaguchi or edge 16 of Adams) or where the hanger changes shape (Cullen). That is, the patentability of the claims should be assessed by comparison with the prior art hangers' actual structural elements, not how the prior art hangers might be used with a particular type of wall assembly. EX1046, ¶20.

IV. GROUND 1: THE CHALLENGED CLAIMS WOULD HAVE BEEN OBVIOUS OVER YAMAGUCHI IN VIEW OF BUNDY

As the Board correctly found in its Institution Decision, none of the claimed elements are absent from the Yamaguchi-Bundy combination. Institution Decision (DI), Paper 7, 27-45.

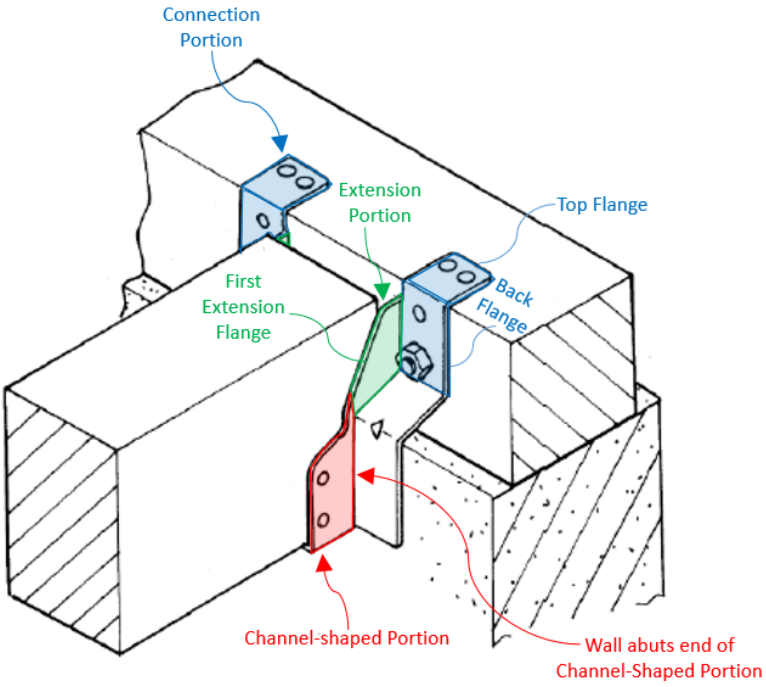
A. Yamaguchi-Bundy renders obvious an extension portion spacing the channel-shaped portion from the back flange plane by a distance large enough to permit two layers of 5/8"-thick drywall.

The Board's Institution Decision correctly found, based on Petitioner's evidence, that "Yamaguchi's extension portion (green) already defines a space between Yamaguchi's back flange plane (blue) and channel-shaped portion (red)" and that it would have been obvious to size Yamaguchi's extension portion to receive two layers of 5/8"-thick drywall in this space based on the teachings of Bundy. DI, 38-40; EX1046, ¶¶21-22.



EX1041, 2, Perspective View (annotations from Pet., 31).

Patent Owner argues that the green annotated section of Yamaguchi's hanger does not equate to the recited "extension portion" because "the joist is received not only in the portion of the hanger shaded red in the Simpson drawings, but also in the portion shaded green." POR, 22-23. Patent Owner's arguments are flawed by mischaracterizing Yamaguchi's hanger, relying on unclaimed features to distinguish the claims over the Yamaguchi-Bundy combination, and ignoring what the Yamaguchi-Bundy combination teaches as a whole.



EX1041, 5, Usage View (annotations from Pet., 27 and additional annotations).

First, Patent Owner mischaracterizes how Yamaguchi's hanger interfaces with the wall member and receives the joist. As shown above in the Usage View of Yamaguchi, the back end of the channel-shaped portion (red) of Yamaguchi's hanger abuts the wall member. A POSITA would have understood that the joist would stop at the dividing line between Yamaguchi's channel-shaped portion (red) and extension portion (green), because the wall member—whose edge is aligned with the boundary between the channel-shaped portion and the extension portion—prevents the joist from being pushed further back and into the extension portion. EX1046, ¶¶23-25. Thus, contrary to Patent Owner's assertions, a joist would not be received in the space defined by the extension flanges (green) of Yamaguchi's hanger.

Second, Patent Owner attempts to import a negative limitation —the joist is not received in any space defined by the extension flange—into claim 1. *See SuperGuide Corp. v. DirecTV Enters., Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004) ("[I]t is important not to import into a claim limitations that are not a part of the claim."). Claim 1 specifies that the "extension portion" spaces the "channel-shaped portion from the back flange plane by a distance large enough" to receive "two layers of 5/8-inch-thick drywall," without excluding a joist being received in the space defined by the extension portion. EX1046, ¶¶26-27. Furthermore, claim 1 of the '626 patent recites the transitional term "comprising," rendering the claim scope open-ended. *See Amgen Inc. v. Amneal Pharms. LLC*, 945 F.3d 1368, 1378-79 (Fed. Cir. 2020) ("The term 'comprising' is the standard transition term used to make clear that the claim does not preclude the presence of components or steps that are in addition to, though not inconsistent with, those recited in the limitations that follow."). Thus, the open-ended nature of claim 1 does not preclude a joist being partially received in the space defined by the extension flange. EX1046, ¶27.

Third, Patent Owner argues against Yamaguchi individually rather than as applied in combination with Bundy. The Federal Circuit has consistently held that "[a] finding of obviousness … cannot be overcome 'by attacking references individually where the rejection is based upon the teachings of a combination of references.'" *See Bradium Techs. LLC v. Iancu*, 923 F.3d 1032, 1050 (Fed. Cir.

2019) (quoting *In re Merck & Co*., 800 F.2d 1091, 1097 (Fed. Cir. 1986)). Yet Patent Owner's arguments do just that—attack the references individually. Contrary to Patent Owner's improper tactic, "the test for obviousness is what the combined teachings of the references would have suggested to those having ordinary skill in the art." *In re Mouttet*, 686 F.3d 1322, 1333 (Fed. Cir. 2012); *see also Hartness Int'l, Inc. v. Simplimatic Eng'g Co.*, 819 F.2d 1100, 1108 (Fed. Cir. 1987) ("the inquiry is not whether each element existed in the prior art, but whether the prior art made obvious the invention as a whole").

As explained in the Petition, Bundy teaches to locate drywall between the channel-shaped portion of a hanger and the front face of the wall's support member. EX1007, 5:16-18. A POSITA would have been motivated to receive two layers of 5/8-inch-thick drywall between Yamaguchi's back flange and channel-shaped portion to "cover and protect the structural members" of the wall, such as a wooden frame wall. Pet., 17-18; EX1003, ¶¶78-79. In doing so, a POSITA would have understood how to modify the size of Yamaguchi's extension portion to accommodate two layers of 5/8"-thick drywall while still allowing Yamaguchi's hanger to secure a joist's end to a frame wall. EX1003, ¶81; EX1007, 4:46-53. Given that drywall would be located between the Yamaguchi's back flange plane and the channel-shaped portion in the Yamaguchi-Bundy combination, a joist would not be inserted all the way back so that its end was engaged with the wall

frame, as purported by the Patent Owner. Rather, the joist would only be received in the channel-shaped portion (red) of Yamaguchi's hanger, as modified by Bundy. EX1046, ¶¶28-29. Thus, even under Patent Owner's narrow construction of the "channel-shaped portion," the combination of Yamaguchi and Bundy renders obvious the recited "extension portion" of claims 1 and 53.

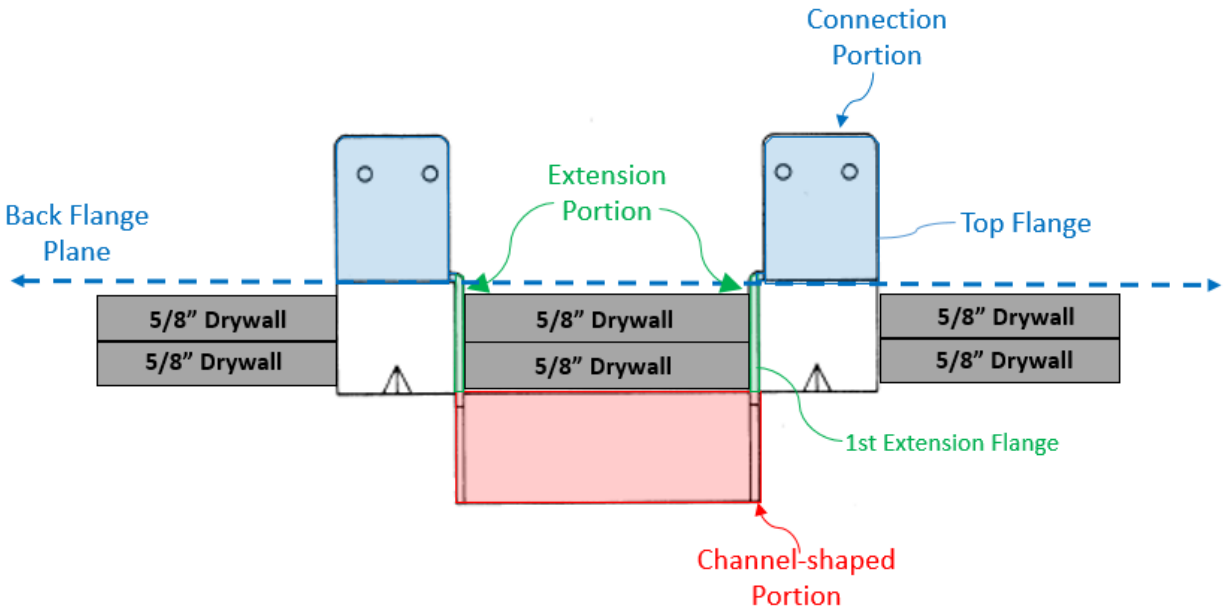
B. The extension portion of Yamaguchi's modified hanger permits two layers of 5/8"-thick-drywall to be received between the channel-shaped portion and the back flange plane.

Patent Owner argues that Yamaguchi has "no component of the hanger that prevents the back face of the drywall (or any portion thereof) being secured directly to the face of the wall framing," and that "Yamaguchi's hanger design does not have a construction which will accept drywall … between the channel-shaped portion and the back flange plane" due to the presence of "forward projecting pieces of the Yamaguchi hanger." POR, 25-26.

First, the back flange plane recited in claim 1 extends beyond the edges of the back flange itself. As such, the presence of Yamaguchi's "forward projecting pieces" have no bearing on whether drywall is received between the channel-shaped portion and the back flange *plane*. EX1046, ¶¶30-31.

Second, Patent Owner improperly imports unclaimed aspects into claim limitations [1.3.B] and [53.4]. EX1046, ¶32. Patent Owner's rationale does not consider the permissive structure of the hanger as claimed, but improperly injects

limitations requiring the entire wall assembly to have been assembled in a particular way. Patent Owner's arguments presume (1) that the entire wall assembly has been completely constructed at the time the extension portion distance is evaluated, and (2) that the drywall can only ever be placed in one of many possible positions with respect to the wall frame. Patent Owner does not consider other mounting arrangements, standard construction practices and tolerances, or even that the drywall must first be received into the channel prior to completion of the wall assembly.



EX1041, 3, Plan View (annotations from Pet., 30).

Independent claims 1 and 53 require only that "the extension portion spac[e] the channel-shaped portion from the back flange plane by a distance sized large enough to *permit* the two layers of 5/8-inch-thick drywall of the fire separation

wall to be received between the channel-shaped portion and the back flange plane."[1] EX1001, 12:28-33, 18:30-35. Directed to a "fire wall hanger," claims 1 and 53 are not further limited by the frame wall, the drywall, the placement of the drywall relative to the frame wall, or the method of installing the drywall. EX1046, ¶33. There is certainly no requirement that the hanger contain a component "that *prevents* the back face of the drywall (or any portion thereof) being secured directly to the face of the wall framing" or that the back flange plane "*define*" or "*bound*" the space that receives drywall as alleged by Patent Owner. POR, 25-26. As explained in the Petition and supported by Mr. Fennell's testimony, Yamaguchi-Bundy's modified hanger has an extension portion that is long enough to *permit* two layers of 5/8-inch-thick drywall (i.e., an extending flange having a length over 1 and 1/4 inches) to be *received* between the channel-shaped portion and the back flange plane. Pet., 28-30, 37; EX1003, ¶96. That is all that is required. EX1046, ¶32.

In arguing that the back surface of the drywall would be flush with the front surface of the wall frame, such that the total distance from the back flange plane to the channel-shaped portion would be less than 1 and 1/4 inch, Patent Owner further presumes that the channel-shaped portion in the Yamaguchi-Bundy combination

[1] Emphasis added unless otherwise noted.

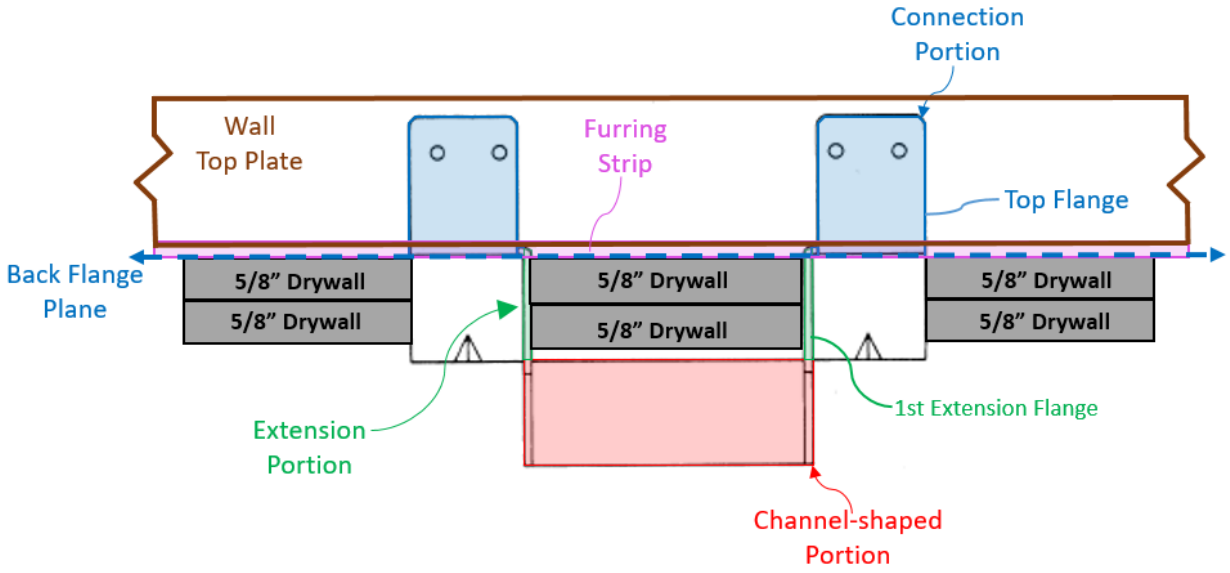
would be located *precisely* 1 and 1/4 inch from the wall face, and no more. But Patent Owner's presumption leaves no room for standard manufacturing tolerances, and almost ensures that the drywall could not be received between the channel-shaped portion and the wall without damage. It was well-known to a POSITA that the size of the extension portion would have to be larger than the width of the intended drywall, to allow the drywall to move between the channel-shaped portion and the wall with no damage. EX1046, ¶34.

Indeed, in previous proceeding PGR2019-00063 covering related U.S. Patent No. 10,316,510, Patent Owner's declarant Dr. Serrette described that "you cannot fit two pieces of material of a certain thickness in a space that has exactly the same width," and therefore, you need a "tolerance" to allow "one thing that needs to fit into another." EX1047, 43:7-44:18. Even the commercial product advertised as covered by the claims of the '626 patent has an extension portion width of 1 1/2 inch, which is 1/4 inch larger than the width of the drywall. EX1048. Accordingly, in designing the Yamaguchi-Bundy hanger, a POSITA would have known to size the hanger's extension flange larger than 1 and 1/4 inch, such that the width would be large enough to "permit" the two layers of drywall to be "received between the channel-shaped portion and the back flange plane" even considering the thickness of the back flange. EX1046, ¶¶35-36.

Additionally, in arguing that the face of the mounted drywall would be beyond the back flange plane, Patent Owner only considers the placement of the drywall relative to the hanger *after* the drywall is attached permanently to the wall. POR, 25-26. But, prior to permanently attaching the drywall to the wall, a user may insert the two drywall layers by sliding them up next to the channel-shaped portion—thus between the back flange plane and the channel-shaped portion—when initially positioning the drywall over the wall frame and *before* mounting the drywall flush against the wall frame, in a manner similar to that described in the '626 patent specification. *See, e.g.*, EX1001, 11:3-26. Again, claims 1 and 53 only indicate that the extension portion is sized large enough to "permit" the drywall to be "received between the channel-shaped portion and the back flange plane"—there is no requirement that the drywall permanently stay there. EX1046, ¶37.

Further, in arguing that the drywall in the Yamaguchi-Bundy combination would be mounted flush to the wall, Patent Owner ignores that drywall may be mounted in a non-flush configuration. EX1046, ¶38. For example, a POSITA would have understood that additional material equal to or greater than the thickness of Yamaguchi's back flange, such as shims or furring strips, can be (and commonly were) applied to the wall, such that the two layers of drywall would be located between the back flange plane and the channel-shaped portion of Yamaguchi's hanger, as shown below. EX1046, ¶38. Assembling multiple wall

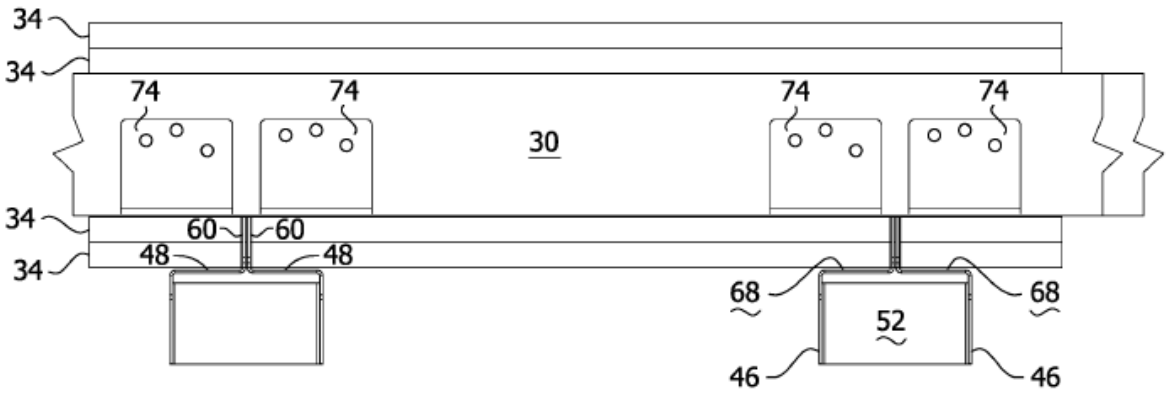
layers and establishing the plane of an outer finished wall were already well known to a skilled artisan. EX1046, ¶38. A POSITA would have understood that the extension flanges of Yamaguchi's hanger would be larger than exactly two layers of 5/8"-thick drywall to accommodate such added material. EX1046, ¶38. Thus, the extension portion of Yamaguchi's hanger, as modified by Bundy, would have *permitted* two layers of 5/8-inch-thick drywall of the fire separation wall to be *received* between the channel-shaped portion and the back flange plane.



EX1041, 3, Plan View (annotated).

Lastly, in arguing that Yamaguchi-Bundy's back flange plane would not "define" or "bound" the space that receives the drywall, Patent Owner ignores that the interface between the drywall and the back flange plane defined by Yamaguchi-Bundy's hanger corresponds to how the drywall and the back flange plane are depicted in the '626 patent. POR, 26. As shown in Figures 10A-12, 14A,

and 34-36 of the ’626 patent, the drywall is disposed flush against the wall, as it would be in the space behind the channel-shaped portion below the back flange. There is no requirement that the back flange plane “define” a boundary behind which no drywall is received. The embodiments disclosed in the ’626 patent have the same interface between the back flange plane and the drywall beyond the flange itself that Patent Owner is attacking in Yamaguchi-Bundy. The back flange plane in the claims merely serves as a reference point for measuring the claimed distance. It does not create a physical boundary. EX1046, ¶39.



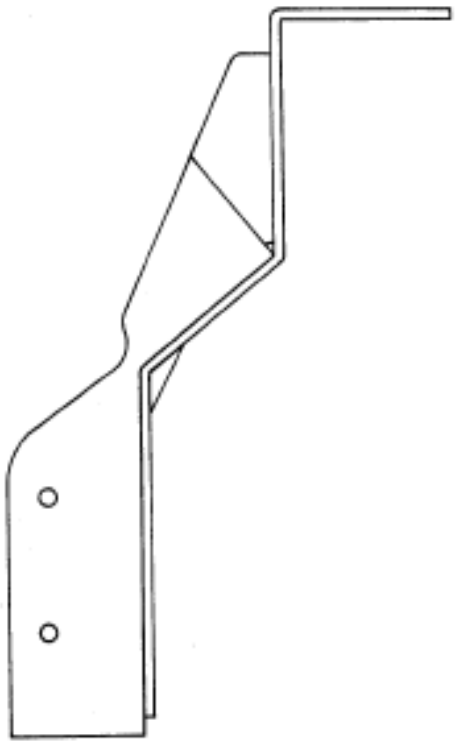
EX1001, FIG. 11.

C. Yamaguchi discloses a first extension flange extending from the back flange of the connection portion to the channel-shaped portion.

Patent Owner contends that the green annotated section of Yamaguchi’s hanger does not equate to the recited “first extension flange” of claim 1 because Yamaguchi’s extension flange is “a composite of two separate flanges—one

extending from the connection portion, the other extending from the back flange."

POR, 27-28.



EX1041, 4, Side View.

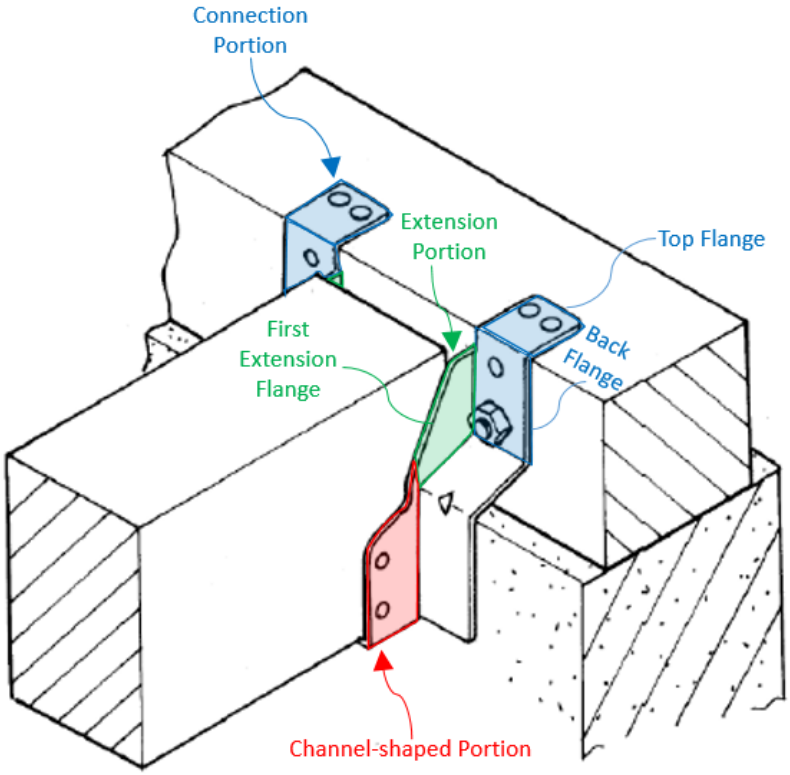
Again, Patent Owner relies on an unclaimed feature—the first extension flange consisting of a single piece—in an attempt to distinguish the claims over Yamaguchi's hanger. Claim 1 encompasses extension flanges formed from a single piece and multiple pieces. EX1046, ¶¶41-42. Nowhere does claim 1 recite that the first extension flange consists of a single piece.

As explained in the Petition, Yamaguchi's hanger shown in the perspective, plan, front, and side views includes a planar-shaped flange extending from the

channel-shaped portion to the connection portion with no intervening components therebetween. Pet., 26-27; EX1003, ¶94; EX1046, ¶43. A POSITA would have understood that the combination of the two pieces (annotated in green) equates to the "first extension flange" because the two pieces of metal collectively form a thin metal sheet extending from the channel-shaped portion to the back flange of the connection portion to define a space between the channel-shaped portion and the wall. EX1003, ¶94; EX1046, ¶43.

Furthermore, a POSITA would have understood that the line shown across the extension flange of Yamaguchi's hanger in the perspective, plan, front, and side views is a weld line. EX1046, ¶44. Being welded together, the two sections of Yamaguchi's extension flange shown in the perspective, plan, front, and side views constitute a single piece extension flange. EX1046, ¶44.

Even if the "first extension flange" of claim 1 is limited to being a single piece, Figure 5 of Yamaguchi discloses this limitation, as shown below.



EX1041, 5, Usage View (annotations from Pet., 27).

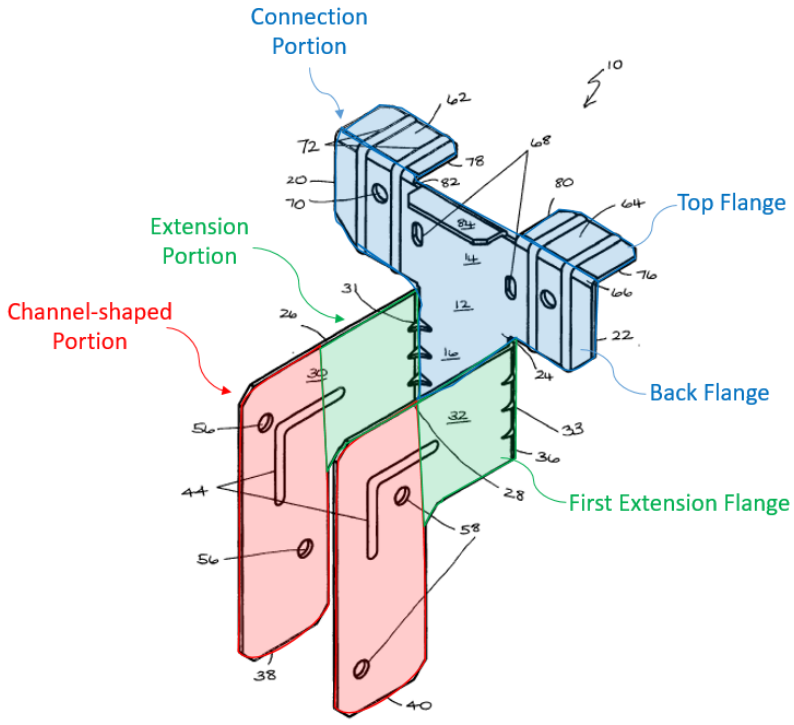
Patent Owner's assertion that usage view is "simply omitting certain details, *i.e.*, the join line crossing the flange" is baseless. POR, 29. Mr. Fennell explained that the usage view of Yamaguchi's hanger would have suggested to a POSITA that the extension flange consists of a single contiguous piece of sheet metal that is folded along the side edge of the back flange. EX1003, ¶94; EX1046, ¶¶45-46. Furthermore, in related proceeding PGR2023-00048, Mr. Fennell explained how Yamaguchi's hanger, including the first extension flange, can be formed from a single piece of sheet metal. EX1046, ¶46. Thus, not even Patent Owner's reliance on an unduly narrow claim construction rescues its claims from being obvious.

V. GROUND 2: THE CHALLENGED CLAIMS WOULD HAVE BEEN OBVIOUS OVER CULLEN IN VIEW OF BUNDY.

As the Board correctly found in its Institution Decision, none of the claimed elements are absent from the Cullen-Bundy combination. DI, 46-62.

A. Cullen-Bundy renders obvious an extension portion spacing the channel-shaped portion from the back flange plane by a distance large enough to permit two layers of 5/8"-thick drywall.

The Board's Institution Decision further correctly found, based on Petitioner's evidence, that "Cullen's back plate 12 and legs 38, 40 already define a space therebetween" and that it would have been obvious to size Cullen's sidewalls 30, 32 to receive two layers of 5/8"-thick drywall in this space based on the teachings of Bundy. DI, 56-58; EX1046, ¶¶47-48.



EX1039, FIG. 1 (annotations from Pet., 76).

Patent Owner contends that the green annotated section of Cullen's hanger does not equate to the recited "extension portion" because Cullen's sidewalls 30, 32 allegedly do "not serve to create any spacing between the joist and the wall structure" but instead "engage the joist until it meets the barbing present where the side walls meet the back flange (31, 33)." POR, 31-33. Again, Patent Owner is attacking the references Cullen and Bundy individually rather than considering what the combination of Cullen and Bundy teaches as a whole. EX1046, ¶49.

The Petition, as supported by Mr. Fennell's testimony, explained that Bundy teaches to locate drywall between the channel-shaped portion of a hanger and the connection of a hanger "to cover and protect the structural members of a building." EX1007, 5:17-21; EX1003, ¶150. When using Cullen's hanger for "timber building construction" (EX1039, 1:4, 5:7-8), a POSITA would have been motivated to receive two layers of 5/8"-thick drywall between Cullen's back flange (back plate 12) and channel-shaped portion (legs 38, 40) to provide a fire-resistant wall assembly. EX1003, ¶¶150-151. In doing so, a POSITA would have understood how to modify the size of Cullen's extension portions (sidewalls 30, 32) to accommodate two layers of 5/8"-thick drywall while still allowing Cullen's hanger to secure a joist's end to a frame wall. EX1003, ¶150-151; EX1007, 4:46-53. Given that drywall would be located between Cullen's back flange plane and the channel-shaped portion in the Cullen-Bundy combination, a joist would not be

engaged with the green annotated section of Cullen's sidewalls 30, 32, as purported by the Patent Owner. Rather, the joist would only be received in the channel-shaped portion of Cullen's hanger, as modified by Bundy. EX1046, ¶¶50-52. Thus, even under Patent Owner's narrow construction of the "channel-shaped portion," the combination of Cullen and Bundy renders obvious the recited "extension portion" of claims 1 and 53.

B. A POSITA would have been motivated to combine the teachings of Bundy's drywall space with Cullen's hanger.

Patent Owner contends that combining the teachings of Bundy's drywall space with Cullen's hanger would change Cullen's principle of operation—using the hanger "to abut the end of the joist against the back flange." POR, 30. Patent Owner is mischaracterizing Cullen. EX1046, ¶¶53-54.

Nowhere does Cullen describe that the joist must abut the back flange of the hanger to mount the joist to the wall assembly. EX1046, ¶55. Indeed, Patent Owner does not cite to any section of Cullen to support its notion that a joist must engage back plate 12 of the hanger. *See* POR, 30. Rather, Cullen's principle of operation is to secure a joist in a timber construction that ensures aligning the joist's top surface with the top surface of the frame's top plate. EX1039, Abstract ("The bracket includes … a locating tab (84) against which the joist is aligned to ensure alignment between the surface of the joist and sill for locating timber boards upon."), 13:1-5 ("The tab 84 is arranged so that a the [sic] top surface of a joist

located against it at the surface 86 will align with the top surface of the sill or bearing member."), 16:29-30 ("The required alignment between the top surfaces 90, 98 of the sill and joist is achieved with either method.").

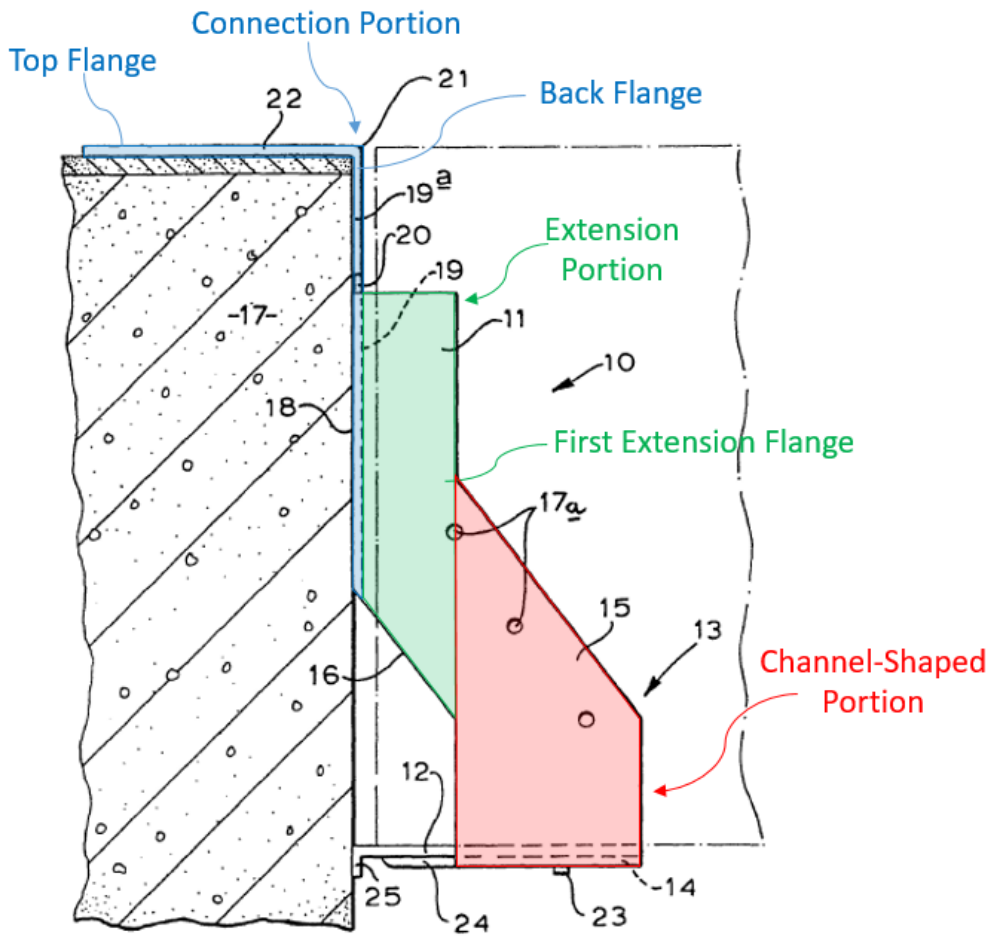
A POSITA would have understood that combining the teachings of Bundy's extension portion to accommodate two layers of 5/8" drywall with Cullen's hanger would still allow Cullen's modified hanger to align the top surface of the wall frame's top plate with the joist's top surface. As explained by the Petition and Mr. Fennell, a POSITA would have understood to adjust the length of Cullen's location tab 84 to extend across two layers of 5/8" drywall to keep the joist's top surface aligned with the top surface of the wall frame's top plate. Pet., 71; EX1003, ¶153. Specifically, a POSITA would have understood to cut a longer extension from fold line 116 shown in Figure 4 to provide location tab 84 with adequate length to extend across two layers of 5/8" drywall. EX1003, ¶153; EX1046, ¶56. Thus, combining the teachings of Bundy's drywall space with Cullen's hanger would not change Cullen's principle of operation.

VI. GROUND 3: THE CHALLENGED CLAIMS WOULD HAVE BEEN OBVIOUS OVER ADAMS IN VIEW OF BUNDY.

As the Board correctly found in its Institution Decision, none of the claimed elements are absent from the Adams-Bundy combination. DI, 63-79.

A. Adams-Bundy renders obvious an extension portion spacing the channel-shaped portion from the back flange plane by a distance large enough to permit two layers of 5/8"-thick drywall.

The Board's Institution Decision also correctly found, based on Petitioner's evidence, that Adams's "abutment portion 19 and base 14 already define a space therebetween" and that it would have been obvious to size Adams's sidewalls 15 to receive two layers of 5/8"-thick drywall in this space based on the teachings of Bundy. DI, 73-75; EX1046, ¶¶57-58.



EX1040, FIG. 2 (annotations from Pet., 118).

Just like its arguments against the Yamaguchi-Bundy and Cullen-Bundy combinations, Patent Owner resorts to attacking Adams and Bundy individually. Specifically, Patent Owner argues that the green annotated section of Adams's hanger does not equate to the recited "extension portion" because the sidewalls 15 of Adams's hanger "do[] not serve to create any spacing between the joist and the wall structure." POR, 34-37. Patent Owner is ignoring both the explicit teachings of Adams and what the combination of Adams and Bundy teaches as a whole. EX1046, ¶59.

First, Patent Owner ignores that Adams explicitly teaches to spatially separate the end of the joist from the wall member and abutment portion 19 of the hanger to avoid making the joist "vulnerable to moisture damage." EX1040, 1:53-55, 4:15-19 ("[T]he end of the joist can be ventilated through the opening behind the inclined edge 16 of the side walls."). Thus, in view of Adams alone, a POSITA would have understood that Adams's sidewalls 15 are configured to separate a joist from the wall to define a gap therebetween. EX1046, ¶60.

Second, as explained in the Petition and reiterated above, Bundy teaches to locate drywall between the channel-shaped portion of a hanger and the connection of a hanger "to cover and protect the structural members of a building." EX1007, 5:17-21; EX1003, ¶¶230-231. When using Adams's hanger to mount base 14 "away from" a "timber" wall (EX1040, 4:11-21), a POSITA would have been

motivated, as taught by Bundy, to receive two layers of 5/8-inch-thick drywall between Adams's back flange (abutment portion 19) and channel-shaped portion (base 14 and portions of sidewalls 15 thereabove) to provide a fire-resistant wall assembly. EX1003, ¶¶231-232; EX1046, ¶61. In doing so, a POSITA would have understood how to modify the size of Adams's extension portions (sidewalls 15) to accommodate two layers of 5/8"-thick drywall while still allowing Adams's hanger to secure a joist's end to a frame wall. EX1003, ¶231; EX1007, 4:46-53. Given that drywall would be located between the Adams's back flange plane (outer surface abutment portion 19) and the channel-shaped portion (base 14 and portions of sidewalls 15 thereabove) in the Adams-Bundy combination, a joist would not be inserted all the way back such that the green annotated sections of the sidewalls 15 would engage the joist, as purported by the Patent Owner. Rather, the joist would only be received in the channel-shaped portion of Adams's hanger, as modified by Bundy. EX1046, ¶¶62-63. Thus, even under Patent Owner's narrow construction of the "channel-shaped portion," the combination of Adams and Bundy renders obvious the recited "extension portion" of claims 1 and 53.

B. A POSITA would have been motivated to combine the teachings of Bundy's drywall space with Adams's hanger.

Patent Owner contends that a POSITA would not have been motivated to combine the teachings of Bundy's drywall space with Adams's hanger. POR, 37-41. Patent Owner asserts that Adams "contemplates that there would be

registration between [the] hanger and the wall surface at or near its base" due to the presence of a shoe plate or an extended stirrup. POR, 38-40. Patent Owner alleges that removing Adams's shoe plate or the extension of its stirrup to receive drywall would "completely change" its "principle of operation." POR, 40. Patent Owner is wrong. EX1046, ¶¶64-65.

First, a POSITA would have understood that two layers of drywall can still be received between the channel-shaped portion (base 14 and portions of sidewalls 15 thereabove) and the back flange plane (outer surface of abutment portion 19) of the Adams-Bundy hanger even with the presence of the shoe plate. EX1003, ¶247. Specifically, Mr. Fennell explained that a POSITA would have understood to add two layers of 5/8" drywall to the Adams-Bundy hanger under shoe plate 12 and around sidewalls 15, along with an insert of two layers of 5/8" drywall above shoe plate 12 and between sidewalls 15. EX1003, ¶247; EX1046, ¶66. And a POSITA would have been motivated to do so to cover all wall members with two layers of drywall, thereby protecting the wall members and increasing the fire resistance of the wall assembly. EX1003, ¶231; EX1007, 5:10-20.

Second, Adams teaches that the shoe plate is "optional," and removing Adams's optional shoe plate would not require its base 14 to be extended to the wall frame to mount Adams's hanger securely to the wall frame. EX1003, ¶¶248-249; EX1046, ¶67. A POSITA would have understood that receiving drywall

between base 14 and supporting element 17, as taught by Bundy, would allow the base's rear edge to abut drywall, rather than hang without any support, thereby allowing Adams's hanger to counter any moment forces by the received joist. EX1003, ¶248; EX1046, ¶67. In doing so, a POSITA would have understood to construct Adams's hanger from a sufficiently-thick metal sheet to counter any moment forces. Pet., 121-123; EX1003, ¶248; EX1046, ¶67. Because Adams's hanger 10 is already supported by its bearing portion 22 resting on the top surface of a wall frame member, the counter moment force applied by base 14 to drywall would be minimized, not damaging the drywall. EX1003, ¶248; EX1046, ¶¶67-68.

Thus, combining the teachings of Bundy's drywall space with Adams's hanger would not change Adams's principle of operation.

VII. CONCLUSION

As Patent Owner fails to overcome Petitioner's challenges, Petitioner requests that the challenged claims be found unpatentable.

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMITATION, TYPEFACE REQUIREMENTS, AND TYPE STYLE REQUIREMENTS

1. This Petitioner's Reply complies with the type-volume limitation of 5,600 words, comprising 5,387 words, excluding the parts exempted by 37 C.F.R. § 42.24(c).

2. This Petitioner's Reply complies with the general format requirements of 37 C.F.R. § 42.6(a) and has been prepared using Microsoft® Word 2010 in 14 point Times New Roman.

Respectfully submitted,

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Case PGR2023-00047
U.S. Patent No. 11,649,626

CERTIFICATION OF SERVICE (37 C.F.R. § 42.6(e))

The undersigned hereby certifies that on September 6, 2024, true and correct copies of the foregoing **PETITIONER SIMPSON STRONG-TIE COMPANY INC.'S REPLY TO PATENT OWNER'S RESPONSE** and Exhibits 1046-1048 were served electronically via e-mail in their entireties on the following counsel for Patent Owner:

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