

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

XACTWARE SOLUTIONS, INC.
Petitioner

v.

EAGLE VIEW TECHNOLOGIES, INC.
Patent Owner

Case No. IPR2016-00582

Patent No. 8,078,436

PATENT OWNER'S PRELIMINARY RESPONSE

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2001	Weisstein, Eric W. "Combinatorics." <i>From</i> MathWorld - A Wolfram Web Resource. http://mathworld.wolfram.com/Combinatorics.html .
2002	July 25, 2013 Non-Final Office Action in Reexamination Proceeding of U.S. Pat. No. 8,078,436
2003	October 25, 2013 Patent Owner's Amendment to Claims and Remarks in Reexamination Proceeding of U.S. Pat. No. 8,078,436
2004	April 16, 2014 Notice of Intent to Issue <i>Ex Parte</i> Reexamination Certificate in Reexamination Proceeding of U.S. Pat. No. 8,078,436

I. INTRODUCTION

Xactware Solutions, Inc.'s Petition should be denied. First, Petitioner has failed to make even a threshold showing that Hsieh and AppliCad – the only two references relied on in the Petition – were publicly available “printed publications” prior to the '436 patent's priority date. Neither the Petition nor Petitioner's declarant Harold Schuch offers sufficient factual support establishing that Hsieh – an academic paper that was never published – was publicly available before the '436 patent's priority date. Petitioner's support for AppliCad – which is an undated description of the AppliCad product – is similarly flawed. Although Petitioner relies on an affidavit attesting to the date when it was available at a particular “website address,” (Ex. 1005 at 48), merely posting a document to a website on the Internet is insufficient to establish public availability. As the Board has previously found, much more is required. *SRI Int'l, Inc. v. Internet Sec. Sys., Inc.*, 511 F.3d 1186, 1197 (Fed. Cir. 2008); *Electronic Frontier Foundation (EFF) v. PersonalAudio*, IPR2014-00070, Paper No. 21 (Apr. 18, 2014), at 22. Accordingly, the Board should not institute on Petitioner's only proposed Ground.

Second, there is no reasonable rationale for combining the references at issue to achieve the claimed inventions of the '436 patent. Petitioner's principal argument on motivation to combine – that Hsieh can be used to output three-dimensional roof models to AppliCad for purposes of creating a report – is

incorrect on the merits: AppliCad is incapable of importing three-dimensional models. Moreover, Hsieh cannot output 3D models, and neither Petitioner nor its declarant Schuch provides anything more than conclusory assertions as to why one of skill in the art would have combined them. At bottom, Hsieh and AppliCad are simply two very different references, and faced with that reality, Petitioner resorts to the improper use of hindsight. Hsieh does not disclose roof reporting functionality but AppliCad does, and thus according to Petitioner, a person of skill in the art would be inclined to combine them to solve the same problems that the '436 patent claims solve. But such a hindsight-based argument deserves no weight, and the Board should decline to institute trial for this reason as well.

Third, the combination of Hsieh and AppliCad fails on the merits for numerous reasons. The combination does not render obvious any of the three challenged independent claims of the '436 patent (claims 1, 18, and 36) because it is missing at least three core elements common to each independent claim, including:

- the correlation of specific types of aerial photographs;
- the generation of a 3D model based on that correlation; and
- a roof estimate report with detailed and specific contents

As such, it also does not render obvious any of the 44 challenged dependent claims, which incorporate the limitations of the independent claims not met by Hsieh and AppliCad, and add further limitations not disclosed by those references.

Accordingly, Petitioner has not met its burden of showing a reasonable likelihood that it will prevail with respect to at least one of the challenged claims, and the Board should decline to institute trial. *See* 35 U.S.C. § 314(a).

II. OVERVIEW OF THE CLAIMED INVENTIONS IN THE '436 PATENT

The '436 patent is directed to “systems and methods for estimating construction projects, and more particularly, to such systems and methods that allow estimates involving roofs on buildings to be created remotely” by using aerial images of those roofs. *See* '436 patent (Ex. 1001) at 1:16-19. Before the '436 patent, no one had combined the use of at least two digitized aerial images meeting specific criteria, photogrammetry techniques, the creation of detailed 3-D models, and roof estimate reports with outputs and annotations specifically tailored to the needs of roofers and insurance companies. The '436 patent claims have been examined twice by the Patent Office, after the initial examination on December 13, 2011, and again after a supplemental examination on August 27, 2014. Ex. 1001 at 1 (Date of Patent); Ex. 1002 at 1 (Certificate Issued). Each of the challenged claims was confirmed over 319 pieces of prior art.

Petitioner has challenged 47 claims of the '436 patent in the Petition, only three of which are independent claims (1, 18, and 36), and there is substantial overlap among the limitations of the independent and dependent claims alike. Each of the challenged independent claims is directed to technological steps associated with “generating a roof estimate report” from at least two specific types of aerial images ('436 patent at claims 1, 18, and 36), and the dependent claims add further requirements to those steps, including with respect to the contents of the “roof estimate report.” Using claim 1 as an example, the first step in the process requires receiving two aerial images where “each of the aerial images provid[es] a different view of the roof of the building, wherein the first aerial image provides a top plan view of the roof and the second aerial image provides an oblique perspective view of the roof, and are not a stereoscopic pair.” *Id.* at claim 1. Subsequently, the process requires “correlate[ing] the first aerial image with the second aerial image” and the generation of a “three-dimensional model of the roof that includes a plurality of planar roof sections that each have a corresponding slope, area, and edges.” *See id.* Next, the claimed process requires the generation and transmission of a tangible roof estimate report, with detailed, enumerated contents, including “one or more top plan views of the three-dimensional model annotated with numerical values that indicate the corresponding slope, area, and length of edges of at least some of the plurality of planar roof sections,” and

wherein the roof estimate report includes “at least two different indicia for different types of roof properties.” *See id.* An example of such a roof estimate report is included within the specification of the '436 patent at Figs. 5A-5F.

III. CLAIM CONSTRUCTION

Patent Owner agrees with Petitioner's proposed constructions for purposes of this IPR for the three terms Petitioner has suggested for construction: “top plan view”; “oblique perspective view”; and “not a stereoscopic pair.”

IV. STANDARD FOR GRANTING *INTER PARTES* REVIEW

A petition for *inter partes* review may only be granted when “the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a); *see also* 37 C.F.R. § 42.108(c). Petitioner bears the burden of showing the statutory threshold has been met. *See* Office Patent Trial Practice Guide, 77 Fed. Reg. 48756 (Aug. 14, 2012). In determining whether to institute an *inter partes* review, the Board may “deny some or all grounds for unpatentability for some or all of the challenged claims.” 37 C.F.R. § 42.108(b); *see also* 35 U.S.C. § 314(a).

It is Petitioner's duty to provide sufficient grounds for the institution of a review “focus[ing] on concise, well organized, easy-to-follow arguments supported by readily identifiable evidence of record.” *Cisco Systems, Inc. v. C-Cation*

Techs., LLC, IPR2014-00454, Paper No. 12 (Aug. 29, 2014) at 11. “The Board will not take on the role of advocate for a party, trying to make out a case the party has not adequately stated.” *See, e.g.*, Standing Order ¶ 121.5.2 (B.P.A.I. Mar. 8, 2011); *see also Spears v. Holland*, Interf. No. 104,681, Paper No. 30 (B.P.A.I. Mar. 13, 2002) at 15 (“It is not the role of this board to help [Petitioner] That is the role of [Petitioner’s] counsel as an advocate, not the role of the board as an unbiased and impartial decision maker. Taking sides to aid one party to the detriment of the other is not what we do.”).

Further, “[u]nlike district court litigation—where parties have greater freedom to revise and develop their arguments over time and in response to newly discovered material—the expedited nature of IPRs bring with it an obligation for petitioners to make their case in their petition to institute.” *Intelligent Bio-Sys, Inc. v. Illumina Cambridge Ltd.*, No. 2015-1693, 2016 WL 2620512, at *8 (Fed. Cir. May 9, 2016) (affirming Board’s rejection of Petitioner’s reply raising new arguments). “While the Board’s requirements are strict ones, they are requirements of which petitioners are aware when they seek to institute an IPR.” *Id.*

V. PETITIONER FAILS TO DEMONSTRATE A REASONABLE LIKELIHOOD THAT IT WILL PREVAIL

A. Petitioner Does Not Demonstrate That Hsieh And AppliCad Are Prior Art

i. Legal Standard for Establishing A Reference As Publicly Available Prior Art

Pursuant to 35 U.S.C. § 314(a), Petitioner has the burden to establish in its Petition a reasonable likelihood of success, including providing competent evidence sufficient for a threshold showing that the only two asserted references are “printed publications.” *See Apple, Inc. v. DSS Tech. Mgmt., Inc.*, IPR2015-00369, Paper No. 14 (Aug. 12, 2015) at 10 (citing 35 U.S.C. § 314(a)). But Petitioner has failed to establish the public accessibility of Hsieh and AppliCad – the only references Petitioner relies on – and as such, the Board should not institute trial.

Public accessibility is the touchstone for determining whether a particular reference qualifies as a printed publication. *See SRI Int'l, Inc.*, 511 F.3d at 1194-95. The mere fact that a member of the interested public possibly could have accessed the document is not enough to establish public accessibility. *See id.* at 1196; *see also In re Cronyn*, 890 F.2d 1158, 1161 (Fed. Cir. 1989). Rather, a given reference is deemed publicly accessible upon a showing that it has been made available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, can locate it. *See SRI Int'l, Inc.*, 511 F.3d at at 1194-95.

Where a Petitioner fails to make a preliminary showing that the relied-upon art was publicly accessible, the Board routinely declines to institute trial as there is no reasonable likelihood that the petitioner will prevail. *See* 35 U.S.C. § 314(b); *Symantec v. Trustees of Columbia Univ.*, IPR2015-00371, Paper No. 13 (June 17, 2015) at 9 (declining to institute where Petitioner “failed to meet its burden of at least a preliminary showing” of public accessibility); *Oxford Nanopore Technologies v. Univ. of Washington*, IPR2014-00513, Paper No. 12 (Sept. 15, 2014) at 17-18 (declining to institute where Petitioner did not show a “reasonable likelihood” that references constituted prior art).

Conclusory statements concerning public availability, such as those presented here, are insufficient. Rather, the Board requires petitioners to bring forth legitimate evidence of public availability before instituting trial. For example, in *Samsung Electronics v. Rembrandt Wireless Techs., LP*, the Board found no public availability where the petitioner’s declarant did not address whether an ordinarily skilled individual, exercising reasonable diligence would have found the publication, as contrasted with whether it would have been *possible* for an interested individual to do so. *See* IPR2014-00514, Paper No. 18 (Sept. 9, 2014) at 9-10. Similarly, in *Electronic Frontier Foundation v. Personal Audio*, the Board found that neither of the petitioner’s declarants addressed how one of ordinary skill, exercising reasonable diligence, would have been able to find the

Internet address of the prior art reference. *See* IPR2014-00070, Paper No. 21 (Apr. 18, 2014) at 23-24. As a result, the Board found the petitioner's showing of public availability to be insufficient. *Id.* As set forth below, Petitioner has similarly not met its burden with respect to Hsieh or AppliCad, and the Board should decline to institute trial.

ii. Hsieh

Petitioner identifies the Hsieh reference, a research paper purportedly deposited at the University Libraries of Carnegie Mellon University (Ex. 1004 at 2), as prior art and uses the date of "November 1995" in its citations thereof. *See* Pet. at List of Exhibits. But Petitioner has not made even a facial showing that Hsieh was publicly available at any time before the priority date of the '436 patent. *See* Pet. at 4.

First, there is no evidence that Hsieh was indexed or otherwise made accessible to the public, as required. *See SRI Int'l*, 511 F.3d at 1194; *see also In re Lister*, 583 F.3d 1307, 1317 (Fed. Cir. 2009) (declining to find public availability based only on "pure speculation" about the practices of the document's custodian). The Federal Circuit has consistently rejected the public availability and accessibility of materials in university libraries without evidence of indexing or cataloging that would provide a way for interested members of the public to locate the reference. *See, e.g., In re Cronyn*, 890 F.2d at 1161 (thesis not catalogued or

indexed by subject matter, only by author's name); *In re Bayer*, 568 F.2d 1357, 1362 (C.C.P.A. 1978) (thesis uncatalogued and unshelved as of priority date). Petitioner provides no evidence that Hsieh was indexed or catalogued such that interested members of the public could find it, or any other similar information establishing that it was publicly available before the '436 patent's priority date, *i.e.*, April 17, 2007. Petitioner merely restates the November 1995 date on the front page of Hsieh, and its declarant is silent on public accessibility; the Board requires much more. *See, e.g., Symantec*, IPR2015-00371, Paper No. 13, at 8-9; *Oxford Nanopore Techs.*, IPR2014-00513, Paper No. 12, at 17-18.

The Board has previously resolved an analogous petition by declining to institute trial. In *Symantec*, Petitioner did not provide evidence "tending to show when the [Cardinale] thesis actually may have been released or distributed to the public." *Symantec*, IPR2015-00371, Paper No. 13, at 8. Even though the thesis in question included "an Abstract and a list of subject terms," the Board found that Petitioner failed to meet its burden because it pointed to no evidence that the thesis was entered into an electronic database prior to the priority date, "much less into a publicly accessible database prior to the critical date." *Id.* at 8-9. Here, the Petition does not make even a preliminary showing that Hsieh was physically available to the public, that Hsieh was shelved in a manner that it could be located

by members of the public, or that Hsieh was indexed such that interested members of the public could find it through the exercise of reasonable diligence.

Second, while the date on Hsieh's cover page – November 1995 – may indicate the date of its creation, it is insufficient on its own to establish public accessibility; rather, additional evidence confirming that Hsieh was actually available and accessible on that date is required. *See SRI Int'l*, 511 F.3d at 1197; *In re Bayer*, 568 F.2d at 1362 (date of thesis did not support public availability where library kept theses in an office awaiting shelving); *Qualcomm v. ParkerVision*, IPR2015-01825, Paper No. 8 (Mar. 8, 2016) at 19 (denying institution where there was no evidence of the normal practices of the library when receiving books); *Symantec*, IPR2015-00371, Paper No. 13, at 8-9 (denying institution where no evidence of when the reference was indexed or entered into an electronic library database). Moreover, the “November 1995” date is unsubstantiated hearsay. *See ServiceNow, Inc. v. Hewlett-Packard Co.*, IPR2015-00707, Paper No. 14 (Nov. 2, 2015) at 9-10; *Apple, Inc.*, IPR2015-00369, Paper No. 14, at 6.

For the foregoing reasons, the Board should decline to institute trial because Petitioner relies solely on Hsieh for numerous claim elements but Petitioner has not met its burden to demonstrate Hsieh is prior art.

iii. AppliCad

The Board should additionally decline to institute trial because Petitioner likewise failed to meet its burden to demonstrate AppliCad is prior art. While Petitioner identifies the AppliCad reference as prior art and accords it a date of “November 2002,” Petitioner has not made a sufficient showing that the AppliCad reference was publicly accessible as of the priority date of the ’436 patent, *i.e.*, April 17, 2007. Petitioner’s “corrected” AppliCad reference (Corrected Ex. 1005) includes an affidavit which attests to the date when the document was available at a particular “website address” on June 18, 2005 (Ex. 1005 at 48, 51.) Mere publication on the Internet, however, is *insufficient* to establish public availability. *SRI Int’l*, 511 F.3d at 1197. In *Blue Calypso, LLC v. Groupon Inc.*, the Federal Circuit found that, without evidence of how an “interested party could navigate” to the reference at issue, the Board correctly rejected invalidity grounds based on that reference. *See* 815 F.3d 1331, 1350 (Fed. Cir. 2016).

The Board similarly declined to institute trial in *EFF v. PersonalAudio*. While the reference at issue there was potentially available through a URL, this was not sufficient evidence of “public availability” because there had been no showing that the URL was “disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence can locate it.” *See* IPR2014-00070, Paper No. 21, at 22.

Here, Petitioner's affidavit merely identifies a URL for the AppliCad reference. Nowhere does the affidavit address whether this URL was made available to interested persons of ordinary skill in the art. *See SRI Int'l*, 511 F.3d at 1194-95; *EFF*, IPR2014-00070, Paper No. 21, at 23-24. As confirmed by numerous authorities, the affidavit does not make a preliminary showing that the AppliCad reference was publicly available as of the priority date of the '436 patent. *See Blue Calypso*, 815 F.3d at 1350; *SRI Int'l*, 511 F.3d at 1197; *EFF*, IPR2014-00070, Paper No. 21, at 23-24. Accordingly, the Board should decline to institute trial on Petitioner's only proposed ground.

B. Petitioner Articulates No Reasonable Rationale For Combining Hsieh With AppliCad

Petitioner has "failed to sufficiently show that a skilled artisan would have had a reason to combine the teachings of [Hsieh and AppliCad] to achieve the claimed invention" of the '436 patent, and the Board should not institute trial for this additional reason as well. *See Purdue Pharma L.P. v. Depomed, Inc.*, No. 2015-2029, 2016 WL 1161229, at *6 (Fed. Cir. Mar. 24, 2016) (affirming Board's final written decision that petitioner failed to prove challenged claims unpatentable as obvious over the cited prior art).

"Obviousness requires more than a mere showing that the prior art includes separate references covering each separate limitation in a claim under

examination.” *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011) (citing *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007)). It is “important to identify *a reason* that would have prompted a person of ordinary skill in the relevant field to combine the elements *in the way* the claimed new invention does.” *Purdue*, 2016 WL 1161229, at *5 (quoting *KSR*, 550 U.S. at 418) (emphasis in original). “[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR*, 550 U.S. at 418. A patent challenger must demonstrate both “that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.” *Intelligent Bio-Sys. Inc.*, 2016 WL 2620512, at *6; *see also Mintz v. Dietz & Watson, Inc.*, 679 F.3d 1372, 1379 (Fed. Cir. 2012) (“Obviousness requires a court to walk a tightrope blindfolded (to avoid hindsight) – an enterprise best pursued with the safety net of objective evidence.”). This is not a requirement that can be satisfied by mere conclusory statements; rather, facts and reasoning must be provided:

Although the obviousness analysis may not be confined by any formalistic test, or by overemphasis on the explicit teachings of prior art publications, a petitioner must nevertheless make a sufficient showing that is more than “mere conclusory statements,” to establish

a reason that would have prompted a skilled artisan to combine the prior art teachings in the way of the claimed invention.

Purdue, 2016 WL 1161229, at *5 (quoting *KSR*, 550 U.S. at 418-419); *Wowza Media Systems, LLC v. Adobe Sys. Inc.*, IPR2013-00054, Paper No. 12 (Apr. 8, 2013) at 15 (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statement; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”)

Petitioner has fallen far short of making these required showings here, and the Board routinely declines to institute trial in these circumstances. *See, e.g., Funai Elec. Co. v. Gold Charm Ltd.*, IPR2015-01448, Paper No. 13 (Jan. 11, 2016) at 17 (declining to institute on obviousness grounds where Petitioner failed to establish motivation to combine); *Stryker Corp. v. Karl Storz Endoscopy-America, Inc.*, IPR2015-00672, Paper No. 9 (Sept. 1, 2015) (same); *Smart Modular Techs., Inc. v. Netlist, Inc.*, IPR2014-01373, Paper No. 16 (Mar. 13, 2015) (same).

i. Overview Of Hsieh And AppliCad

Hsieh and AppliCad are two very different references. Hsieh “describes the design and evaluation of SiteCity.” Hsieh at Abstract. According to Hsieh, “SiteCity is a semi-automated three-dimensional site modeling system developed in the Digital Mapping Laboratory at Carnegie Mellon University [and] is a tool for generation of sites” from an image where a “site is a collection of three

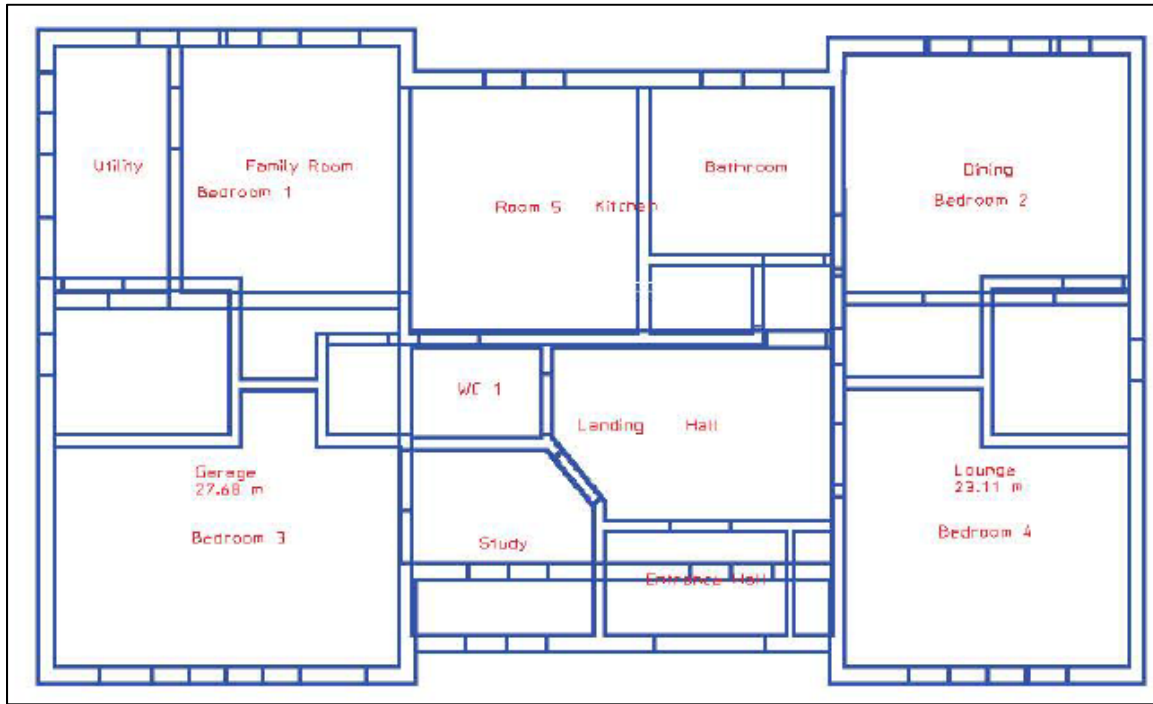
dimensional man-made structures in a scene.” *Id.* at 1. Hsieh states that “SiteCity uses rigorous photogrammetric principles . . . to accurately determine 3D locations of objects, such as buildings or roads in the scene.” *Id.* at 1-2. It is undisputed, however, that Hsieh does not disclose roof reporting functionality. Indeed, Petitioner relies exclusively on AppliCad for meeting the “roof estimate report” limitations in every challenged claim, including all three of the challenged independent claims 1, 18, and 36. *See, e.g.*, Pet. at 25-29, 36, 43.

AppliCad, on the other hand, describes software for “roofers” for “calculat[ing] the amount of material to cover the roof. . . along with all the necessary flashings.” AppliCad at 1-2. AppliCad also describes functionality for “[p]rinting” certain rudimentary roof reports, including a “Quotation Cutting List,” “Roofing Pay Summary,” and “Tax Invoice,” all of which are illustrated on page 40 of AppliCad. Petitioner alleges that AppliCad discloses features related to the “roof estimate report” but it is undisputed that AppliCad does not disclose *any* of the remaining claim elements of the ’436 patent as AppliCad has nothing to do with aerial images or any 3D model generation related thereto. Petitioner relies exclusively on other references for meeting all of those other claim limitations. *See, e.g.*, Pet. at 19-25, 35-36, 41-43.

ii. Petitioner Improperly Relies On “Mere Conclusory Statements” And Hindsight As Its Alleged Basis For The Combination of Hsieh And AppliCad

Petitioner has not articulated a reasonable rationale for combining Hsieh and AppliCad to achieve any of the claimed inventions with “a reasonable expectation of success.” *Purdue*, 2016 WL 1161229, at *5. Moreover, an actual evaluation of the references themselves confirms that Petitioner's conclusory statements are incorrect.

Petitioner contends that “AppliCad. . . discloses the ability to import roof models from other systems” and thus “a person of ordinary skill in the art would have found it obvious to import the three-dimensional roof as generated by the Hsieh system into the Applicad system to generate a roof report.” *See, e.g.*, Pet. at 15-16. These conclusory statements, however, are incorrect. Specifically, AppliCad **does not** allow for the importation of three-dimensional roof models from other systems, but instead only provides for the importation of **two-dimensional** “roof or building outlines,” like the one illustrated below:



See AppliCad at 4. According to AppliCad, two-dimensional outlines can be saved in “the .dxf format (drawing exchange format)” and imported into the system. See *id.* After the two-dimensional outline is imported, AppliCad relies on *a user* to create a three-dimensional model via the “Digitise Outline” command. See *id.* Using that command, the user manually enters roof measurement information, e.g. “the pitch or slope of the roof and the eave offset from the wall[s].” *Id.* Although AppliCad states that then “the roof [model] is generated automatically” (*id.*), the slope and eave offsets – *i.e.*, the information that allegedly converts the two-dimensional model into a three-dimensional model – must be entered manually, and there is no ability to *import* a three dimensional model as Petitioner asserts

must occur as the basis for its proposed motivation to combine. *See id.* at 4; *see also* Pet. at 15.

The user also has the option to scan in the printed two-dimensional roof outlines, rather than importing them from a .dxf file (*see* AppliCad at 6) but this option likewise does not involve importing a three-dimensional model and a user must “enter the true measurement[s]” before such a model is formed. *Id.* Thus, Petitioner's assertion that “a person of ordinary skill in the art would have found it obvious to import the three-dimensional roof as generated by the Hsieh system into the Applicad system to generate a roof report” (Pet. at 15-16) is incorrect – to the contrary, AppliCad is *incompatible* with Hsieh's three-dimensional images, unless they are manually created within AppliCad.

Moreover, although Petitioner's motivation to combine is based on an assumption that Hsieh outputs a three-dimensional roof model in a manner that could be used by AppliCad, there is nothing in Hsieh to suggest the SiteCity system described therein, which was a research tool at the Digital Mapping Laboratory at Carnegie Mellon University, is capable of generating such output for other systems to use. *See* Hsieh at 1-2. Indeed, there is no disclosure in Hsieh of outputting models, let alone a model in the “.dxf format” required by the AppliCad system. *See* AppliCad at 4. This is a significant deficiency: the “three-dimensional model” requirement of the claims is one of the key aspects of the

invention (*see* '436 patent at claims 1, 18, 36), and Petitioner's inability to identify compatible references on this issue highlights the non-obviousness of the claims. As with the other combinations, Petitioner's omission of reasoning behind its proposed combination is a critical failure and supports denial of institution. *Purdue*, 2016 WL 1161229, at *5; *KSR*, 550 U.S. at 418-419; *Wowza Media*, IPR2013-00054, Paper No. 12, at 15.

The Board's decision in *Smart Modular Techs.* is instructive. There, the petitioner contended a person of skill in the art would have been motivated to combine a prior art patent and a standards document (JTAG) because the patent disclosed compliance with that standard. IPR2014-01373, Paper No. 16, at 10 (According to Petitioner, "[a] POSITA would have been motivated to combine Fleischman '320 and JTAG 2001, because Fleischman '320 expressly discloses compliance with the JTAG standard."). The Board, referring to the specific configurations of JTAG in the claimed inventions of the challenged '434 patent, rejected that argument and denied institution:

Given that the '434 specification teaches a different configuration of the JTAG TAP, *Petitioner needed to explain why one of ordinary skill would know to replace the existing configuration with the new configuration.*

Id. at 11. Here, Petitioner has not even identified evidence that Hsieh and AppliCad are compatible, much less “explain[ed] why one of ordinary skill in the art would know” to combine Hsieh and AppliCad to achieve any of the claimed inventions here with “a reasonable expectation of success.” *Purdue*, 2016 WL 1161229, at *5.

At best, Petitioner's proposed combination is based on impermissible hindsight. *See id.* at *6. Neither Hsieh nor Applicad recognizes a problem that would have motivated a person of ordinary skill in the art to modify the references in the manner proposed by the petition. Hsieh does not suggest using a roof estimate report, let alone the specific reports set forth in the claims, and Petitioner does not contend otherwise. Likewise, the portions of AppliCad cited by Petitioner concern the importation of *two-dimensional* outlines (*see* Pet. at 15-16), not the use of different images to create a three-dimensional model of a roof that is then used to generate the claimed roof estimate report. Thus, using the alleged combination of Hsieh with AppliCad to arrive at the claimed invention constitutes impermissible hindsight, and cannot support Petitioner's claim of obviousness. *See Plantronics, Inc. v. Aliph, Inc.* 724 F.3d 1343, 1354 (Fed. Cir. 2013) (“Where, as here, the necessary reasoning is absent, we cannot simply assume that ‘an ordinary artisan would be awakened to modify prior art in such a way as to lead to an obviousness rejection.’ It is in such circumstances, moreover, that it is

especially important to guard against the dangers of hindsight bias.”) (internal citation omitted). Indeed, one of the inventive aspects of the '436 patent is its use of three-dimensional models generated from aerial images in connection with roof reports. '436 Patent at claims 1, 18, 36. Petitioner cannot simply recreate that aspect of the invention by combining an alleged aerial image reference (Hsieh) with a roof report reference (AppliCad), when neither reference includes any suggestion that such an inventive combination would be advisable. *InTouch Techs., Inc. v. VGO Commc'ns., Inc.*, 751 F.3d 1327, 1351 (Fed. Cir. 2014) (rejecting expert's testimony that relied on the challenged “patent itself as her roadmap for putting what she referred to as pieces of a ‘jigsaw puzzle’ together.”)

iii. Hsieh Teaches Away From The Combination Of Hsieh And AppliCad Asserted By Petitioner

As an additional basis to reject Petitioner's proposed combinations, Hsieh explicitly teaches away from implementing the claimed invention, which provides an independent ground to decline institution. As discussed in Section II *supra*, all of the challenged claims of the '436 patent require the correlation of *at least two* aerial images having detailed and specific requirements. Petitioner relies only on Hsieh as allegedly supplying this disclosure of multiple images (*see* Pet. at 20-21, 35-36, 42), but Hsieh teaches away from utilizing multiple images.

Specifically, Hsieh discusses three methods that may be used to generate three-dimensional building “hypotheses,” which Petitioner relies on to meet the building modelling requirement of the claims. *See, e.g.*, Pet. at 23-25, 36, 42-43. Only one of these approaches, however, uses multiple images to generate a “hypothesis,” and Hsieh explicitly deters readers from using that approach due to its drawbacks. *See Hsieh* at 19-20. In particular, the first method is called “Single Image Building Detection (SIBD)” which “generates and verifies [3D] building hypotheses using a single image.” *Id.* The second method is “External Building Verification (EBV),” which also “generates [3D] building hypotheses using a single image,” although it later uses other images to verify the single image. *Id.* Although the third method – named “Multi-Image Roof Matching (MIRM)” – “generates and verifies [3D] building hypotheses using multiple images” (*id.*), Hsieh explicitly instructs those of skill in the art **not** to use that method or any method other than Single Image Building Detection (SIBD), because the other methods are more complex due to the combinatorics¹ involved:

¹ Combinatorics is the branch of mathematics studying the enumeration, combination, and permutation of sets of elements and the mathematical relations that characterize their properties. *See* Ex. 2001 (Weisstein, Eric W.

[O]ur experiments show that both MIRM and EBV are currently slow due to combinatorics, and for reasons of speed, *only SIBD is currently used within SiteCity*.

Hsieh at 21.

This is a clear case of “teaching away,” negating Petitioner’s attempt to combine these references. As both the Federal Circuit and the Board have consistently confirmed, a reference teaches away from a claimed invention when a person of ordinary skill, “upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” *See, e.g., Allergan, Inc. v. Sandoz Inc.*, 796 F.3d 1293, 1305 (Fed. Cir. 2015); *Tec Air, Inc. v. Denso Mfg. Mich. Inc.*, 192 F.3d 1353, 1360 (Fed. Cir. 1999) (same); *BMC Medical Co. Ltd. v. ResMed Ltd.*, IPR2013-01363, Paper No. 25 (Jan. 20, 2016) at 19 (same). Here, even if the Board finds that there is disclosure in Hsieh of using multiple images to generate a three-dimensional roof model, and that one of skill in the art would be motivated to combine Hsieh with AppliCad, Hsieh’s teaching away from use of multiple images would invariably cause one of skill in the art to use the single-image approach with AppliCad, *not* the multi-image approach. Indeed, Hsieh performed experiments on

“Combinatorics.” From MathWorld - A Wolfram Web Resource.
<http://mathworld.wolfram.com/Combinatorics.html>).

the single and multi-image approaches and explicitly concludes that using any approach other than single-image would be slow and inefficient. *See Hsieh* at 21. As such, one of ordinary skill in the art is instructed to not even try that approach, as it has already been vetted by *Hsieh* and rejected. *See, e.g., Allergan, Inc.*, 796 F.3d at 1305; *Dr. Reddy's Labs., Inc. v. Pozen Inc.*, IPR2015–00802, Paper No. 28 (Oct. 9, 2015) at 25-26.

The Board here should decline to institute on this basis as it did in *Dr. Reddy's Labs.* The pharmaceutical composition patent at issue there had a claim limitation requiring that a certain ingredient “is not surrounded by an enteric coating.” IPR2015–00802, Paper No. 28, at 25-26. In challenging that limitation, Petitioner relied on an obviousness combination and pointed to the Pilbrant reference for supplying the motivation to combine. *Id.* Pilbrant disclosed using both coated and non-coated pills, but stated that there was a problem with using non-coated pills, *i.e.*, it resulted in too much of the drug contained therein dissolving in the stomach instead of the small intestine. *See id.* The Board thus found that Pilbrant could not supply a motivation to combine references to achieve the claimed non-coated inventions:

Here, the very statement that Petitioner relies upon from Pilbrant to support its rationale to combine concerning preabsorption degradation of omeprazole caused *Pilbrant to rule out the use of conventional oral dosage forms without an enteric coating.*

Id. at 26. Similarly, in this case, even if Hsieh describes both multi-image and single-image approaches to modeling, it explicitly teaches away from using the multi-image approach because of problems associated with the complexity of the combinatorics. *See Hsieh* at 21, 47. As such, Hsieh cannot supply motivation to combine, and for this additional reason, the Board should decline to institute trial here. IPR2015–00802, Paper No. 28, at 25-26.

iv. Petitioner's Conclusory Expert Testimony Should Be Rejected

Petitioner's reliance on the declaration of Harold Schuch adds nothing to Petitioner's conclusory motivation to combine arguments. Schuch "essentially repeats the arguments advanced by Petitioner in its Petition" (*compare* Pet. at 15, 50 *with* Ex. 1007 ¶¶ 57-59) and as such, offers no persuasive evidence supporting the combination. *See Qualcomm*, IPR2015-01819, Paper No. 8, at 29 ("We also are not persuaded by the cited testimony of Dr. Larson that purportedly supports Qualcomm's rationale to combine the teachings of Thodesen and Maas because it essentially repeats the arguments advanced by Qualcomm in its Petition."). As in *Qualcomm*, the Board should disregard Schuch's declaration on this issue. *See id.*

v. Petitioner's Boilerplate Assertions Regarding Motivation To Combine Also Should Be Rejected

In addition to its generalized, conclusory statements concerning the combination of Hsieh and AppliCad discussed above, Petitioner singles out only a

small subset of the challenged dependent claims – claims 5, 19, 23, and 42 – and makes a number of boilerplate assertions listing MPEP sections after its claim chart which Petitioner contends support the proposed combination of Hsieh and AppliCad for those claims. *See* Pet. at 50-54. These arguments are largely unsupported by any citation to the references themselves, or expert testimony, and repeat the same conclusory grounds discussed above without providing any additional rationale for combining the references. These arguments should be rejected as well.

As this Board has consistently found, boilerplate assertions such as these that lack evidence or explanation are insufficient to establish obviousness. For example, in *Stryker v. Karl Storz Endoscopy*, IPR2015-00672, Paper No. 9, at 13, the Board rejected an unsupported and unexplained claim that “the combination of Endsley and Adler for use in an endoscope would have involved merely combining known elements according to known methods to yield predictable results or the simple substitution of one known element for another to obtain predictable results,” because the petitioner did not explain why “one of ordinary skill in the art relating to endoscopic cameras would look to a camera such as Endsley, which is suitable for videoconferencing.”

Petitioner's arguments here suffer from the same fatal defect. Specifically, Petitioner's additional paragraphs following its claim charts merely state, without

analysis, that the references could be combined, including by using “known techniques.” *See, e.g.*, Pet. at 52 (“a person of ordinary skill in the art would have found it obvious to incorporate the roof reporting functionality, electronic file generation and transmission (including an image of the building and line drawings of a top plan view of the three-dimensional model), and/or identification of a building by a street address of Applicad with the three-dimensional modeling of Hsieh as doing so would amount to using known techniques to improve similar devices in the same way.”); *id.* at 50 (“Applicant notes that generating and transmitting an electronic file was very well-known at the time of the invention of the ‘436 Patent.”). That Petitioner’s assertions incorporate legal standards verbatim from the MPEP is irrelevant, and is certainly no substitute for the explicit “reasoning” based on the facts, as required by the cases. *Stryker*, IPR2015-00672, Paper No. 9, at 7. Further, Petitioner’s citation to AppliCad for the proposition that “[b]ecause our software sits on top of a very powerful 3 dimensional CAD package, we can utilize various tools to enable the drawing of the roof and checking the result, before submitting to a bid” (*id.* at 53 (quoting AppliCad at 3)) does not mention any of the functionality Petitioner seeks to combine here for any of claims 5, 19, 23, and 42, including roof reporting functionality, electronic file generation and transmission, or identification of a building by a street address. *See id.*

As another example, Petitioner refers to “predictable results” as a basis for its alleged obviousness combination. *See, e.g.*, Pet. at 51 (“a person of ordinary skill in the art would have found it obvious to incorporate the roof reporting functionality, electronic file generation and transmission (including an image of the building and line drawings of a top plan view of the three-dimensional model), and/or identification of a building by a street address of Applicad with the three-dimensional modeling of Hsieh as doing so would be combining prior art elements according to known methods to yield predictable results.”); *id.* at 53 (“One of ordinary skill in the art could have applied the functionality of Applicad in the base device of Hsieh with predictable results.”). Aside from citing the same disclosure in AppliCad discussed in Section V.B above regarding AppliCad’s ability to import certain types of CAD files (Pet. at 52 (citing AppliCad at 4)), which for the reasons described there do not and cannot provide a motivation to combine AppliCad with Hsieh, Petitioner merely parrots the standards from the MPEP.

As such, the Petition fails to make the required showing to support a finding of obviousness. Indeed, “Although predictability is a touchstone of obviousness, the ‘predictable result’ discussed in *KSR* refers not only to the expectation that prior art elements are capable of being physically combined, but also that the combination would have worked for its intended purpose.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1326 (Fed. Cir. 2009) (citing *KSR*,

550 U.S. at 398). And as the Board held in *Stryker*, this argument fails where, as here, the “Petitioner has not explained sufficiently why, or identified evidence that shows, the invention described in the [challenged patent] falls into a very predictable field, or that one of ordinary skill in the art would have possessed the requisite skills to make the proposed combination, or that one of ordinary skill in the art would have anticipated reasonably the combination to function in an ordinary and expected way.” *Stryker*, IPR2015-00672, Paper No. 9, at 14 (citing *Rothman v. Target Corp.*, 556 F.3d 1310, 1319–20 (Fed. Cir. 2009) and *Unigene Labs.*, 655 F.3d at 1360).²

C. The Combination Of Hsieh And AppliCad Does Not Render Any Of The Challenged Independent Claims Obvious

The combination of Hsieh and AppliCad does not render obvious any of the three challenged independent claims of the '436 patent: claims 1, 18, and 36. As

² Petitioner concludes its boilerplate MPEP section with the assertion that “the format” of the roof reports described in certain of the challenged claims is nothing more than ornamentation and thus “should be afforded no patentable weight.” Pet. at 53-54. This type of argument is routinely rejected where, as here, the specific contents of the claimed roof report have a “clear orienting function” for users of the report. *See, e.g., Ex Parte Gerhard Duernberger*, Appeal No. 2010-007553, at 5 (P.T.A.B. July 31, 2013).

detailed below, this combination fails to disclose at least three core elements of each independent claim, including the correlation of specific types of aerial photographs, the generation of a 3-D model based on that correlation, and a roof estimate report with detailed and specific contents.

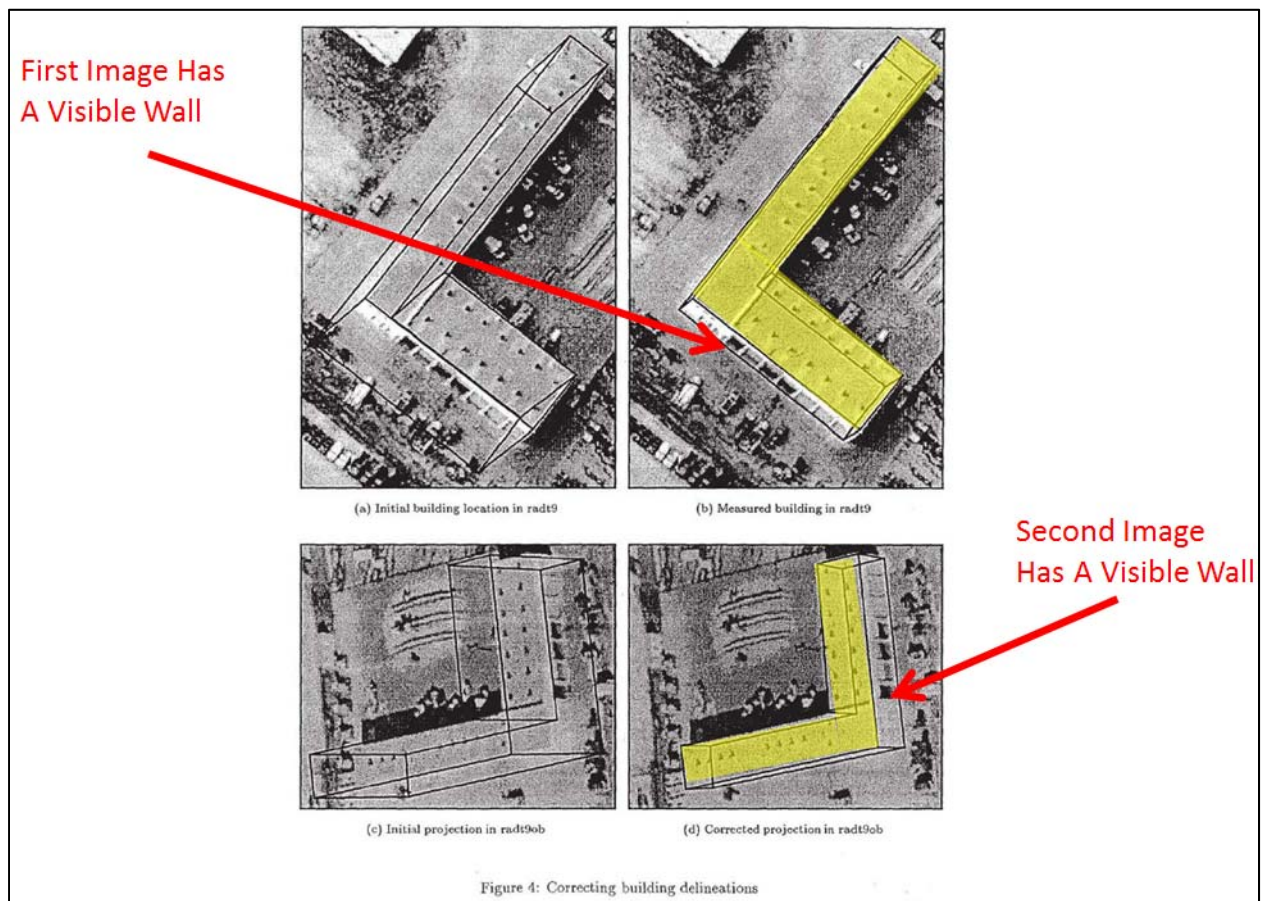
i. Neither Hsieh Nor AppliCad Discloses “correlat[ing] the first aerial image with the second aerial image” (Claims 1 and 18)

Petitioner asserts only that Hsieh, not AppliCad, discloses this claim limitation, and Petitioner's reliance on Hsieh is misplaced. A core feature of the claimed inventions is that specific types of aerial images are used in the process to generate the claimed “roof estimate report.” Claims 1 and 18 each identify specific attributes of the “first aerial image” and “second aerial image” that are the subject of the claimed “correlat[ing]”:

- **Claim 1:** “wherein the first aerial image provides *a top plan view of the roof* and the second aerial image provides *an oblique perspective view of the roof*, and are not a stereoscopic pair”
- **Claim 18:** “wherein the first aerial image provides *a top plan view of the roof* and the second aerial image provides *a view of the roof that is other than a top plan view* and neither of the two images are part of a stereoscopic pair”

'436 Patent at claims 1, 18. Hsieh, however, does not disclose “correlat[ing]” the claimed “first aerial image” – having a top plan view – with the claimed “second aerial image” – having a view other than a top plan view.

Petitioner identifies Figure 4 of Hsieh as purportedly disclosing this claim limitation (*see* Pet. at 16-17, 21, 36) but as illustrated by the annotated version of Figure 4 below where the same roof is highlighted in yellow in two different images, it only provides two different *oblique* images – radt9 (upper right quadrant) and radt9ob (lower right quadrant) – and *not* a top plan view as required.



Hsieh at 9. Although the image labeled radt9ob uses the suffix “ob” to indicate that it is oblique, the lack of “ob” in radt9 does not mean that radt9 is a top plan view. *See id.* at 31 (“The two oblique shots are designated with *ob* and *wob* (wide oblique) suffix.”). To the contrary, radt9 clearly includes more visible wall space than the oblique image radt9ob – a characteristic that makes radt9 oblique according to Hsieh and disqualifies Hsieh from disclosing the use of a top plan view for the correlation step. *See, e.g., Hsieh* at 6-7. Petitioner does not contest this critical fact, acknowledging that according to Hsieh, oblique images differ from “vertical images” because “in vertical images. . . *walls . . . are not visible.*” *See Pet.* at 20 (citing Hsieh at 57).

The other citations to Hsieh identified by Petitioner provide no further guidance on the claimed “first aerial image” and “second aerial image,” much less any correlation of such images. *See Pet.* at 22-23 (citing Hsieh at 16, 20, 52, and Fig. 13). This distinction is particularly important because they were added to overcome prior art during supplemental reexamination proceedings. Specifically, during the supplemental reexamination, the Examiner rejected the pending claims in view of EP 966. Ex. 2002 at 14. In response, the Patent Owner amended claim 1 to require “wherein the first aerial image provides a top plan view of the roof and the second aerial image provides an oblique perspective view of the roof, and are not a stereoscopic pair,” and made similar amendments to claims 18 and 36. Ex.

2003 at 2-3, 13. The Examiner subsequently identified this amendment in the Statement of Reasons for Patentability and/or Confirmation for claim 1 and made similar remarks regarding claims 18 and 36. *See* Ex. 2004 at 4-5.

ii. Neither Hsieh Nor AppliCad Discloses “receiving an indication of pairs of points on the two or more images, each pair of points corresponding to substantially the same point on the roof depicted in each of the two or more images” (Claim 36)

Petitioner relies on the exact same disclosure for meeting this claim limitation as it did with respect to the “correlat[ing]” limitation described in Section V.C.i (*see* Pet. at 16-17, 42), and Hsieh fails again here for the same reason. Claim 36 identifies the specific criteria for images utilized in this step, *i.e.*, “wherein at least one of the two or more images provides an oblique perspective view of the roof and one of the images provides a top plan view of the roof.” ’436 patent at claim 36. But Figure 4 does not show a top plan view, and none of the other portions of Hsieh identified by Petitioner describe the claimed “first aerial image” and “second aerial image,” or the remainder of this claim limitation. *See* Section V.C.i *supra*.

iii. Neither Hsieh Nor AppliCad Discloses “generat[ing], based at least in part on the correlation between the first and second aerial images, a three-dimensional model of the

roof” (Claims 1 and 18) or “generating the model of the roof based on the receiving the indication of the pairs of points on the two or more images of the building” (Claim 36)

Petitioner again relies only on Hsieh for these claim limitations. Because the “correlat[ing]” limitation (claims 1 and 18) and “receiving an indication of pairs of points on the two or more images” limitation (claim 36) are not met, these limitations necessarily cannot be met because they involve generating a 3D model based on the result of those steps. Moreover, Petitioner’s additional citation for this element – to Figure 1 of Hsieh – likewise fails to disclose the “generating” element. Specifically, Figures 1(a) and (b) could not be used to generate a three dimensional model, as they are both taken from the same perspective. Hsieh at 3. As for Figure 1(c), it is unclear what that image is of, and there is no corresponding description in Hsieh. *Id.* This is a critical deficiency: the claims require that the first and second image provide different views of the same building. *See, e.g.*, Claim 1 (requiring that the two aerial images “provid[e] a different view of *the roof of the building*”). Figure 1(c), by contrast, is essentially unintelligible, and certainly does not show the same roof as disclosed in Figures 1(a) and (b). Hsieh at 3. As such, Figure 1(c) does not qualify as one of the two aerial images for purposes of the ’436 patent’s claims. As such, Figure 1 – like Figure 4 – does not show top plan and oblique views of a roof as required. *See id.* at 3, 9. Tellingly,

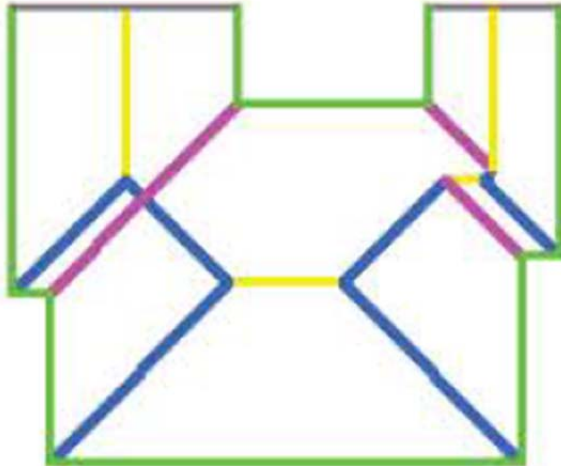
Petitioner does not specify which of the images in Figures 1(a), (b) or (c) corresponds to the first or second images – nor can it, as discussed above. *See* Pet. at 17, 23-24, 36, 44. Petitioner's other citations for this element – *i.e.*, Hsieh Figures 2 and 8 and text on pages 6, 14-15, 30, and 32 – likewise fail to disclose the two different images required by the claims, nor does Petitioner specify that any of the disclosures in those figures and pages meets those requirements. Pet. at 23-24, 36. At best, Petitioner does little more than quote unrelated passages from Hsieh in its claim chart, which are irrelevant to the claim requirements, and is improper. *See In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992) (“One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.”) (internal quotation and citation omitted).

iv. Neither Hsieh Nor AppliCad Discloses “generate and transmit a roof estimate report that includes one or more top plan views of the three-dimensional model annotated with numerical values that indicate the corresponding slope, area, and length of edges of at least some of the plurality of planar roof sections using at least two different indicia for different types of roof properties” (Claim 1)

Petitioner does not contend that Hsieh discloses a “roof estimate report” or any of the specific contents set forth in the claims, and instead relies exclusively on AppliCad for this claim limitation. *See* Pet. at 17, 25-28. While AppliCad does

indicate that certain rudimentary reports may be printed from the system described therein (*see* AppliCad at 39-40), none of those reports meet the elements of this claim limitation.

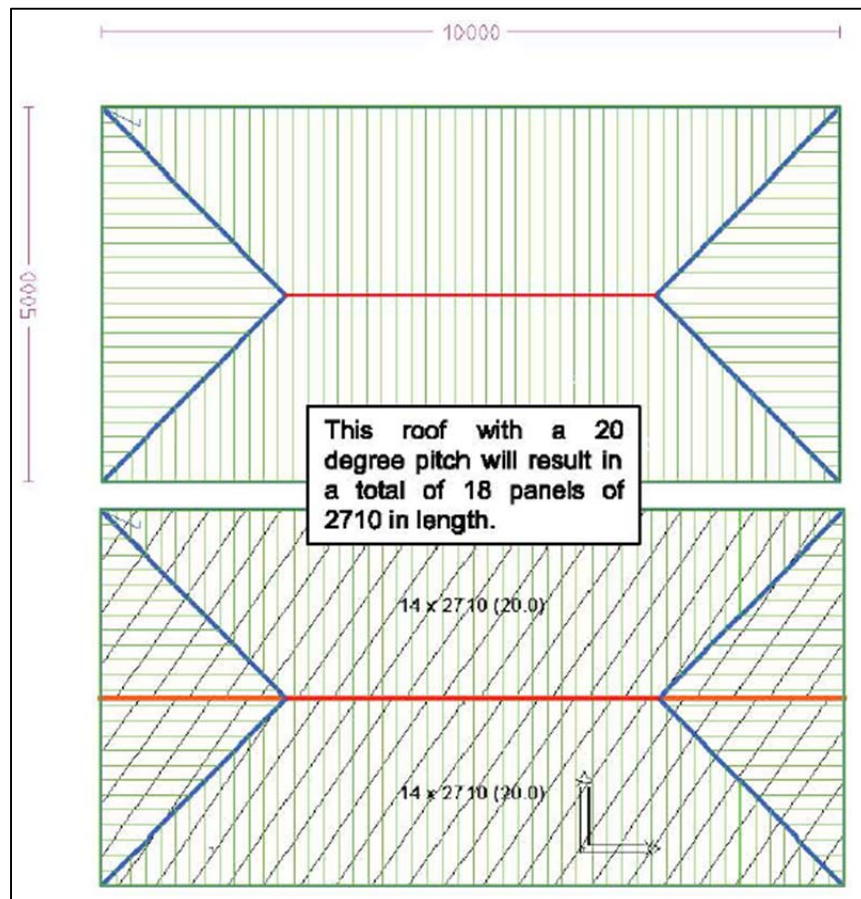
Petitioner points to only one report in AppliCad, which is reproduced below, to allegedly meet this claim limitation, but it is missing multiple required elements:

Applicad Roofing 123 Church St Hawthorn 03 9819 3100 03 9819 3200 H002 2 ACN: H002 1		Dated November 2002 Job No	
Customer		Address	
Phone		Site address	
Mobile		Builder name	
Fax		Phone	
		Roof Pitch 20.0 Height 5.300 Rafter CTS 600 Eaves 0 Gable Finish	
		For the supply and installation of Roof K15 1000 L.P. Steel, Galvanised - Paint Ridge B x P Ridge capping, Mountain Blue Fascia Metal fascia, Torres Blue Gutter O Gee Gutter, Ebony Valley Not Included Barge Rake flashing, Off white Batten Not Included Insulation Not Included Downpipes Not Included Curved Roof Not Included	

AppliCad at 40 (hereinafter “AppliCad Report Figure”). First, there are no “numerical values that indicate the corresponding slope, area, and length of edges of at least some of the plurality of planar roof sections.” Indeed, there is no indication of “area” or “length of edges” at all in this report, or any information from which “area” or “length of edges” could be derived. While “Roof Pitch 20.0” appears in a separate section of the report on the right side (highlighted in yellow above), there is nothing to suggest that this pitch “correspond[s]” to any “of the plurality of planar roof sections,” and in any event, given its location in a separate section, it is not a disclosure of “one or more top plan views of the three-dimensional model annotated with numerical values. . . .” The other reports illustrated in AppliCad are even further removed from the claim language here (*see* AppliCad at 40), and Petitioner does not contend otherwise, relying solely on the AppliCad Report Figure reproduced above.

In recognition of the fact that the reports disclosed in AppliCad do not meet the claim limitation here, Petitioner resorts to relying on two other figures in AppliCad that it contends depict “a top plan view of a roof annotated.” *See* Pet. at 27-28 (citing AppliCad at 28, 25). Those figures, however, do not disclose the claimed roof estimate reports. First, there is no suggestion in AppliCad that these figures be included in any of the reports described therein. That alone renders these figures insufficient to satisfy the “roof estimate report” requirement.

Moreover, even if they were incorporated into a report, the two figures are missing numerous additional requirements set forth in the claims. The first of these additional, non-roof report figures Petitioner relies on is described in AppliCad as illustrating functionality for “[b]locking the roof to minimize wastage,” but this figure is missing the required “numerical values that indicate the corresponding. . . area[] and length of edges of at least some of the plurality of planar roof sections”:



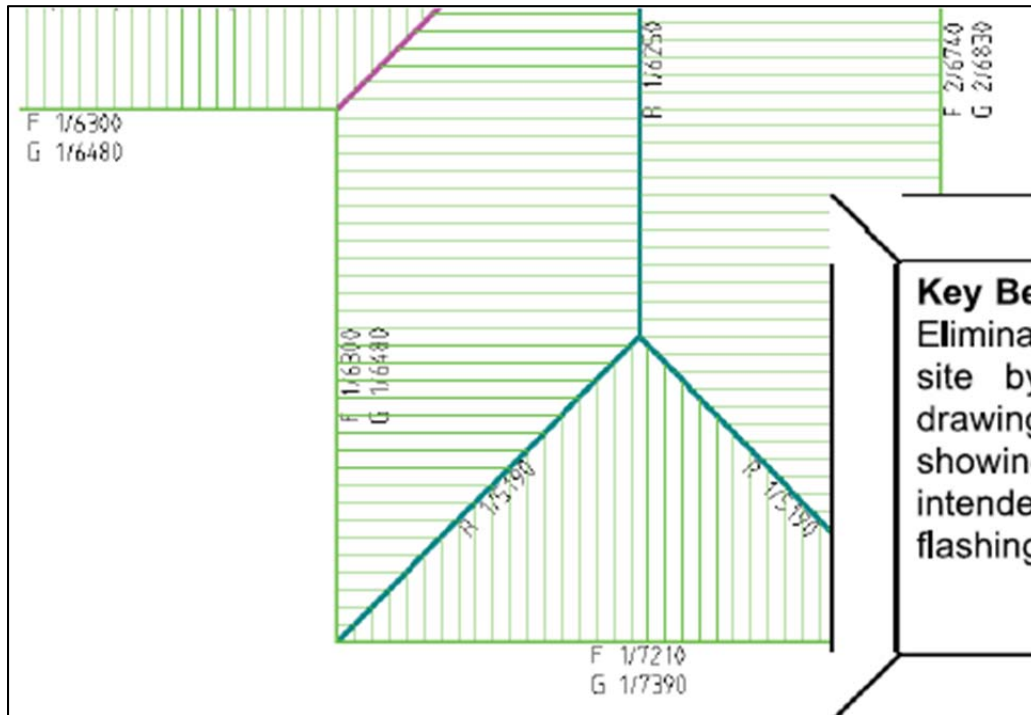
AppliCad at 28 (hereinafter “Roof Blocking Figure”). Although Petitioner relies on the numbers “10000” and “5000” appearing to the top and left sides of the

upper rectangle in the Roof Blocking Figure, there is no disclosure in AppliCad that those numbers refer to length. *See, e.g., AppliCad* at 28-29 (describing the Roof Blocking Figure in terms of the number of roof panels used). And even if those two numbers did refer to length, at best those values reflect the length of one edge of the top and side planar roof sections, respectively.³ *See id.* By contrast, the claims require numerical values for more than just one edge of any given planar roof section. *See, e.g.,* claim 1 (requiring “numerical values that indicate the corresponding slope, area and length of *edges* of at least *some of the plurality of planar roof sections.*” AppliCad's Roof Blocking Figure does not meet this requirement, by only providing the length of *a single edge* of certain panels.

Further, there is no indication of “area” of the roof panels in the Roof Blocking Figure, or any information sufficient to derive area. The 5000 and 10000 numbers would at best provide a total roof area, but not the areas of the planar roof sections themselves as required. Moreover, AppliCad does not use this figure in any roof reports, and thus teaches away from using it in connection with the claimed invention. *See Tec Air*, 192 F.3d at 1360.

³ For example, 5000 corresponds to at best the length of the left-most triangular roof section. 10000 corresponds to at best the length of the trapezoidal roof section at the top of the figure.

The second of the non-roof report figures Petitioner relies on similarly illustrates measurements of roofing materials and likewise does not disclose “numerical values that indicate the corresponding slope, area, and length of edges of at least some of the plurality of planar roof sections”:



AppliCad at 25 (hereinafter “Flashings Figure”). The roofing materials here are flashings and fall into one of several categories, including ridge caps (designated by an “R”), gutters (designated by a “G”), and fascia (designated by an “F”). *See id.* at 26. The number and length of these flashings are indicated next to the letter designations, *e.g.*, “R 1/5190” is indicative of a single ridge cap with a length of 5190.

The flashing information here is different from measurements of the actual roof and thus is not any of the “slope, area, [or] length of edges” of any “planar roof sections.” As an initial matter, the numbers and letters appearing on the Flashings Figure have nothing to do with slope or area. They also are not “lengths of edges” of any “planar roof sections.” To the contrary, those values reflect user-specified “Allowances” for the flashings based on availability of flashing material in inventory. *See id.* at 24 (“[T]he first thing we need to do is set the Allowances.”); *id.* (“lengths available in. . . inventory.”). Although these flashing lengths are placed on top of or next to the roof figure, they do not describe the lengths of the planar roof sections. *See id.* at 25 (“On the screen, the lengths and sizes *of the flashings* needed will be displayed. . . .”). Moreover, as with the Roof Blocking Figure, AppliCad does not use this figure in any roof reports, and thus teaches away from using it in connection with the claimed invention. *See Tec Air*, 192 F.3d at 1360.

- v. **Neither Hsieh Nor AppliCad Discloses “transmitting a roof estimate report that includes one or more top plan views of the three-dimensional model annotated with numerical indications of at least one of the slope, area, and lengths of the edges of the plurality of planar roof sections, wherein**

**the roof estimate report includes at least two different
indicia for different types of roof properties” (Claim 18)**

Petitioner relies on the same disclosure from AppliCad for meeting this claim limitation as it did with respect to the roof estimate report limitation described in Section V.C.iv above (*see* Pet. at 16-17, 36), and it similarly fails here.

The AppliCad Report Figure does not disclose this claim limitation because it lacks “one or more top plan views of the three-dimensional model annotated with numerical indications of at least one of the slope, area, and lengths of the edges of the plurality of planar roof sections.” *See* Section V.C.iv *supra*; AppliCad at 40. As detailed in Section V.C.iv above, there is no indication of “area” or “length of edges” at all in this report. While “Roof Pitch 20.0” appears in the report, the roof diagram is not annotated with slope as is required, and there is no apparent relationship between that “20.0” value and any particular “planar roof section.” *See* Section V.C.iv *supra* (discussing AppliCad at 40).

The Roof Blocking Figure and Flashings Figure also do not disclose this claim limitation. Neither discloses a “roof estimate report.” *See* Section V.C.iv *supra*; AppliCad at 28, 25. And neither discloses the claimed “numerical indications of at least one of the slope, area, and lengths of the edges of the

plurality of planar roof sections” because as discussed in Section V.C.iv above, none of the numbers in these figures are actual roof measurements but are numbers associated with roofing panels in the case of the Roof Blocking Figure, and with “the lengths and sizes of the flashings” after Allowances and Inventory have been taken into account in the case of the Flashings Figure. Section V.C.iv *supra*; AppliCad at 25.

- vi. **Neither Hsieh Nor AppliCad Discloses “transmitting a roof estimate report that includes one or more views of the model, the report being annotated with numerical indications of the area and lengths of the edges of at least some of the plurality of planar roof sections, wherein the roof estimate report includes at least two different indicia for different types of roof properties” (Claim 36)**

Petitioner again relies on the same disclosure from AppliCad here as it did with respect to the roof estimate report limitations described in Section V.C.iv above (*see* Pet. at 16-17, 43). Again, those disclosures miss the mark.

The AppliCad Report Figure does not disclose this claim limitation because it lacks “one or more views of the model, the report being annotated with numerical indications of the area and lengths of the edges of at least some of the plurality of planar roof sections.” *See* Section V.C.iv *supra*; AppliCad at 40.

There is no indication of “area” or “length of edges” whatsoever. *See* Section V.C.iv *supra* (discussing AppliCad at 40).

The Roof Blocking Figure and Flashings Figure also do not disclose this claim limitation because neither discloses a “roof estimate report.” *See* AppliCad at 28, 25. Moreover, the numbers in these figures are not “numerical indications of the area and lengths of the edges of at least some of the plurality of planar roof sections” but instead are numbers associated with roofing materials. *See* Section V.C.iv *supra*. Further, for the same reasons detailed in Section V.C.iv above, the Roof Blocking Figure has no indication of “area” or any information about how to derive area, and there is no indication of “length of edges of at least some of the plurality of planar roof sections.” *See* AppliCad at 28. The same is true of the Flashings Figure. *See* Section V.C.iv *supra*.

D. The Combination Of Hsieh And AppliCad Does Not Render Any Of The Challenged Dependent Claims Obvious

For at least the reasons described with respect to challenged independent claims 1, 18, and 36 in Section V.C above, the combination of Hsieh and AppliCad likewise does not render obvious any of the challenged dependent claims – 2-5, 7-13, 15-17, 19-23, 25-31, 33-35, 37-40, 42, 46-52, and 54-56 – all of which depend on claims 1, 18, or 36. *See In re Fine*, 837 F.2d 1071, 1076 (Fed. Cir. 1988) (citing *Hartness Int’l, Inc. v. Simplimatic Eng’g Co.*, 819 F.2d 1100, 1108 (Fed.

Cir. 1987)) (“Dependent claims are nonobvious under section 103 if the independent claims from which they depend are nonobvious.”). Additionally, Petitioner’s repeated reliance on portions of AppliCad that have nothing to do with AppliCad’s narrow report functionality for the dependent claims, including claims 5, 7-13, 15-17, 23, 25-31, 33-35, 38, 46-52, and 54-56, is inapposite for the reasons described above with respect to the independent claims, including because these portions of AppliCad do not disclose a “roof estimate report,” there is no suggestion in AppliCad that they be included in one, and indeed these additional figures actually teach away from inclusion in the claimed “roof estimate report.” *See* Section V.C.iv *supra*. The combination of Hsieh and AppliCad further fails to render obvious the challenged dependent claims for at least the reasons described below.

- i. **Neither Hsieh Nor AppliCad Discloses “correlate the first and second aerial images by receiving an indication of one or more corresponding points on the building shown in each of the first and second aerial images” (Claim 2) Or “correlating the first and second aerial images includes receiving an indication of one or more corresponding points shown in each of the first and second aerial images (Claim 20) Or “wherein receiving the indication of the corresponding point includes receiving the indication from a user” (claim 21)**

Hsieh is the only reference Petitioner relies on for these limitations in claims 2 and 20-21 respectively (*see* Pet. at 18, 28-29, 37), which are similar to the limitation of claim 36 described in Section V.C above, and it fails for the same reasons discussed there. Claims 2 and 20 are dependent on claims 1 and 18 respectively, which identify the specific criteria for the images utilized in this correlation step, and both claims require that “the first aerial image provides a top plan view of the roof.” Claim 1 further specifies that “the second aerial image provides an oblique perspective view of the roof” and claim 18 specifies that the second aerial image is “a view of the roof that is other than a top plan view.” But Figure 4, the only figure from Hsieh that Petitioner relies on here, does not show a top plan view for the reasons detailed in Section V.C.iii above, and none of the other portions of Hsieh identified by Petitioner describe correlating the claimed “first aerial image” and “second aerial image,” much less “receiving an indication of one or more corresponding points. . . shown in each of the first and second aerial images.” Accordingly, Hsieh does not disclose claims 2 or 20-21.

- ii. **Neither Hsieh Nor AppliCad Discloses “correlating two of the two or more images by registering the pairs of points; and generating the three-dimensional model based on the correlation between the two of the two or more images” (Claim 37)**

Petitioner relies only on Hsieh for these limitations in claim 37, which fails for the same reasons described in Section V.C above with respect to independent claim 36, from which this claim depends. Moreover, claim 37's "registering the pair of points" is not found in Hsieh. On page 43 of the petition, Petitioner attempts to show disclosure of this element by providing parenthetical quotes to pages 7 and 16 of Hsieh, which concern "correct[ing] the location of the building" and "locat[ing] the projected object in several images," respectively. But those disclosures do not discuss registering pairs of points. The same is true of the cited parenthetical quotes found on page 20 of Hsieh (concerning "roof hypotheses") and on page 52 (concerning evaluation of the epipolar matching process). Pet. at 43-44.

- iii. **Neither Hsieh Nor AppliCad Discloses "generate the three-dimensional model by receiving an indication of at least one of a ridgeline of the roof, a valley of the roof, an edge of the roof, a hip of the roof, and a gable of the roof" (Claim 3) Or "generating the three-dimensional model includes receiving an indication of at least one of a ridgeline of the roof, a valley of the roof, an edge of the roof, a hip of the roof, and a gable of the roof (Claim 22)**

Petitioner relies only on Hsieh for these limitations in claims 3 and 22 (*see* Pet. at 29, 37-38), but Hsieh does not disclose "receiving an indication of at least

one of a ridgeline of the roof, a valley of the roof, an edge of the roof, a hip of the roof, and a gable of the roof.” As an initial matter, Petitioner does not specifically identify any aspect of Hsieh that it purports discloses “receiving an indication of. . . a valley of the roof,” “an edge of the roof,” “a hip of the roof,” or “a gable of the roof.” And contrary to Petitioner’s assertions, the disclosure in Hsieh that Petitioner identifies for “receiving an indication of. . . a ridgeline of the roof,” *see* Pet. at 29 (citing Hsieh at 14-15) is inapposite. Hsieh *assumes* that “the peak edge must be horizontal, above the rectangular roof outline, and lie halfway between two walls.” Hsieh at 14. As illustrated in Figure 8, this assumption is applied in the form of a “search bound for the peak.” Hsieh at 14; Fig. 8(b). Accordingly, Hsieh does not receive the required “indication” but instead assumes the location of the peak edge.

This distinction is important because the claimed inventions here are in part aimed at accurately identifying the locations of ridgelines and other roof features to assist roofing and insurance companies in their assessment of different roofs. *See* ’436 patent at 3:18-25 (“the systems and methods described herein may be used by any individual or company that would find the calculation of the size, geometry, pitch and orientation of the roof of a building from aerial images of the building useful. Such companies may include roofing companies [and] insurance companies.”). But Hsieh’s inflexible approach based on preset assumptions would

lead to very poor results for roofs with peaks that are off-center, and would have no applicability to more complicated roof structures with multiple peaks, or for roofs that are round and therefore do not have a “rectangular roof outline.” *See Hsieh* at 14 (noting assumption based on “rectangular roof outline”). Accordingly, *Hsieh* does not disclose the required elements of these claims.

- iv. **Neither *Hsieh* Nor *AppliCad* Discloses “the roof estimation module is further configured to generate the roof estimate report by generating an electronic file that includes an image of the building along with line drawings of the one or more top plan views of the three-dimensional model” (claim 5) Or “generating the roof estimate report, the roof estimate report being a data file that includes an image of the building along with line drawings of the one or more top plan views of the three-dimensional model” (Claim 23)**

AppliCad is the only reference Petitioner relies on for these limitations in claims 5 and 23 respectively (*see* Pet. at 17, 30, 38), and *AppliCad* is missing numerous required elements. As an initial matter, nowhere in *AppliCad* is there any disclosure of any report that “includes an image of the building,” as required by these claims. Petitioner concedes this point, acknowledging that the *AppliCad* Report Figure “shows a report with line drawings and a top plan view of the model” – *not* an image of the building. *See* Pet. at 30.

With respect to the “includes an image of the building,” requirement, Petitioner’s reliance on a figure at page 41 of AppliCad that Petitioner describes as “an image of a three-dimensional model of the building” is inapposite for at least two reasons. First, the figure has nothing to do with roof reports and there is no suggestion anywhere in AppliCad that it should be included in a roof report. In fact, the figure is included in a section entitled “New Integration of Warlock to Roofing Software” and appears focused on *siding-related* functionality, not roofing. See AppliCad at 41. Second, the figure is not an “image of the building” as claimed but instead what Petitioner describes as “an image of a three-dimensional model of the building.” See *id.* According to the ’436 patent, a “three-dimensional model of the building” is not the same thing as the building itself, but is instead generated from the image of the building. See, e.g., ’436 patent at 9:5-7 (“Generating a 3D model of the roof of a building further includes the automatic or semi-automatic identification of features of the roof of the building.”). Because there is no disclosure of a report in AppliCad that includes “an image of the building,” AppliCad fails with respect to claims 5 and 23.

Additionally, AppliCad fails as to these claims because it does not disclose a “file that includes an image of the building along with line drawings of the one or more top plan views of the three-dimensional model.” AppliCad discloses exporting data to only two types of files formats: CSV (“comma separated values

file format”) and GRIM (“a fixed format file containing only certain parts of information”). *See* AppliCad at 38. AppliCad describes neither format as suitable for a “roof estimate report” including “an image of the building” or “line drawings of the one or more top plan views of the three-dimensional model.” *See id.* Rather, these formats are for numerical or text information, such as that which could be viewed using “word processing and spreadsheet software, such as Microsoft Excel” (in the case of CSV) or “to your accounting software (in the case of GRIM). *See id.* For this additional reason, AppliCad fails.

- v. Neither Hsieh Nor AppliCad Discloses “wherein the length is located adjacent to a line representing a segment, the slope is located next to an arrow indicating direction of the slope and the area is located within a section having the area” (Claims 8, 26, and 47)**

Petitioner relies only on AppliCad here, but AppliCad does not disclose these claim limitations. To show this element, Petitioner relies exclusively on the Roof Blocking Figure and Flashings Figure. *See id.* For the same reasons explained in Sections V.C.iv-v above, these figures are not included in any reports and are irrelevant.

Moreover, the Roof Blocking Figure, as discussed in Section V.C.iv above, does not disclose any indication of “area,” much less where “the area is located within a section having the area.” *See* Section V.C.iv *supra* (citing AppliCad at

28). Nor is “slope. . . located next to an arrow indicating direction of the slope.” *See id.* Indeed, Petitioner’s reliance on the Roof Blocking Figure for these requirements find no support in the Figure itself – there is no mention of area at all, nor any arrows on the Roof Blocking Figure. Further, there is no indication of “length of the edges” of any of the “plurality of planar roof sections.” While the numbers “10000” and “5000” appear to the top and left sides of the upper rectangle in the Roof Blocking Figure, there is no disclosure as to whether these numbers correspond to the roofing panels or to the actual planar roof sections. *See* Section V.C.iv *supra* (discussing AppliCad at 28). Moreover, as discussed above, these numbers only provide the length of *a single edge* of certain sections. *See id.* But the independent claims from which these claims depend – claims 1, 18, and 36 – all require that the “roof estimate report” contain numerical indications for “lengths of [the] *edges*” of the planar roof sections. That is not the case here because 5000 corresponds to at best the length of the left-most triangular roof section, and 10000 corresponds to at best the length of the trapezoidal roof section at the top of the figure.

The Flashings Figure also lacks the area, pitch, and length claim requirements. *See* Section V.C.iv *supra* (discussing AppliCad at 25). Indeed, there is no indication of area or pitch at all. And while there are numbers adjacent to certain line segments, these numbers are not “lengths of edges” but instead

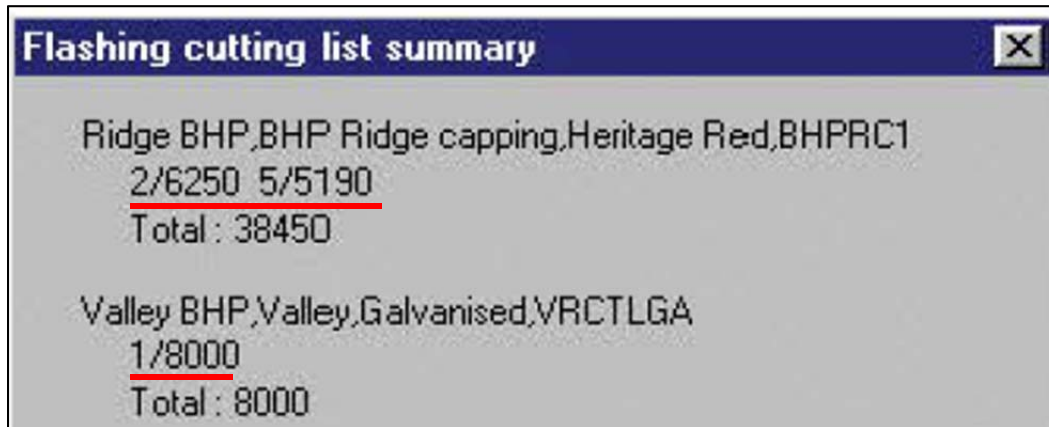
correspond to certain stock flashings available in inventory that are consistent with user-specified allowances. *See* Section V.C.iv *supra* (discussing AppliCad at 25).

- vi. **Neither Hsieh Nor AppliCad Discloses “wherein the different types of roof properties include a ridge length and a valley length and the at least two different indicia include one color of a line associated with a ridge and a different color of a line associated with a valley” (Claims 13, 31, and 52)**

Petitioner again relies only on AppliCad for these limitations in claims 13, 31, and 52 respectively, but AppliCad does not disclose a “roof estimate report” having “one or more top plan views of the three-dimensional model annotated” with “ridge length” or “valley length” (*see* Section V.C *supra*) and Petitioner offers no evidence to the contrary.

As an initial matter, Petitioner relies exclusively on figures unrelated to the reports disclosed in AppliCad for these claim elements and thus fails to identify any “roof estimate report” at all, much less one with the required “ridge length and . . . valley length.” But even the figures Petitioner cites are missing these required elements. Petitioner cites the Flashings Figure (*see* Pet. at 34), but it does not disclose either “ridge length” or “valley length” because the numbers on that figure correspond to certain flashing measurements that are unrelated to actual roof measurements. *See* Section V.C.iv *supra* (discussing AppliCad at 25). Petitioner's

reliance on what appears to be a screenshot during use of the AppliCad software, reproduced below (*see* Pet. at 34), further illustrates that the numbers in the Flashings Figure are flashing lengths, *e.g.*, the lengths of “Heritage Red” ridge caps and “[g]alvanised” BHP steel:



AppliCad at 26 (emphasis supplied). Petitioner does not contend that any of the other cited portions of AppliCad disclose “ridge length” or “valley length,” and indeed they do not because they merely describe basic information about model construction. *See* Pet. at 34 (citing AppliCad at 11, 14, 35, and 42). As such, AppliCad fails to disclose these claim limitations.

- vii. Neither Hsieh Nor AppliCad Discloses “wherein the different types of roof properties include a ridge and the at least two different indicia include a ridge length indicia, wherein the ridge length indicia is a ridge line with a numerical value adjacent thereto” (Claims 15, 33 and 54)

Petitioner's reliance on AppliCad for claims 15, 33, and 54 is deficient for the same reasons described in Section V.D.vi above. As discussed above with respect to claims 13, 31, and 52, AppliCad does not disclose a "roof estimate report" having "one or more top plan views of the three-dimensional model annotated" with "ridge length." See Section V.D.vi *supra* (discussing claims 13, 31, and 52). Petitioner does not offer any new evidence from AppliCad here, instead relying on the same portions of AppliCad as it did for claims 13, 31, and 52. As such, AppliCad likewise fails to disclose these claim limitations.

viii. Neither Hsieh Nor AppliCad Discloses "wherein the different types of roof properties include a valley and the at least two different indicia include a valley length indicia, wherein the valley length indicia is a valley line with a numerical value adjacent thereto" (Claims 16, 34, and 55)

AppliCad also fails to disclose claims 16, 34, and 55 for the same reasons described in Section V.D.vi above. As was the case with "ridge length," AppliCad does not disclose a "roof estimate report" having "one or more top plan views of the three-dimensional model annotated" with "valley length." See Section V.D.vi *supra* (discussing claims 13, 31, and 52). Petitioner offers no new evidence from AppliCad here, instead relying on the same portions of AppliCad as it did for those claims. Accordingly, AppliCad fails to disclose these claim limitations as well.

- ix. Neither Hsieh Nor AppliCad Discloses “wherein the different types of roof properties include a slope and the at least two different indicia include a slope indicia, wherein the slope indicia is an arrow in a direction of the slope with a numerical value adjacent thereto” (Claims 17, 35, and 56)

Petitioner does not separately address these limitations appearing in claims 17, 35, and 56, instead incorporating by reference its discussion of AppliCad for Claim 8. *See* Pet. at 32, 35, 41, 49. But that incorporated discussion relies exclusively on the Flashings Figure and the Roof Blocking Figure of AppliCad, which do not disclose the elements of these claims. The Flashings Figure has no indication of slope at all. *See* Section V.C.iv *supra* (discussing AppliCad at 25). Rather, the Flashings Figure provides only information about the lengths of certain flashings. *See id.* While the Roof Blocking Figure generally references slope (*i.e.*, “[t]his roof with a 20 degree pitch”), there is no arrow in that figure as required. AppliCad at 28. As such, the Roof Blocking Figure does not disclose “wherein the slope indicia is an arrow in a direction of the slope with a numerical value adjacent thereto.” *See id.*

VI. CONCLUSION

For the reasons discussed herein, Eagle View respectfully requests that the Board decline to institute *inter partes* review of the claims of the '436 Patent challenged by Xactware.

Date: May 17, 2016

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

This Patent Owner's Preliminary Response complies with the type-volume limitations as mandated in 37 C.F.R § 42.24, totaling 12,648 words. Counsel has relied upon the word count feature provided by Microsoft Word.

/Gianni Cutri/
Gianni Cutri

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing Patent Owner's Preliminary Response was served on May 17, 2016, by filing this document through the Patent Review Processing System as well as via email directed to counsel of record for the Petitioner at the following:

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