

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

STRUCTURAL WRAP, LLC,
Petitioner

v.

SYSTEM STORMSEAL PTY LTD, STORMSEAL USA, LLC,
Patent Owner

Case IPR2024-00084
Patent 11,168,484

**EXPERT DECLARATION OF DOUGLAS R. STIEVE IN SUPPORT OF
PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT No. 11,168,484**

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I, Douglas R. Stieve, hereby declare under penalty of perjury:

I. INTRODUCTION

1. I have been retained by Groombridge, Wu, Baughman & Stone LLP, on behalf of Structural Wrap, LLC (“Structural Wrap”) to provide assistance regarding U.S. Patent No. 11,168,484 (“the ’484 patent”). Specifically, I have been asked to consider the validity of claims 1-3 of the ’484 patent (the “Challenged Claims”). Except as otherwise indicated, I have personal knowledge of the facts and opinions set forth in this declaration, and believe them to be true. If called upon to do so, I would testify competently thereto.

2. Wiss, Jenney, Elstner Associates, Inc (WJE), the consulting firm where I am employed, is being compensated for my time at a rate of \$460 per hour. WJE will be reimbursed for any expenses that WJE incurs during the course of this work. My and WJE’s compensation is not contingent upon the results of my study, the substance of my opinions, or the outcome of any proceeding involving the Challenged Claims. I have no financial interest in the outcome of this matter or in the pending litigations involving Structural Wrap, System Stormseal Pty Ltd and Stormseal USA, LLC (together, “Stormseal” or “Patent Owner”), and SRS Distribution Inc.

II. BACKGROUND AND QUALIFICATIONS

3. I offer statements and opinions on behalf of Structural Wrap, generally regarding the validity, novelty, prior art, obviousness considerations, and understanding of a person of ordinary skill in the art as it relates to the '484 patent.

4. Much of my educational training as well as my decades of industry experience as a building envelope consultant are relevant to the subjects of this declaration.

5. In 1989, I earned a Bachelor of Architecture cum laude from the University of Oklahoma. I am a registered architect in Connecticut, Delaware, Massachusetts, New Jersey, New York, Pennsylvania, North Carolina, and Florida.

6. Since 1991, I have been a building envelope consultant with a specialization in roof and waterproofing consulting as well as masonry construction. The building envelope provides the barrier between the interior and exterior of a building, including its walls, windows, roof, and foundation. As a building envelope consultant, I identify and assess damage to buildings due to water ingress; investigate causes and sources of water damage; develop repair and waterproofing strategies for damaged buildings; develop waterproofing strategies for new buildings and rehabilitation jobs; and manage the design and construction period services for projects. I provide these consulting services to architects, contractors, and owners.

My work includes some of the largest and most complicated waterproofing projects in the New York metropolitan area.

7. I have provided professional services for over eight hundred buildings and other structures. Hundreds of these projects involved aspects related to roofing and waterproofing. Throughout my career, I have designed approximately 3 million square feet of roofing and waterproofing as well as performed investigations on numerous roofing projects, including many structures damaged by hurricanes and other storms. My experience also includes projects temporarily waterproofing in areas where structures were distressed, using tarpaulins and other membranes. I have also worked with many types of waterproofing systems, including waterproofing low- and steep-slope roofs, waterproofing plaza decks, waterproofing vegetative roofs, and subgrade waterproofing systems.

8. Projects that I have been involved with have won awards at the national, state, and local levels from organizations including the American Institute of Architects, Engineering News Record, and the National Trust for Historic Preservation.

9. I have also authored several articles and technical papers, and have lectured throughout the United States on the subjects of roofing, waterproofing, and masonry construction.

10. I obtained a National Council of Architectural Registration Boards Certificate, and I am a Registered Roof Consultant and a Green Roof Professional. I am a member of ASTM C15.02 - Brick and Structural Clay Tile and ASTM D08.20 - Roofing Membrane Systems. I am the past Vice Chair of the New York City Department of Buildings - Construction Requirements and Materials Committee. I also serve as Chair of the Technical Advisory Committee for IIBEC Inc. (the “International Institute of Building Enclosure Consultants”).

11. Attached hereto as **Appendix A** is a true and correct copy of my Curriculum Vitae describing my background and experience and includes a list of my publications, presentations, and expert testimony experience.

III. PRIORITY DATE AND ONE OF ORDINARY SKILL

12. I understand that a person of ordinary skill in the art (“POSITA”) is a hypothetical person who is presumed to have known the relevant art at the time of the invention. I understand that a POSITA is also a person of ordinary creativity, who in many cases will be able to fit the teachings of multiple patents or printed publications together. I further understand that the factors that may be considered in determining the level of ordinary skill in a particular field of art include (1) the level of education and experience of those working in the field, (2) the types of problems encountered in the field, and (3) the sophistication of the technology at the time of the invention, which I understand Stormseal asserts to be at least as early as

June 2, 2008. I understand that not every factor may be present in every case. I understand that a POSITA is not a specific real person, but rather is a hypothetical person having the qualities reflected by the above-discussed factors. I further understand that a POSITA would have knowledge from the teachings of the prior art, including the art cited herein.

13. In my opinion, on or before June 2, 2008, a POSITA relating to the technology of the '484 patent (apart from materials science aspects pertinent to at least claim 1) would have had five or more years of professional experience in protecting (including waterproofing) roofs. Alternatively, a bachelor's (or higher degree) in architecture, civil or structural engineering, or a related subject, along with one or more years of practical experience protecting (including waterproofing) roofs, could substitute for the years' professional experience described above. I understand that, for the materials science aspects pertinent to at least claim 1, a POSITA could be teamed with or have access to individuals particularly skilled in those aspects.

14. I base this opinion (1) on the level of training I believe is required to practice the concepts stated in claims 1-3 (apart from the materials science aspects relevant to at least claim 1), and which are described in the prior art; (2) on my decades of experience working as on building envelope projects; and (3) on supervising others (including persons of ordinary skill) in that work.

15. Well before June 2, 2008, my level of skill in the art was at least that of a POSITA (apart from materials science aspects relevant to at least claim 1). I am qualified to provide opinions concerning what such a POSITA would have known or understood as of that time. Unless otherwise stated, my analysis and conclusions provided herein are from the perspective of a POSITA as of that date.

IV. MATERIALS RELIED UPON

16. In reaching the conclusions described in this declaration, I have relied on the documents and materials cited in this Declaration and those identified in **Appendix B**. These materials are patents, related documents, and printed publications. Each of these is a type of document that experts in my field would reasonably rely upon when forming their opinions.

17. My opinions are also based on my education, training, knowledge, and personal and professional experience.

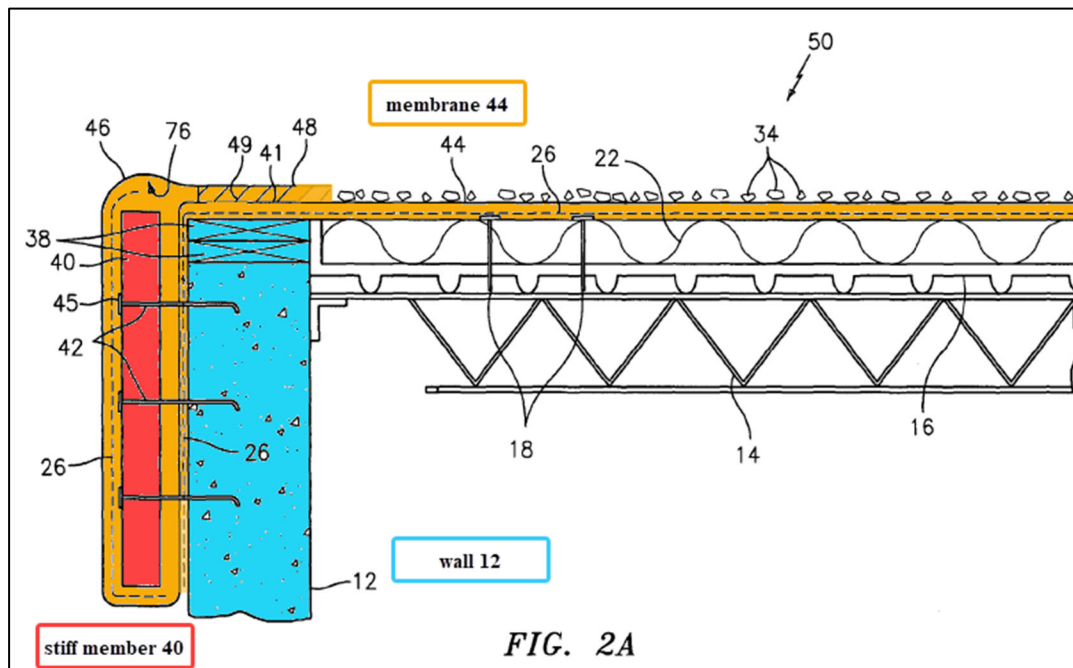
V. BACKGROUND ON THE STATE OF THE ART

18. In my opinion, prior to June 2, 2008, the prior art disclosed methods of covering a storm damaged roof, including methods where the covering is wrapped around a batten and attached to the fascia or under the eaves of a roof.

19. As discussed below (*infra* ¶¶20-31), “***wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the built structure***” and “***wrapping portions of the trailing***

edge around a second batten and attaching the second batten to an underside of a second eave or to the fascia of the built structure at a location different than the first batten” were well known prior to June 2, 2008.

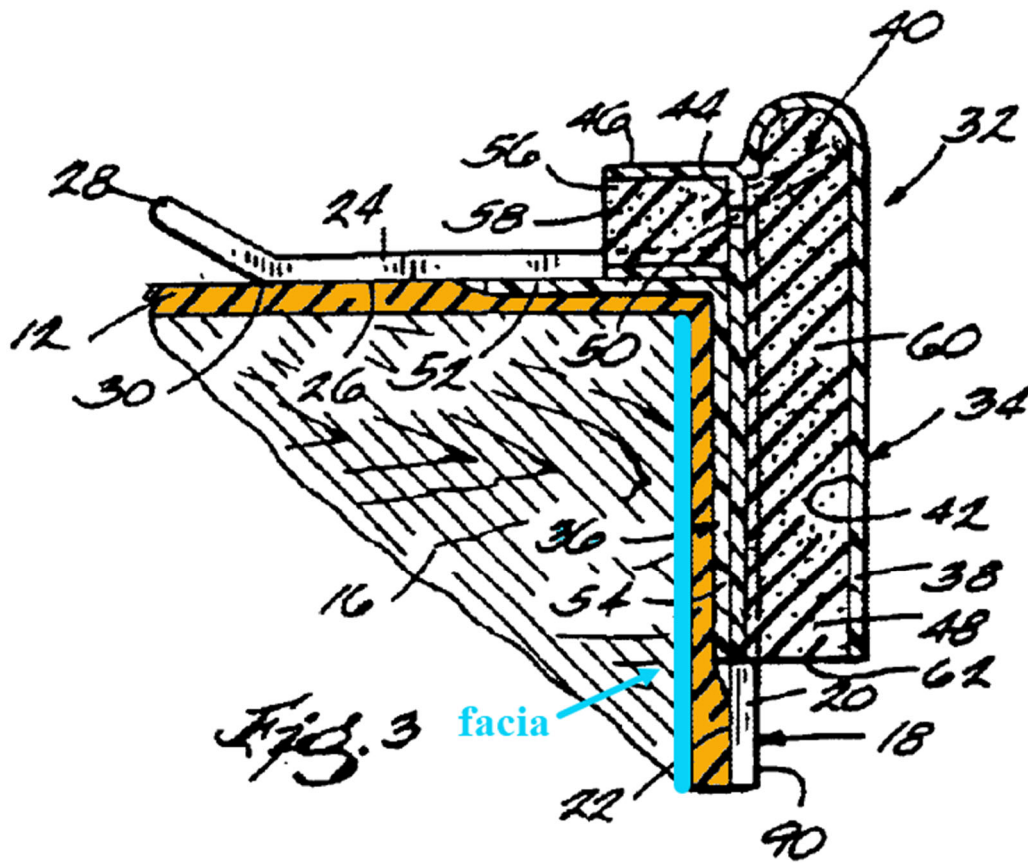
20. For example, U.S. Patent No. 8,407,958 (“**Kelly**”), whose application was filed May 15, 2006, discloses a “membrane 44” that “extends beyond the wall 12 far enough to have a wrap portion 46 of the membrane 44 back wrap around a stiff member 40.” EX1005 (**Kelly**), 3:4-25, Fig.2A (depicting a roofing membrane (orange) (44) wrapped around a batten (“stiff member”) (red) (40) to secure the membrane over the roof):



(Color and text in color boxes added)

21. Kelly also describes some of the benefits of wrapping the roof covering in a batten, which were well known. For example, Kelly teaches that “[b]y sandwiching the membrane portion 46 between the stiff member 40 and the wall 12 the membrane portion 46 is retained uniformly along the length of the wall 12,” which creates “uniformity” that “prevents the formation of any local stress risers.” EX1005 (**Kelly**), 3:31-41. As Kelly teaches, wrapping the membrane around a batten therefore reduces the risk of the membrane “tearing” when the membrane is pulled by the wind, for example. *Id.* Kelly further teaches that wrapping the batten in the membrane keeps the batten dry and prevents it from “rotting.” *Id.*; *see also id.*, 3:52-62 (“Additionally the stiff member 40 has properties of stiffness such that it holds its shape even while being pulled nonuniformly by attachments to roof and building structures and membranes for example. By holding its shape the stiff member 40 distributes any loads applied to it over the entire body of the stiff member 40 thereby minimizing localized stress levels.”).

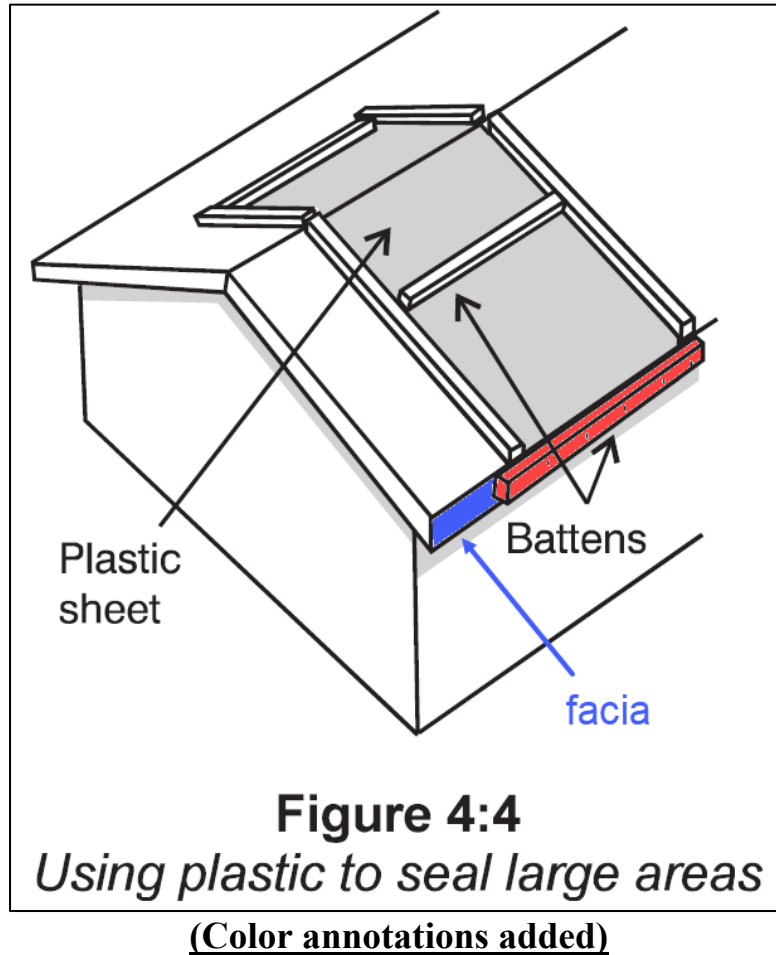
22. U.S. Patent No. 6,851,229 (“**Inzeo**”), which issued February 8, 2005, discloses securing a membrane (12) “against the vertical face of the nailer 16,” i.e., the fascia. EX1006 (**Inzeo**), 2:38-43, Fig.3 (fascia in blue and roof covering in orange):



(Color added)

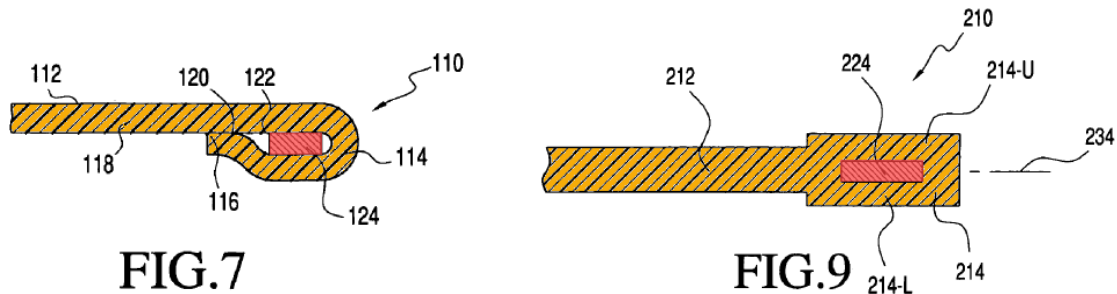
23. Emergency Management Australia, Commonwealth of Australia, Australian Emergency Manual Series, “Skills for Emergency Services Personnel: Storm and Water Damage Operations,” Third Edition (2007) (“**EMA**”), which I understand to have been publicly available at least by June 2007, discloses “securing” plastic sheeting with “timber battens” and discloses applying plastic sheeting to a roof in the same manner as tarps. EX1020 (**EMA**), 47. EMA further discloses that one method of securing material to a roof is to “wrap” the material “around a piece of board [i.e., batten] and secure the board to the roof structure.”

Id., 50. EMA also discloses that the batten may be attached to the fascia boards. *Id.*, 47 (Fig.4:4) (showing attachment of the batten (red) at the fascia (blue)):



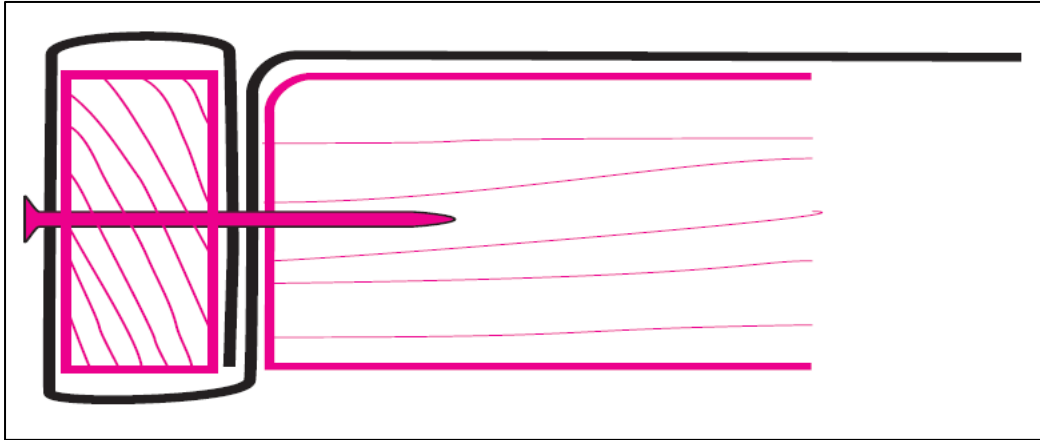
24. U.S. Patent Publication No. US 2005/0279040 (“**Panasik**”), which was published in 2005, discloses that the “side edge portion” of a “roofing membrane is folded over upon itself” such that it is able to “retain” a “batten” and that “the side edge portion 114 of the... membrane member 112 is folded over the flexible batten... so as to fixedly envelop, encase, or encapsulate the flexible batten.”

EX1015 (**Panasik**), ¶8, ¶¶21-22, ¶24, Figs. 7 & 9 (depicting roofing membranes (orange) wrapped around battens (red)):



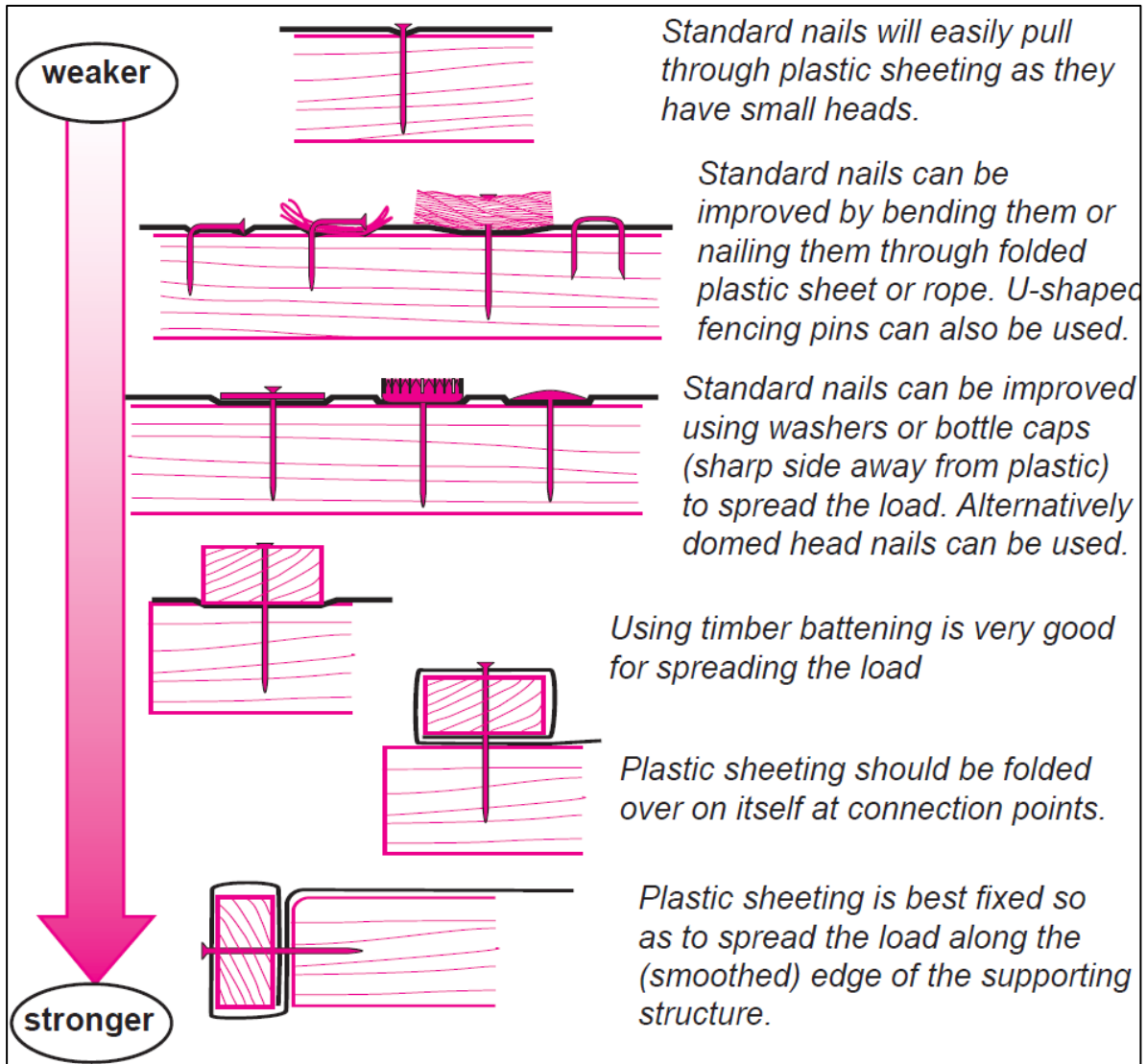
(Color added)

25. *Plastic Sheeting: A guide to the specification and use of plastic sheeting in humanitarian relief*, by the International Federation of Red Cross and Red Crescent Societies, (2007) (“**Plastic-Sheeting**”), which I understand to have been publicly available at least by October 2007, discloses that “[u]sing timber battening is very good for spreading the load,” including when attaching plastic sheeting to a roof. EX1019 (**Plastic-Sheeting**), 2-3, 8, 26, 31. Plastic-Sheeting discloses that “[p]lastic sheeting should be folded over on itself at connection points,” as shown in the image below:



EX1019 (**Plastic-Sheeting**), 26 (showing edge of the plastic sheeting wrapped around a batten).

26. Plastic-Sheeting also describes some benefits of wrapping the roof covering in a batten. EX1019 (**Plastic-Sheeting**), 2-3, 8, 26, 31. For example, Plastic-Sheeting includes the below graphic showing that the “stronger” method, which is “very good for spreading the load,” involves wrapping the batten in the plastic sheeting and then attaching to the structure:



EX1019 (**Plastic-Sheeting**), 26.

27. Blue-Roof-Tarps, which I understand to have been publicly available by at least August 2007, discloses repairing storm-damaged roofs with tarps by “wrap[ping] the edges of the tarp around a 1x2 or 1x3 strip of pressure treated wood, then nail[ing] or screw[ing] the wood to the roof” and “secur[ing] it to the underside of the eaves on both sides of the roof.” EX1018 (**Blue-Roof-Tarps**), 1. Blue-Roof-

Tarps also discloses attaching the tarp to the “underside of the eaves.” EX1018 (**Blue-Roof-Tarps**), 1. Blue-Roof-Tarps also describes some benefits of wrapping the roof covering in a batten. For example, Blue-Roof-Tarps teaches that wrapping the tarp around battens is an “easy solution” that “[p]revent[s] [t]ears.” EX1018¹ (**Blue-Roof-Tarps**), 1.

28. Further, Lowe’s Video “Tarp Your Roof” (“Lowe’s Video”), which I understand was available on YouTube by at least September 28, 2006, discloses wrapping the edge of a tarp around a batten and attaching the batten to the fascia or under the eaves, to secure it over a storm damaged roof. Lowe’s Video teaches

¹ I note that Blue-Roof-Tarps is a webpage with information on how to secure roof tarps. In my opinion, this webpage and the other internet references discussed herein would have been interesting to POSITA in June 2008 working on projects involving covering buildings, including on covering roofs damaged by storms. POSITA would have been able to locate Blue-Roof-Tarps and the other internet references discussed herein (EX1018 (**Blue-Roof-Tarps**); EX1016 (**Lowe’s Video**), EX1021 (**Americover**); EX1019 (**Plastic-Sheeting**); EX1020 (**EMA**); EX1040) by searching the internet (including Google and YouTube) for information on methods relevant to their projects, including on installing coverings over roofs.

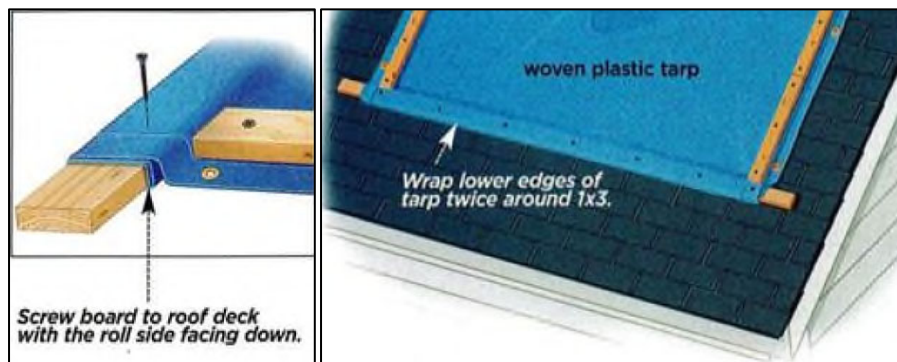
“roll[ing]” the “end of the tarp around [a] 2x4 and nail[ing] under the eave” or to the fascia (as shown in the below screenshot from the video). EX1016² (**Lowe’s Video**), -5 at 0:28, -6 at 0:01³:

² This video would have been interesting to POSITA working in June 2008 on projects involving covering buildings, including on covering roofs damaged by storms, as it demonstrates a well-known technique to install a covering over a storm damaged home. POSITA would have been able to locate this video by searching the internet. Further, POSITA would have been familiar with and interested in Lowe’s as a store with a website for purchasing building materials and equipment, and as a resource for relevant information on using their products for this purpose.

³ I understand EX1016 (Lowe’s Video) was broken up into six parts due to the large size of the video.



29. This Old House Magazine, March 2005 Issue ("This-Old-House"), which I understand was published in March 2005, discloses attaching a tarp to a roof by "wrap[ing] lower edges of tarp twice around a 1x3" board. EX1017 (**This-Old-House**), 1, 22:

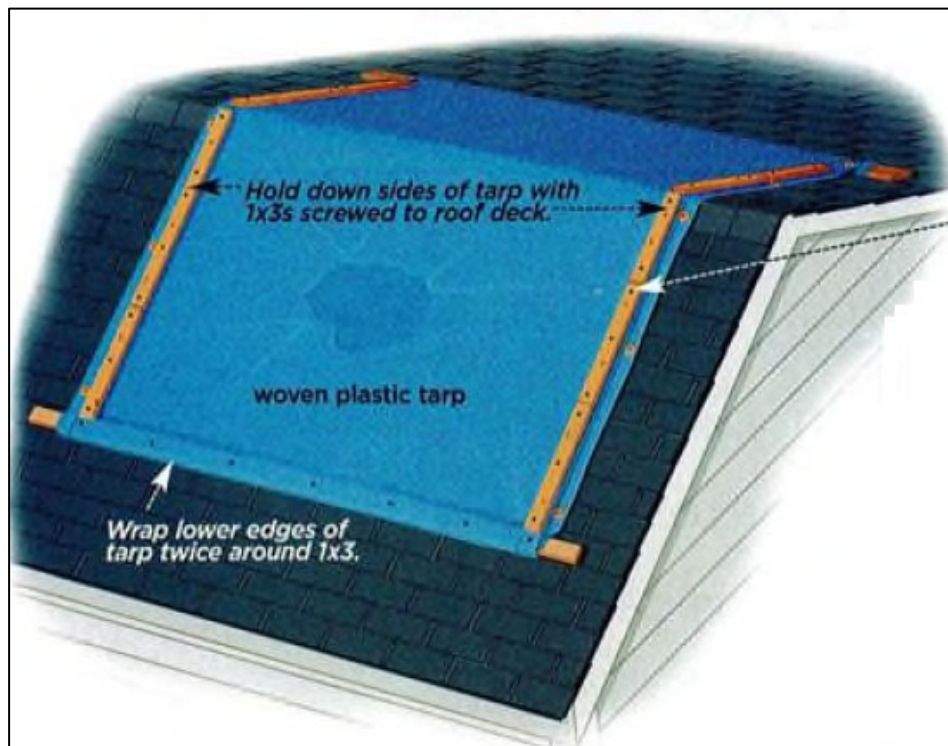


30. Thus, prior to June 2, 2008, the batten-wrapping steps of the Challenged Claims were widely known and used for roof coverings.

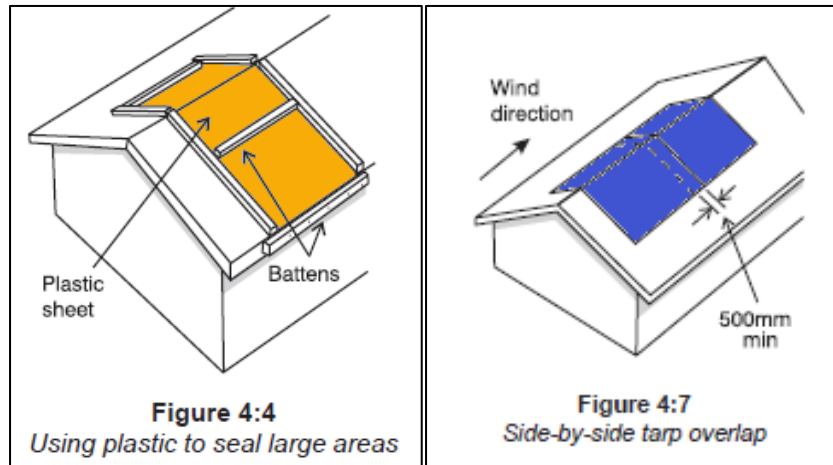
34. Blue-Roof-Tarps discloses that “[h]eavy duty poly blue roof tarps provide a solution for homeowners and roofers after a hurricane or other event causes significant damage to a roof.” EX1018 (**Blue-Roof-Tarps**), 1.

35. Lowe’s Video discloses methods of “tarping a damaged roof” “[a]fter a hurricane” and explained that doing so “is critical to preserving your post-hurricane rebuilding options.” EX1016-1 (**Lowe’s Video**), 0:15-0:27.

36. This-Old-House discloses “protecting a storm-damaged roof” by “cover[ing] the damage with a with a woven plastic tarp that is held in place with 1x3 wood strips.” EX1017 (**This-Old-House**), 22:



37. EMA discloses laying plastic sheeting or tarpaulins (also called tarps) over storm damaged areas of roofs. EX1020 (**EMA**), 47-48:



(Color added)

38. Americover, Heat Shrink Wrap (“Americover”), discloses a “skin-like protective covering” that provides “[p]rotection from the elements” to “[h]urricane and storm damaged structures.” EX1021 (**Americover**), 1.⁴

⁴ I understand that Americover is a company that sells heat shrink wraps that can be used for various purposes, including to cover buildings and roofs. See <https://www.americover.com/about-americover/>. I understand that a version of Americover’s website describing its heat shrink wrap films was publicly available by at least October 2006. In my opinion, POSITA in June 2008 working on projects involving covering buildings with heat shrinkable film, including over storm damaged roofs, would have been interested in suppliers of roof covering products of heat-shrinkable film and in information about those products, and POSITA

39. *Applying heat shrinkable film to at least a portion of a roof and heating the film to cause it to shrink and conform to the portion of the roof* were also well-known steps as of the earliest claimed priority date of the '484 patent.

40. For example, Crook discloses that “the roof cover comprises shrink wrap material that is configured to shrink in response to being exposed to heat.” EX1004 (**Crook**), ¶65. Crook further discloses the method of “applying heat to the roof cover until the roof cover shrinks and thereby attaches adjacent the roof.” *Id.*, ¶8. Additionally, Crook discloses that “[a] heat gun or any other appropriate heat source may be used to apply heat to the roof cover.” *Id.*

41. Another example is Americover, which discloses methods of using “heat shrink films” on, for example, “hurricane and storm damaged structures” where, when “the film is subjected to heat,” it “shrinks in all directions... allowing the film to mold itself to just about any structure” and “form[] a skin-like protective covering.” EX1021 (**Americover**), 1.

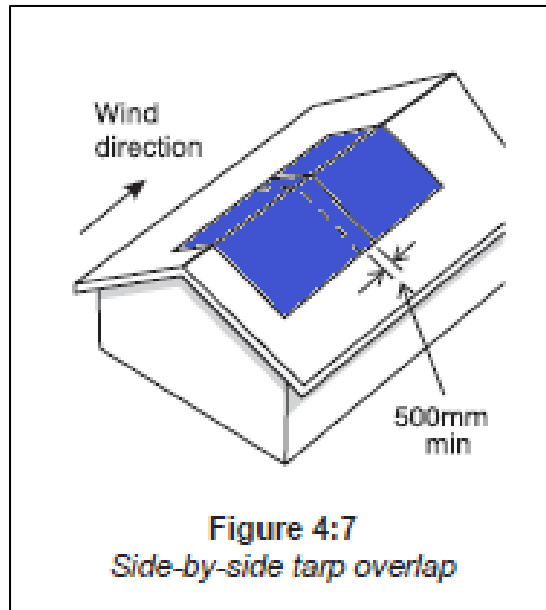
would have been able to search for such suppliers of products, including on the internet, to locate Americover. Indeed, the Fine Home Building Discussion Forum (“**Forum**”) confirms that prior to June 2008 Americover products were publicly available and known to those working on projects involving covering buildings. EX1044 (**Forum**), 7.

42. A further example is U.S. Patent No. 7,951,873 (“Best”), whose application was filed in April 2007. Best discloses that “[s]hrink films, also referred to as heat-shrinkable films, are widely used,” that “[s]uch films are capable of shrinking upon application of heat,” and that these heat shrinkable films are used as a “housewrap.” EX1007 (Best), 2:11-23, 15:8-19, 21:4-22:28; EX1030 ¶37 (Khanna Declaration).

43. *A sheet having a leading edge and a trailing edge* was also well-known.

44. For example, Crook discloses a “roof cover” made up of “strips” that have already been “attached together by lengths of tape,” and that has a “first end” and a “second end.” EX1004 (Crook), ¶¶60, 65, 67. In particular, Crook teaches laying a “plurality of membrane strips” side by side and “attach[ing] [them] together by lengths of tape,” to form a “membrane.” *Id.* ¶67. Crook then teaches using a single “membrane” (which is made up of the plurality of taped together membrane strips) as a “roof cover.” *E.g., id.* ¶60.

45. EMA discloses a sheet comprised of “[t]arps laid side by side” such that they are “overlapped” and their “[j]oints can be taped with ducting tape for greater protection. EX1020 (EMA), 47-48, Fig.4:7:



(Color added)

46. EMA also teaches that “[p]lastic sheeting can be used to seal large areas... by laying it in the same manner as tarpaulins.” EX1020 (**EMA**), 47.

47. Additionally, Blue-Roof-Tarps discloses overlapping and attaching tarps together and “seal[ing] the edge with tarp repair tap,” “[i]f you can’t get a single tarp large enough to cover the entire damaged area.” EX1018 (**Blue-Roof-Tarps**), 1.

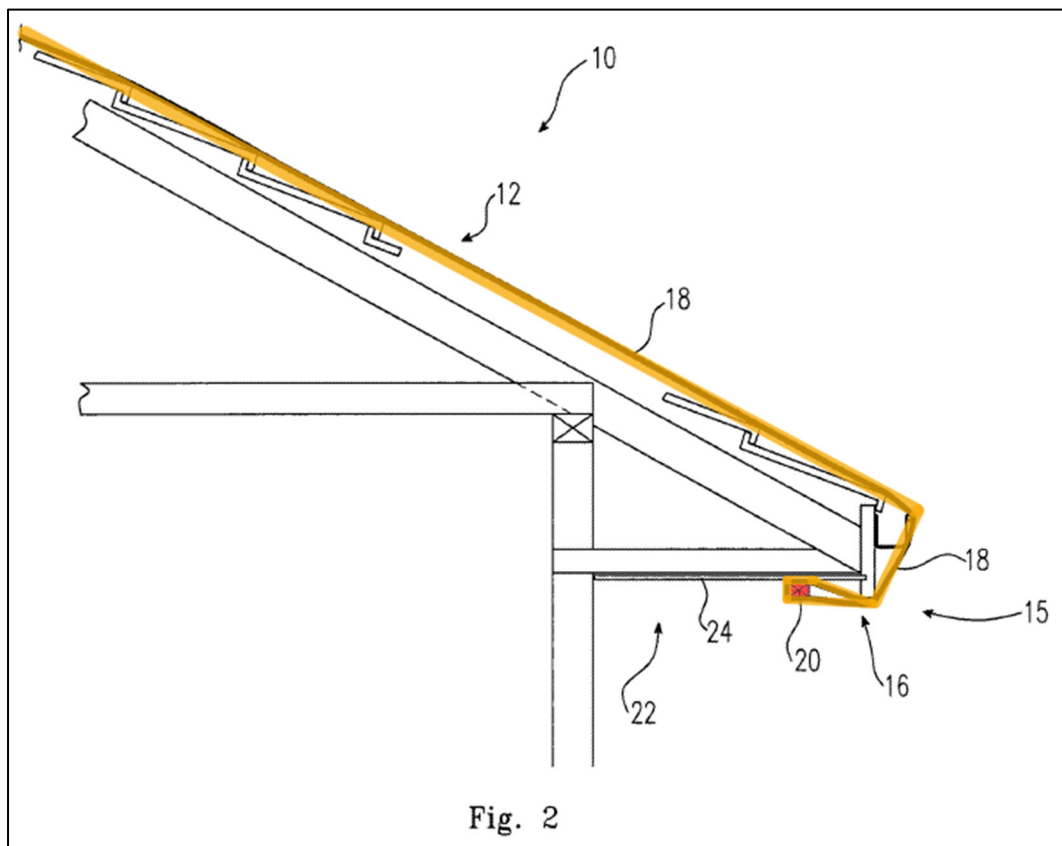
48. Additionally, U.S. Patent No. 4,715,915 (“Vanderzee”), which issued on December 29, 1987, taught joining together lengths of plastic sheeting to form a wider sheet. EX1035 (**Vanderzee**), 1:20-51, 2:31-39.

VI. THE '484 PATENT

49. I have been advised that Stormseal asserts that claims 1-3 of the '484 patent are entitled to a priority date of at least as early as June 2, 2008. I assume a June 2, 2008 priority date for the purposes of my opinions herein.

A. Overview of the '484 Patent

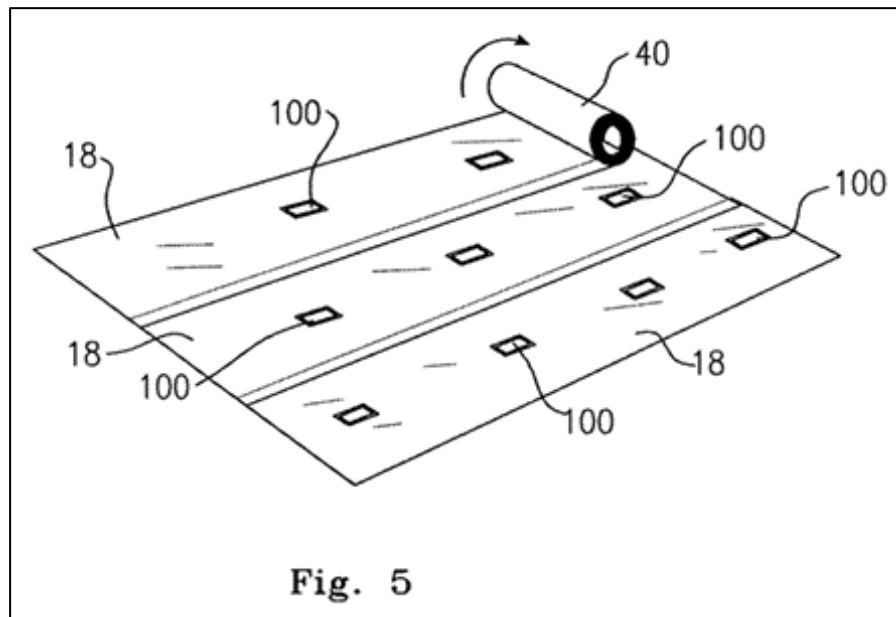
50. The '484 patent relates to “protective covering of roofs and walls of a building and, more particularly, to the covering of damaged or under construction roofs, as well as the covering of walls of buildings.” EX1001, 1:15-18, Fig.2:



(Color Added Showing Covering in Orange and Batten in Red)

51. The above figure shows attachment of the batten under the eave of the roof.

52. The '484 patent teaches that “the width of the damaged area is ascertained,” then the “number of lengths of material 18 is then cut from a roll 40 of the film and laid out side by the side on the ground” as shown in Figure 5. EX1001, 7:8-33, Fig. 5:



The '484 patent further teaches that “while on the ground, adjoining edges of the lengths of film are taped to form a waterproof assembled sheet of heat shrinkable film, sufficient to stretch from one roof edge to the opposite roof edges and of sufficient width to cover the damaged area” and the sheet is then “pulled up on the roof, positioned so as to cover the damaged area....” EX1001, 7:8-33.

53. I have considered the Challenged Claims (claims 1, 2, and 3) and of the '484 patent, which read as follows:

Claim 1

[1.pre] A method of providing covers over at least a portion of a roof of a storm damaged built structure comprising the steps of:

[1.a] applying a sheet of heat shrinkable film over the portion of the roof, the sheet having a leading edge and a trailing edge and being a film of low density polyethylene including shrinking resins;

[1.b] wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the built structure;

[1.c] wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the fascia of the built structure at a location different than the first batten; and

[1.d] heating the sheet of heat shrinkable film to bring the film into conformity with the portion of the roof, wherein said heating step shrinks the sheet of film tight against the built structure to cover over the portion of the roof.

Claim 2

[2.pre] A method of covering at least a portion of a roof of a [built] structure comprising the steps of:

[2.a] cutting a sheet of film from a roll of heat shrinkable film;

[2.b] after said cutting step, applying the sheet of film over the portion of the roof to extend from a first edge to a second edge of the [built] structure, wherein the film includes a leading edge and a trailing edge;

[2.c] wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the [built] structure;

[2.d] wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the fascia of the built structure at a location different than the first batten; and

[2.e] heating the film to cause the film to conform to the portion of the roof.

Claim 3

[3.pre] A method of covering at least a portion of a roof of a [built] structure comprising the steps of:

[3.a] applying a pre-cut sheet of heat shrinkable film over the portion of the roof to extend from a first edge to a second edge of the [built] structure, wherein the film includes a leading edge and a trailing edge;

[3.b] wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the [built] structure;

[3.c] wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the fascia of the built structure at a location different than the first batten; and

[3.d] heating the film to cause the film to conform to the portion of the roof.

B. Overview of the '484 Patent Prosecution History

54. I have reviewed and considered the prosecution history of the '484 patent. I understand that U.S. Application 15/783,813 (the '813 Application) was filed by Patent Owner on October 13, 2017. EX1002, 11. I understand that that application resulted in the '484 patent, after several rounds of office actions and amendments.

55. I understand that, in an office action dated February 25, 2021, the Examiner rejected certain claims as obvious over Crook (EX1004) in view of Starr (EX1008), Lachapelle (EX1009), and Myhre (EX1010). EX1002, 214-216. In particular, I understand that the Examiner found that Crook teaches a method of covering a roof structure with a sheet of shrink wrap material and using a heat gun to apply heat to the sheet, “caus[ing] the sheet to shrink and thereby conform tightly against the roof structure.” EX1002, 214.

56. I understand that the Examiner acknowledged that Crook does not expressly disclose that the shrink wrap material may be low density polyethylene including shrinking resins and found that limitation to be obvious in view of Lachapelle and Myhre, teaching that such material was well known and

conventionally used to protect building structures at the time of invention. EX1002, 215.

57. I understand that the Examiner also found that, while Crook teaches to attach its sheet with fasteners, Crook does not expressly disclose that the fasteners may be a batten attached to the roof structure. EX1002, 215. The Examiner further found that using a batten to attach the sheet was obvious in light of Starr's teaching that "batten strips were known in the prior art as being suitable for fastening underlayment sheets" for roofs. EX1002, 216. To address the claims that required the batten strips be attached to the fascia or the underside of the eaves, I understand that the Examiner found that "such placement would have been a routine matter of design choice for one of ordinary skill in the art such that the use of a batten strip on eaves, fascia, rafters, walls, or any other portion of a building structure would have been obvious depending upon where it is desired to fasten the sheet." EX1002, 216.

58. I further understand that Patent Owner subsequently amended certain claims to include requiring "wrapping" the trailing and leading edges of the sheet around battens prior to attaching the battens to the structure. EX1002, 253-257. I understand that the Patent Owner argued that the prior art cited by the Examiner was distinguishable based on the addition of the "wrapping" step. For example, Patent Owner argued that "Crook does not disclose wrapping portions of the leading edge around a first batten and attaching the first batten to the underside of a first eave or

to the facia of the built structure, and wrapping portions of the trailing edge around a second batten and attaching the second batten to the underside of a second eave or to the facia of the built structure at a location different than the first batten, as recited in claim 18,” which became issued claim 1. EX1002, 248 (emphases in original). I understand that the Patent Owner also argued that “Starr does not describe or suggest wrapping a heat shrinkable film about a batten then installing the batten to the underside of an eave or to the facia of a structure.” EX1002, 248. In addition, Patent Owner argued “[w]rapping the membrane strip 33 about a batten reduces tearing and enables applying uniform tension across the cross section of the strip 33 which enables a better fit to the roof while securing the strip 33 to a structure.” EX1002, 247.

59. I understand that the Patent Owner also added new claims that did not recite this batten-wrapping step and argued that these new claims were distinguished from the prior art because the claims required that the sheet be applied to the roof after the sheet is cut from a roll of heat shrinkable film or required the application of a “pre-cut sheet.” EX1002, 249-257.

60. In an office action dated July 22, 2021, I understand that the Examiner found that the “prior art fails to teach or fairly suggest applying a film strip to a roof structure by wrapping leading and trailing ends around battens and securing said battens to the structure” and that this “fastening technique” “provides an advantage

by avoiding areas of slack or looseness and corresponding air pockets which arise when using traditional fasteners such as screws or nails.” EX1002, 266.

61. I understand that the Examiner also rejected the claims that did not recite the batten-wrapping step as obvious over Crook in view of Bettencourt (EX1031) because it “was known in the prior art at the time of invention that a protective layer could be applied to a roof structure by applying protective material to a roof and then cutting it into discrete panels, as taught by Crook, or by applying pre-formed discrete panels to a roof, as taught by Bettencourt.” EX1002, 263-264. I understand the Examiner found that “[s]ince both orders of steps were conventionally used and known to be functionally equivalent in applying a protective layer to a roof surface, it would have been obvious to one of ordinary skill in the art at the time of invention to substitute the non-cut material of Crook for pre-cut sheets.” EX1002, 263-264. I understand the Examiner also found that “[r]egardless of when the cutting step takes place, the same predictable result of having individual strips to apply to a roof structure is achieved.” EX1002, 267.

62. I understand that the Patent Owner then amended certain pending claims to include the batten-wrapping requirement and cancelled the other pending claims. EX 282-283.

63. I understand that the claims were then allowed and the ’484 issued on November 9, 2021. EX1002, 292-294; EX1001.

C. Prosecution History of Related Child Applications

1. The '787 Application

64. I understand that on November 5, 2021, Patent Owner filed U.S. Application No. 17/519,787 (the "'787 Application"). EX1011, 260, 69-78. I understand that the '787 Application included claims 1, 10, and 15, which are identical in scope and nearly identical in language to Claims 1-3 of the '484 patent. EX1011, 48-51.

65. Below is a redline comparison showing the differences between claim 1 of '484 patent and claim 10 of the '787 Application, as an example (additions in blue and deletions in red):

1. A method of providing covers over at least a portion of a roof of a storm damaged built structure comprising the steps of:

- applying a sheet of heat shrinkable film over the portion of the roof, the sheet having a leading edge and a trailing edge and being a film of low density polyethylene including shrinking resins;
- wrapping portions of the leading edge around a first batten and attaching the first batten to ~~an~~the underside of a first eave or to ~~a~~the fascia of the built structure;
- wrapping portions of the trailing edge around a second batten and attaching the second batten to ~~an~~the underside of a second eave or to the fascia of the built structure at a location different than the first batten;

and

- heating the sheet of heat shrinkable film to bring the film into conformity with the portion of the roof, wherein said heating step shrinks the sheet of film tight against the built structure to cover over the portion of the roof.

66. In an office action dated December 19, 2022, I understand that the Examiner rejected claims 1, 10, and 15 of the '787 Application as obvious over Crook (EX1004), Kelly (EX1005), Inzeo (EX1006), and Best (EX1007), and found that those claims "claim[] the same invention as that of" previously issued claims 1-3 of '484 patent, respectively. EX1011, 286-290, 292. I understand that the Examiner of the '787 Application is the same Examiner that examined the application that led to the '484 patent.

67. As in the prosecution of '484, I understand that the Examiner found that Crook teaches covering a roof with a sheet of heat shrinkable film and heating the sheet such that it shrinks and conforms to the roof. EX1011, 285-286, 288-289. As to the limitation that the sheet be a film of low density polyethylene including shrinking resins, I understand that the Examiner found that "Best teaches low density polyethylene polymers which have heat shrinking properties and may be used as housewrap." EX1011, 288-289.

68. I understand that the Examiner again found that Crook does not expressly disclose the batten-wrapping step (EX101, 16) but found that Kelly (which was not cited or identified during prosecution of the application that led to the '484

patent) “teaches a method of attaching a waterproof membrane to a roof assembly, the method comprising: wrapping a membrane (46) around a stiff member (40) and attaching the stiff member to a side face of a wall (12) with fasteners (42).” EX1011, 289.

69. I understand that the Examiner further found that Inzeo disclosed “a method in which a membrane is attached to a fascia of a roof by an anchor.” EX1011, 289.

70. Additionally, I understand that the Examiner found that “[s]ince it was known in the prior art to attach membranes to walls (as taught by Crook and Kelly) or to fascia (as taught by Inzeo), the substitution of one known attachment point for another would have been obvious.” EX1011, 289-290.

71. I understand that the Examiner concluded that “any attachment point” would have been obvious to one of ordinary skill in the art. EX1011, 290. The Examiner also found that the pending claims’ requirement that the applying step occurs after the cutting step, or that a pre-cut sheet be applied, was obvious based on the teachings of Crook. EX1011, 285-286.

72. I understand that the Patent Owner then abandoned the ’787 Application on June 23, 2023. EX1011, 314-315.

D. Claim Construction of the '484 Patent Claims

73. I understand that patented claims terms are generally given their plain and ordinary meaning in light of the specification. I also have been advised that the plain and ordinary meaning may not apply where a patentee acts as his own lexicographer, meaning that the patentee sets out his own definition for the term or where the patentee disavows the full scope of the claim term either in the specification or during prosecution.

74. I also understand that, during patent examination, the Patent and Trademark Office (PTO) interprets applied-for claims in a manner broader than the interpretation standards described above for patented claims. During examination, I understand that the PTO interprets the claims as broadly as their terms reasonably allow, giving claims in an application their broadest reasonable interpretation consistent with the specification.

75. I understand that, in the context of the '484 patent, “sheet” as used in each of the Challenged Claims means an “assembly of at least two lengths.” I have applied this definition in my analysis below. I also understand, however, that Patent Owner asserts in a litigation that “sheet” includes a single strip of film and does not require that two strips of the film be connected. As I explain below, regardless of whether the broader construction (i.e., sheet including a single strip of film) or the narrower construction (i.e., sheet meaning an assembly of at least two strips) applies,

the prior art references described in the grounds herein render obvious each of the Challenged Claims.

76. For all other terms, I have been asked to assume that they have their plain and ordinary meaning as they would have been understood by a POSITA in light of the specification.

VII. THE CHALLENGED CLAIMS ARE INVALID

A. Legal standards

77. I understand that a claim may be invalid under 35 U.S.C. § 103(a) if the differences between the claimed invention and the prior art are such that the claimed invention, as a whole, would have been obvious to a hypothetical person of ordinary skill in the art in view of a prior art reference or a combination of references at the time the claimed invention was made.

78. I have been advised that obviousness is determined from the perspective of a POSITA and that the claims of the patent should be read from the point of view of such a person at the time the claimed invention was made. Additionally, I understand that a person of ordinary skill in the art is assumed to know and to have read all relevant prior art in the field of endeavor covered by the patent in suit or reasonably pertinent to the particular problem that the inventor faced.

79. I understand that prior art used in an obviousness analysis must be analogous to the '484 patent. To determine whether prior art is analogous, I understand that there are two criteria: (1) whether the art is from the same field of endeavor as the invention, regardless of the problem addressed, and (2) if the reference is not within the same field of endeavor as the invention, whether the reference is still reasonably pertinent to the particular problem the inventor faced.

80. I understand that an analysis of whether a claimed invention would have been obvious should be considered in light of the following: (1) the scope and content of the prior art; (2) the differences (if any) between the prior art and the claimed invention; (3) the level of ordinary skill in the pertinent art involved; and (4) secondary considerations of non-obvious. I also understand that a prior art reference should be viewed as a whole.

81. I further understand that a prior art reference can disclose a claimed feature because the feature is expressly described, or because the feature is inherent in the disclosure and something is inherent in a prior art reference only if the missing descriptive matter must necessarily be present. I understand that for a claimed feature to be described in a prior art reference, the exact words of the claim need not be used. I further understand that inherency cannot be established by probabilities or possibilities, and that the mere fact that something may result from a given set of circumstances is not sufficient to show inherency.

82. In considering whether an invention would have been obvious, I understand that one may consider whether there are apparent reasons to combine known elements in the prior art in the manner claimed in view of interrelated teachings of multiple prior art references, the effects of demands known to the design community or present in the marketplace, and/or the background knowledge possessed by a POSITA. I further understand that other principles may be relied on to determine whether a claimed invention would have been obvious, including:

- Combining elements in the prior art according to known methods is likely to be obvious when it does no more than yield predictable results;
- When a device or technology is available in one field of endeavor, design incentives and other market forces can prompt variations of such device or technology, either in the same field or in a different one, so that if a person of ordinary skill can implement a predictable variation, it is likely obvious;
- If it would be recognized by a POSITA that applying a known technique, which has been used to improve one device, method, or product, would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond the skill of a POSITA;
- An explicit or implicit teaching, suggestion, or motivation to combine two prior art references to form the claimed combination may demonstrate

- obviousness, but proof of obviousness does not depend on or require showing such a teaching, suggestion, or motivation to combine;
- Market demand, rather than scientific literature, can drive design trends and may show obviousness;
 - In determining whether the subject matter of a patent claim would have been obvious, neither the particular motivation nor the avowed purpose of the named inventor controls;
 - One of the ways in which a patent's subject matter can be proved obvious is by noting that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent's claims;
 - Any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed;
 - Common sense teaches that familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle;
 - A person of ordinary skill in the art is also a person of ordinary creativity, and is not an automaton;

- A patent claim can be proved obvious by showing that the claimed combination of elements was “obvious to try,” particularly when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions such that a person of ordinary skill in the art would have had good reason to pursue the known options within his or her technical grasp; and
- One should be cautious of using hindsight in evaluating whether a claimed invention would have been obvious.

83. I have been advised that when determining whether or not the claimed invention would have been obvious to a POSITA, one may consider whether certain objective factors are present. These objective factors include commercial success, long-felt but unmet need, teaching away, unexpected results, copying, and praise by others. These factors are generally referred to as secondary considerations or objective indicia of non-obviousness. I understand that there must be a causal relationship (called a “nexus”) between the claim and the evidence, and that this nexus must be based on a novel element of the claim rather than something in the prior art. I further understand that even if secondary considerations of non-obviousness are present, secondary considerations are not sufficient to overcome primary evidence of obviousness that is sufficiently strong.

84. I understand that for a claim to be obvious, a POSITA must have had, in addition to a motivation to combine, a reasonable expectation of success in practicing the claimed invention based on the prior art. Whether a POSITA would have had a reasonable expectation of success (“REOS”) in practicing the claims is determined based on the degree of unpredictability in the art as well as the guidance provided by the art.

85. I understand that for *inter partes* reviews, invalidity (also called unpatentability) must be shown under a preponderance of the evidence standard, which I understand means it must be proven to be more likely true than not true.

86. I have concluded each of the Challenged Claims is invalid (and unpatentable) for obviousness based on the references described below and as outlined in the claim charts attached hereto as **Appendix C**.

B. Ground 1: Claim 1 is rendered obvious by Crook in view of Kelly, Inzeo, and Best; Ground 2: Claim 1 is rendered obvious by Crook in view of Kelly, Inzeo, Best, and Vanderzee; Ground 3: Claim 1 is rendered obvious by Crook in view of Kelly, Inzeo, and Americover; Ground 4: Claim 1 is rendered obvious by Crook in view of Kelly, Inzeo, Americover, and Vanderzee; Ground 5: Claim 1 is rendered obvious by Crook in view of Lowe’s Video and Americover; Ground 6: Claim 1 is rendered obvious by Crook in view of Lowe’s Video, Americover, and Vanderzee; Ground 7: Claims 2-3 are rendered obvious by Crook in view of Kelly and Inzeo; Ground 8: Claims 2-3 are rendered obvious by Crook in view of Kelly, Inzeo, and Vanderzee; Ground 9: Claims 2-3 are rendered obvious by

Crook in view of Lowe's Video; Ground 10: Claims 2-3 are rendered obvious by Crook in view of Lowe's Video and Vanderzee.

87. In my opinion, for the reasons described herein and in Appendix C (which forms part of my analysis), a POSITA would have recognized that each and every limitation of the Challenged Claims, combined as claimed, is disclosed and suggested by the prior art such that each of the Challenged Claims would have been obvious to a POSITA. Specifically, it is my opinion that the Challenged Claims are invalid as obvious as follows:

Ground	Claims Challenged	References/Basis
1	Claim 1	Crook in view of Kelly, Inzeo, and Best
2	Claim 1	Crook in view of Kelly, Inzeo, Best, and Vanderzee
3	Claim 1	Crook in view of Kelly, Inzeo, and Americover
4	Claim 1	Crook in view of Kelly, Inzeo, Americover, and Vanderzee
5	Claim 1	Crook in view of Lowe's Video and Americover
6	Claim 1	Crook in view of Lowe's Video, Americover, and Vanderzee
7	Claims 2-3	Crook in view of Kelly and Inzeo
8	Claims 2-3	Crook in view of Kelly, Inzeo, and Vanderzee
9	Claims 2-3	Crook in view of Lowe's Video
10	Claims 2-3	Crook in view of Lowe's Video and Vanderzee.

1. Overview of “Roof Protection Systems for High Wind Zones”—U.S. Patent Application Publication 2005/0217202 A1 (“Crook”)

88. Crook (EX1004) is a U.S. Patent Application Publication that published on October 6, 2005. I understand that Crook is prior art to the '484 patent. Crook is entitled “Roof Protection Systems for High Wind Zones” and describes, among other things, a “roof cover... for securing roofs during roof repair.” *E.g.*, EX1004 (**Crook**), ¶73.

89. Crook discloses roof covers for built structures used for, *e.g.*, “securing the roof of a residential home.” For example, Crook discloses a “cover for securing the roof of a residential home or other building structure from the weather conditions that are associated with severe storms such as hurricanes.” *E.g.*, EX1004 (**Crook**), Abstract. Crook also discloses that its “[r]oof covers... may be used for other purposes, such as for securing roofs during roof repair, or for securing roofs on an extended basis through an entire storm season.” *E.g.*, EX1004 (**Crook**), ¶73.

90. Crook further discloses that its roof covers can be made of “any suitable material” and that such materials include “shrink wrap” that shrinks in response to being exposed to heat: The “roof cover may be made of any suitable material” including “shrink wrap material, stretch rap material, tarpaulin material, plastic sheeting, nylon, GortexTM, rubber sheeting, or any other suitable material.” *E.g.*, EX1004 (**Crook**), ¶34; *see also, e.g.*, EX1004 (**Crook**), ¶65 (“roof cover[s]

compris[ing] shrink wrap material that is configured to shrink in response to being exposed to heat”). Crook teaches to “us[e] a heat source to apply heat to the roof cover until the roof cover shrinks and is thereby secured adjacent the roof” and that “a heat gun is used to apply heat to the roof.” EX1004 (**Crook**), ¶65.

91. Crook teaches using a single “membrane” (which is made up of the plurality of membrane strips) as a “roof cover.” *E.g.*, EX1004 (**Crook**), ¶60. Crook discloses that “membranes comprise a plurality of membrane strips... laid side by side and... attached together by lengths of tape,” forming a sheet. *E.g.*, EX1004 (**Crook**), ¶¶60, 67. Crook further discloses that “individual membranes comprise a plurality of membrane strips (e.g., substantially parallel membrane strips)” and “it should be understood that the strips may be secured in place relative to each other by taping the membrane strips to each other.” *E.g.*, EX1004 (**Crook**), ¶¶66, 67.

92. Crook also discloses installing its “roof cover” by “positioning a first end of at least a portion of [the] roof cover so that the first end extends adjacent (and preferably over) a first edge of a roof and so that the first end is held in place adjacent the first edge” and “positioning the second end of the roof cover so that the second end of the roof cover extends adjacent (and preferably over) a second edge of the roof and so that the second end of the roof cover is held in place adjacent the second edge.” *E.g.*, EX1004 (**Crook**), ¶¶64, 65; *see also* EX1004 (**Crook**), ¶¶7-8.

93. Crook also discloses that “various membrane strips... may be manufactured in the form of membrane rolls” and that the roll “allows user to smoothly pull flat strips of membrane from the membrane roll” which can then be formed into one or more sheets as described above. *E.g.*, EX1004 (**Crook**), ¶41.

94. Crook further discloses a “retail kit” for consumers including “at least one roof membrane supply roll 520, at least one roll of water-resistant tape 580, a roller 540 (e.g., an extendable roller), and optionally a knife or cutting blade 590.” EX1004, ¶70; Fig. 5.

95. For each claim challenged in Grounds 1-10, I rely on Crook for its teachings relating to assembling membrane strips into a sheet of heat shrinkable film off the roof surface, the sheet having a leading and trailing edge; covering a roof of a storm-damaged structure with the sheet; and heating the sheet to bring it into conformity with the roof, which shrinks the sheet tight against the structure.

2. Overview of “Wind and Water Resistant Back Wrap Roof Edge Termination” —U.S. Patent 8,407,958 (“Kelly”)

96. Kelly (EX1005) is a U.S. Patent whose application was filed on May 15, 2006. I understand that Kelly is prior art to the ’484 patent. Kelly is entitled “Wind and Water Resistant Back Wrap Roof Edge Termination,” and describes, among other things, “an assembly that relates to a roof assembly, comprising at least one first waterproof membrane for covering a building roof and a stiff member

sealed within at least one second waterproof membrane” where “the stiff member” is “substantially aligned with a perimeter of the building roof...and attached to a structure of the building by a plurality of fasteners.” *E.g.*, EX1005 (**Kelly**), Abstract.

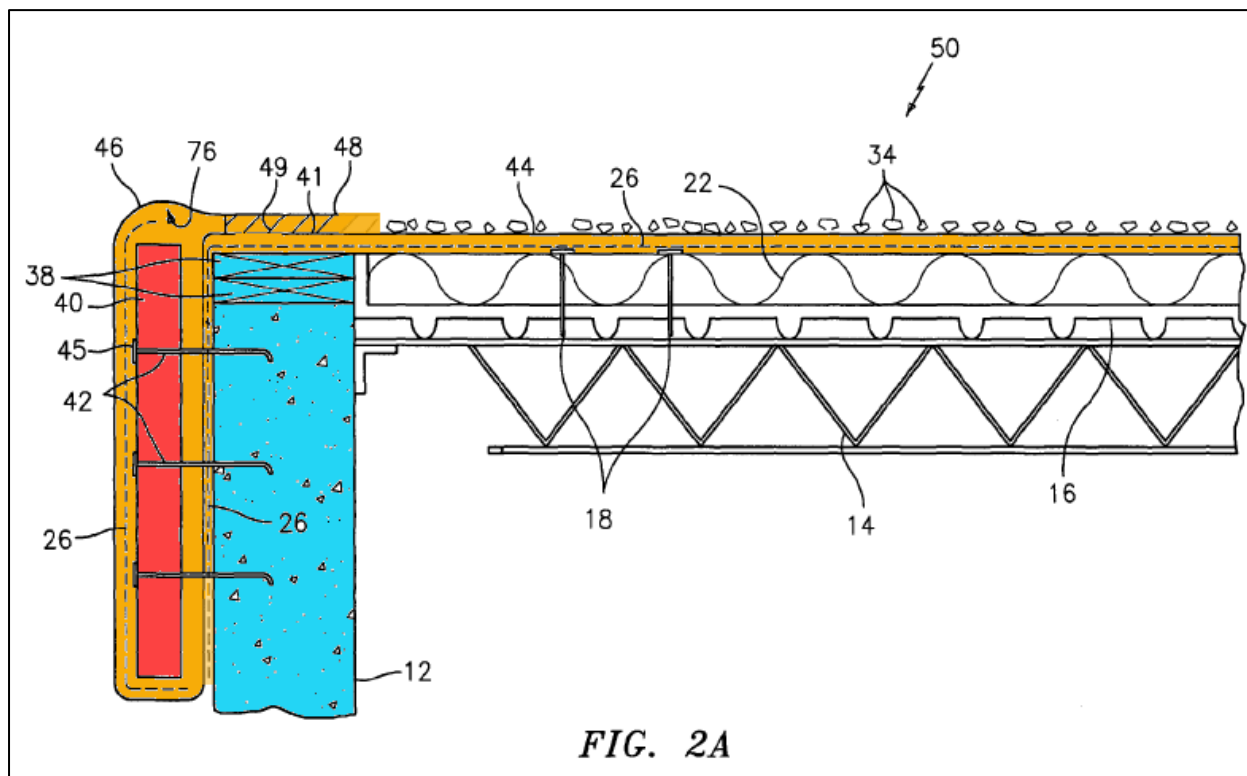
97. Kelly discloses that its system “relates to a hurricane resistant roof perimeter”: “[A] system that relates to a hurricane resistant roof perimeter waterproofing system comprising, at least one first waterproofing membrane and at least one second waterproofing membrane being sealed to the at least one first waterproofing membrane. A plurality of stiff members encapsulated by the at least one first waterproofing membrane or the at least one second waterproofing membrane, and a plurality of fasteners that attach the stiff member to a structure of a building.” *E.g.*, EX1005 (**Kelly**), 1:41-58.

98. Kelly further discloses that its “membrane” is wrapped around a batten (“around a stiff member”):

“The membrane 44 extends beyond the wall 12 far enough to have a wrap portion 46 of the membrane 44 back wrap around a stiff member 40 and allow an interior edge 48 to lay back upon a membrane portion 41 of the membrane 44. The interior edge 48 is attached to the membrane portion 41 thereby encapsulating the stiff member 40 within the waterproof membrane 44. The membrane 44 can be attached to itself or another membrane in a number of ways such as solvent welding, heat welding, contact adhesive gluing, or double sided adhesive taping, for example, hereafter referred to as welded or glued 49. The method chosen is the one most suitable for the roof waterproofing membrane chosen. The stiff member 40 is attached to the wrap membrane portion 46 with adhesive 26. Fasteners 42 shown here as nails may also be screws or other elongated retention devices that penetrate the building or roof decking structure, thereby providing a more robust anchoring of the

membrane perimeter than is achieved by fastening to a nailer 38 alone. The fasteners 42 in this embodiment attach the encapsulated stiff member 40, which lies flush with a surface of the wall 12, to the building structure of the wall 12. The stiff member 40 lies on a side of the wall 12 opposite a side of the wall 12 in which the roof is positioned.”

E.g., EX1005 (**Kelly**), 3:4-26, Figs. 2A (annotated with color to show orange film (“membrane 44”) wrapped around a red batten (“stiff member 40”) and attached to a blue “wall 12”):



(Color added)

99. Kelly also discloses that the “membrane” is beneficially “sandwich[ed]... between the stiff member” and “the wall”:

“By sandwiching the membrane portion 46 between the stiff member 40 and the wall 12 the membrane portion 46 is retained uniformly along the length of the wall 12. This uniformity prevents the formation of any local stress risers,

which could exceed the strength of the membrane material, resulting in tearing when the membrane portion 46 is pulled as occurs when wind blows up the side and over the roof creating a lower pressure on the upper surface of the membrane 44. Additionally, by being sealed in a waterproof envelope created by the encapsulating membrane portion 46 the stiff member 40 will remain dry; preventing it from rotting. Rotting of perimeter nailers 38 is problematic in that it allows fasteners, that are holding a membrane in place, to break free thereby increasing the load on the remaining fasteners, which results in tearing of the membrane, which can then be easily peeled back exposing the non-waterproof roof components to rain and snow.”

E.g., EX1005 (**Kelly**), 3:31-47, 7:42-49, Figs. 2B, & 12.

100. Kelly also provides detail about the batten, including that the “stiff member 40 may be made of any stiff material including plywood, oriented strand board (OSB), treated lumber, synthetic plastic sheeting, and metal” and “has properties of stiffness such that it holds its shape even while being pulled nonuniformly by attachments to roof and building structures” allowing it to “distribute[] any loads applied to it over the entire body of the stiff member 40 thereby minimizing local stress levels.” *E.g.*, EX1005 (**Kelly**), 3:48-62.

101. For each claim challenged in Grounds 1-4 and 7-8, I rely on Kelly for its teachings relating to wrapping the edges of a roof covering around a batten.

3. Overview of “Anchor Bar Splice”—U.S. Patent 6,851,229 (“Inzeo”)

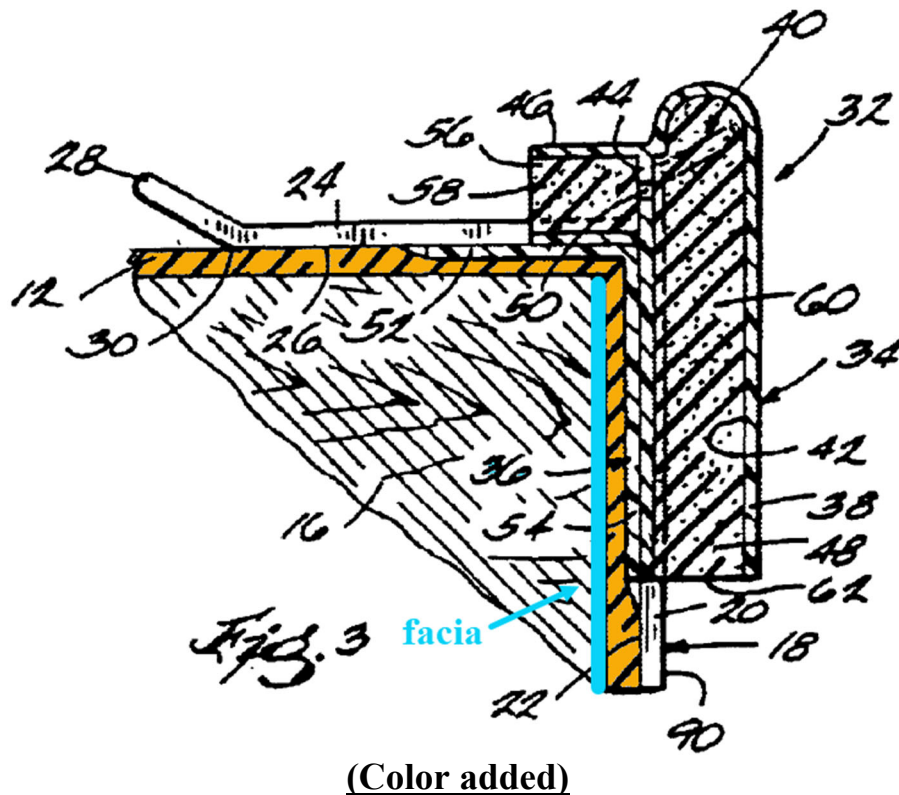
102. Inzeo (EX1006) is a U.S. Patent that issued on February 8, 2008. I understand Inzeo is prior art to the ’484 patent. Inzeo is entitled “Anchor Bar Splice”

and describes, among other things, “a fascia assembly that includes a first anchor bar, a second anchor bar, and an anchor bar splice.” *E.g.*, EX1006 (**Inzeo**), Abstract.

103. Inzeo discloses that “[l]arge rubber membranes are commonly used for covering and protecting a roof such as a flat roof” and “[s]ome membranes are laid over the surface of the roof and secured in place by fascia assemblies” that “prevent the membrane from being pulled away from the edge of the roof by large wind forces....” *E.g.*, EX1006 (**Inzeo**), 1:11-18.

104. Inzeo also discloses “a fascia assembly that includes an anchor bar splice that improves the seal between adjacent ends of consecutive anchor bars by providing a spacer that includes a water-resistant resilient shell and a resilient compressible foam within the shell.” *E.g.*, EX1006 (**Inzeo**), 1:38-42.

105. Inzeo discloses “rigid plate 20 also clamps that portion of the membrane 12 securely against the vertical face or surface of the nailer 16.” EX1006, 2:52-58. Inzeo further discloses that “the extending portion of the membrane 12 can be secured against the vertical face of the nailer 16,” where the vertical face of the nailer 16 (blue below) is a fascia. *E.g.*, EX1006 (**Inzeo**), 2:38-43, Fig.3:



EX1006, Fig. 3 (annotated with color showing “membrane 12” in orange attached at the facia in blue).

106. For each claim challenged in Grounds 1-4 and 7-8, I rely on Inzeo for its teachings relating to attaching a roof covering to a facia.

4. Overview of “Linear Low Density Polymer Blends and Articles Made Therefrom”—U.S. Patent 7,951,873 (“Best”)

107. Best (EX1007) is a U.S. Patent whose application was filed on April 18, 2007. I understand that Best is prior art to the ’484 patent. Best is entitled “Linear Low Density Polymer Blends and Articles Made Therefrom” and discloses, among other things, that methods of preparing heat-shrinkable films used as, for example, a “housewrap.” *E.g.*, EX1007 (**Best**), 1:61-2:19, 15:8-35, 21:4-15.

108. I also understand that Best teaches heat-shrinkable films prepared of low density polyethylene including shrinking resins, as explained in the declaration of Dr. Yash Khanna. EX1030 (**Khanna Declaration**), ¶¶45-53.

109. For claim 1 in Grounds 1-2, I rely on Best for its teachings relating to a heat shrinkable film of low density polyethylene including shrinking resins.

5. Overview of “Tarp Your Roof” (“Lowe’s Video”)

110. I understand that Lowe’s Video (EX1016) was published on YouTube and available for viewing on YouTube at least by September 28, 2006. I understand that the Lowe’s Video is prior art to the ’484 patent. Lowe’s Video discloses methods to cover a roof after a hurricane with tarpaulins to prevent further damage. *E.g.*, EX1016-1 (**Lowe’s Video**), 00:09-00:25.

111. The Lowe’s Video discloses “roll[ing]” the “end of the tarp around another 2x4 [a batten] and nail[ing] under the e[a]ve” or to the fascia. *E.g.*, EX1037 (Lowe’s Transcript), 4:12-14; EX1016-5 (**Lowe’s Video**), 0:28 (showing attachment to the fascia):



112. For each claim challenged in Grounds 5-6 and 9-10, I rely on Lowe's Video for its teachings relating to wrapping the edges of a roof covering around a batten and attaching the batten to a fascia or under eaves. I use Lowe's Video as an alternative to the disclosures in Kelly and Inzeo (relied on in Grounds 1-4 and 7-8), discussed above (*supra* ¶¶101, 106).

6. Overview of “Longitudinal Seam and Method of Forming”— U.S. Patent 4,715,915 (“Vanderzee”)

113. Vanderzee (EX1035) is a U.S. Patent that issued on December 29, 1987. I understand that Vanderzee is prior art to the '484 patent. Vanderzee is entitled “Longitudinal Seam and Method of Forming” and discloses, among other

things, making a sheet from a number of strips of plastic sheeting. EX1035 (**Vanderzee**), 1:6-51, 2:31-39, 3:29-32, 4:16-27.

114. Vanderzee discloses making wide plastic sheeting for roofing applications, from a supply of narrower plastic sheeting, by joining lengths of the supply sheeting together. *E.g.*, EX1035 (**Vanderzee**), 1:6-43, 2:31-48, 3:29-39. Vanderzee also discloses that the formed wider sheeting is “rolled up” and “transported for use” in the field. *E.g.*, EX1035 (**Vanderzee**), 1:6-43, 1:32-33, 2:31-39.

115. Vanderzee discloses that “[d]ue to the capital expense of the forming apparatus, the original width of plastic sheeting is relatively limited.” *E.g.*, EX1035 (**Vanderzee**), 1:6-43, 1:6-19. Vanderzee teaches that many applications, including “[r]oofing applications,” require material wider than the supply rolls. *E.g.*, EX1035 (**Vanderzee**), 1:6-43, 1:6-19.

116. Vanderzee further explains that “[a] method of making very wide rubber sheeting is disclosed in Hollis U.S. Pat. No. 4,337,112. This patent discloses an apparatus for making an indefinite length composite sheet of very large predetermined width from indefinite length sheet stock having a relatively narrow width. According to this method, 5 foot wide sheet stock is rolled out, for example to 50 feet, and bonded to a second sheet along a horizontal edge to form a 50x10 foot wide sheet. This formed sheet is then advanced and another 50 foot long section

is unwound and bonded to the 50x10 foot wide sheet to form a 50X 15 foot sheet. This continues thereby forming a 50 feet wide sheet which is as long as desired.”
E.g., EX1035 (**Vanderzee**), 1:6-43, 1:20-32.

117. Vanderzee further discloses that “[t]o form a sheet with a 10 foot width, a more economical method is to continuously, longitudinally join two 5 foot wide sheets forming a 10 foot wide sheet with a longitudinal seam down its centerline.”
E.g., EX1035 (**Vanderzee**), 1:40-43.

118. Vanderzee also teaches its own method of preparing wider plastic sheeting material. Vanderzee teaches forming “a unitary enlarged sheet 10...by ***bonding a first sheet 11 and a second sheet 12 along longitudinal edges 14 and 15*** respectively to form a longitudinal seam.” *E.g.*, EX1035 (**Vanderzee**), 3:29-32; EX1035 (**Vanderzee**), 2:31-39 (joining “***two sheets together along common edges***”) (emphases added). Vanderzee teaches assembling this sheet before rolling it up for storage or for transporting it for use on, *e.g.*, a “***roof***.” *E.g.*, EX1035 (**Vanderzee**), 2:61-64 (“***[F]ormed sheets*** are rolled up with the seam perpendicular to the axis of the roll thus making this sheet construction practical for storage and ***transportation***.”): EX1035 (**Vanderzee**), 2:64-65 (“formed sheet is used in for example a ***roof***”).

119. Vanderzee further discloses an example of joining, noting that “[t]he present invention is premised on the realization that a longitudinal seam of reduced

thickness which does not cause a significant bulge in the center of a roll of longitudinally spliced material, can be formed by bonding two sheets together along common edges wherein each edge has a stepped cross sectional configuration, with one side flat or planar and the opposite side stepped.” *E.g.*, EX1035 (**Vanderzee**), 2:31-39.

120. For each claim challenged in Grounds 2, 4, 6, 8, and 10, I rely on Vanderzee for its teachings relating to performing the assembly of a “sheet” from strips off a roof surface, and rolling it up.

7. Overview of Americover’s Heat Shrink Film Product Webpage (“Americover”)

121. Americover (EX1021) is a webpage that I understand was publicly available at least be October 2006. I understand that Americover is prior art to the ’484 patent.

122. Americover discloses “heat shrink films” “made using Low Density Polyethylene containing fractional melt virgin resins and other additives” which “[w]hen the film is subjected to heat” causes the film to “shrink[] in all directions” “allowing the film to mold itself to just about any surface” as a “skin-like protective covering.” *E.g.*, EX1021 (**Americover**), 1.

123. Americover discloses that its heat shrink film has a variety of purposes including “[p]rotection from the elements” of “[h]urricane and storm damaged

structures” and acting as a “covering” for a “[b]uilding[.]” *E.g.*, EX1021 (**Americover**), 1.

124. Additionally, I understand that Americover teaches a heat shrinkable film of low density polyethylene including shrinking resins, as explained in the declaration of Dr. Yash Khanna. EX1030 (Khanna Declaration), ¶¶54-58.

125. In Grounds 3-6 challenging claim 1, I rely on Americover for its teachings relating to a heat shrinkable film of low density polyethylene including for its teachings concerning shrinking resins as well as its disclosures of a storm damaged structure. I use Americover as an alternative to the disclosures in Best of a heat shrinkable film of low density polyethylene including shrinking resins (Best is relied on in Grounds 1-2), discussed above (*supra* ¶109). I also use Americover as an alternative to the disclosures in Crook of a storm damaged structure (relied on in Grounds 1-2), as discussed above (*supra* ¶95).

8. Crook, Inzeo, Kelly, Best, Lowe's Video, Vanderzee, and Americover Are Analogous Art

126. In my opinion, each of Crook, Inzeo, Kelly, Best, Lowe's Video, Vanderzee, and Americover is analogous art to the '484 patent (and to each other).

127. As I discuss above (*supra* ¶¶50-53), the '484 patent “relates to protective covering of roofs and walls of a building.” *E.g.*, EX1001, Abstract, 1:15-18, cls.1-3.

128. The '484 patent claims to attempt to “address or at least ameliorate” alleged “disadvantage[s]” of prior-art building-covering methods. EX1001 (**'484 Patent**), 1:38-2:31. For example, the '484 patent alleges that a disadvantage of using a tarp is the “difficulty of adequately securing [it] to the roof or walls” and tarps “remain very vulnerable to dislodgement should high winds prevail or recur.” EX1001 (**'484 Patent**), 1:38-39. The '484 patent further states that tarps are “heavy and awkward” posing safety issues and that they are “expensive to acquire.” EX1001 (**'484 Patent**), 1:42-47. The '484 patent also states that “[r]olls of film are heavy” and the “manipulation of a roll of film and the edge taping required on even an intact roof surface is extremely difficult.” EX1001 (**'484 Patent**), 1:66-2:2. The '484 patent further states that installing wrap material at an “elevated location,” because of the “slippery nature” of the wrap material and difficulties in managing the wrap in “windy conditions,” is “often extremely awkward or even dangerous.” EX1001 (**'484 Patent**), 2:18-20. The '484 patent further states that “areas of slack or looseness can arise when the preformed sheet is nailed or stapled to the structure,” “result[ing] in air pockets which may detract from the insulating and sealing properties of the wrap.” EX1001 (**'484 Patent**), 2:21-24.

129. Crook, Kelly, Inzeo, Best, Lowe’s Video, Americover, and Vanderzee (like the '484 patent) each relate to systems and methods for covering buildings, including roofs, with appropriate protective materials, such as water resistant

material. *E.g.*, EX1004 (**Crook**), Abstract (“directed to an improved cover for securing the roof a residential home or other building structure”), ¶¶2, 7-8, 41, 50-51, 65, 73, Figs.1, 2A-2B, 5; EX1005 (**Kelly**), 1:41-58 (“Disclosed herein is an assembly that relates to a roof assembly comprising, at least one first waterproof membrane for covering a building roof....”), 3:4-26, Figs.2A-2B, 12, 3:31-41, 3:52-58, 7:42-49; EX1006 (**Inzeo**), Abstract, 1:11-17 (“Large rubber membranes are commonly used for covering and protecting a roof such as a flat roof....The fascia assemblies prevent the membrane from being pulled away from the edge of the roof by large wind forces....”), 1:38-42, 2:38-43, Fig.3; EX1007 (**Best**), 2:10-19 (“housewrap”), 15:8-35, 21:4-15; EX1016 (**Lowe’s Video**); EX1037 (**Lowe’s Transcript**), 3:5-7 (“Tarping a damaged roof is critical to preserving your post-hurricane rebuilding options”); EX1021 (**Americover**), 1 (“protective covering” for “[h]urricane and storm damaged structures”); EX1035, (**Vanderzee**), 1:6-19, 2:23-68 (wider plastic sheeting for use on a “roof”).

130. Additionally, each reference is reasonably pertinent to the particular problems the ’484 patent sought to solve, and thus analogous to the ’484 patent. Crook addresses, *e.g.*, a “need for improved...methods for protecting” roofs. *E.g.*, EX1004 (**Crook**), ¶1. Kelly, Inzeo, and Lowe’s concern ways to better secure roof coverings to prevent, *e.g.*, slack or tearing. *E.g.*, EX1005 (**Kelly**), 1:12-36, 3:3-47; EX1006 (**Inzeo**), 1:15-18; EX1037 (**Lowe’s Transcript**), 3:19-4:19. And Best,

Americover, and Vanderzee pertain to improved materials and preparations for roof or house covering, such as materials that are light, tight-fitting, shrinkable, convenient, and transportable. *E.g.*, EX1007 (**Best**), 2:11-19; EX1021 (**Americover**), 1; EX1035 (**Vanderzee**), 1:6-19, 2:23-68.

131. Thus, for these reasons, it is my opinion that these references are all analogous to the '484 patent and to one another.

132. For ease of presentation, in the following section, I discuss each of the Challenged Claims, beginning first with Claim 1, followed by Claims 2 and 3. I note that the arguments and evidence provided for Claim 1 include the arguments and evidence establishing that Claims 2 and 3 are also unpatentable as obvious.

C. Claim 1 is Rendered Obvious Over (a) Crook in view of Kelly, Inzeo, and Best, (b) Crook in view of Kelly, Inzeo, Best, and Vanderzee, (c) Crook in view of Kelly, Inzeo, and Americover, (d) Crook in view of Kelly, Inzeo, Americover, and Vanderzee, (e) Crook in view of Lowe's Video and Americover, or (f) Crook in view of Lowe's Video, Americover, and Vanderzee.

133. In my opinion, claim 1 is rendered obvious over (a) Crook in view of Kelly, Inzeo, and Best (Ground 1), (b) Crook in view of Kelly, Inzeo, Best, and Vanderzee (Ground 2), (c) Crook in view of Kelly, Inzeo, and Americover (Ground 3), (d) Crook in view of Kelly, Inzeo, Americover, and Vanderzee (Ground 4), (e) Crook in view of Lowe's Video and Americover (Ground 5), or

(f) Crook in view of Lowe’s Video, Americover, and Vanderzee (Ground 6). *See infra*, Appendix C, Claim 1.

1. Element 1.pre (the preamble of claim 1)⁵

134. Claim 1.pre (the preamble of Claim 1) recites “A method of providing covers over at least a portion of a roof of a storm damaged built structure comprising the steps of.” **In my opinion, Crook discloses or at minimum renders obvious this limitation (Grounds 1-2). Crook in view of Americover also renders obvious this limitation (Grounds 3-6).**

135. In my opinion, **Crook discloses a method of providing covers⁶ over at least a portion of a roof** (*e.g.*, “method of applying... a roof cover” comprising, *e.g.*, “a plurality of membrane strips,” including “positioning a first end of at least a portion of a roof cover so that the first end extends adjacent (and preferably over) a

⁵ To the extent deemed limiting, the preamble is disclosed.

⁶ The plain and ordinary meaning of “providing covers over at least a portion of a roof” includes providing a strip or strips, or a sheet or sheets of material over part of a roof. To the extent Stormseal argues this term is limited to any of those meanings individually, in my opinion, each is disclosed or at minimum rendered obvious by the prior art references cited in Grounds 1 to 6 (*see infra* ¶143).

first edge of a roof and so that the first end is held in place adjacent the first edge” and “positioning the second end of the roof cover so that the second end of the roof cover extends adjacent (and preferably over) a second edge of the roof”) **of a storm damaged built structure** (*e.g.*, “roofs of building structures” in need of “repair,” including those “severely damaged when exposed to high-wind conditions, such as those associated with hurricanes and tornados... [and other] storm conditions.”).

136. For example, Crook discloses that “[t]he present invention is directed to an improved *cover for securing the roof* a residential home or other building structure from the weather conditions that are associated with severe storms such as hurricanes.... In a particular embodiment, *the membrane is configured to cover substantially the entire roof surface.*” *E.g.*, EX1004 (Crook), Abstract (emphases added).

137. Crook further explains that building structures, which POSITA would have understood to include the roof, are often severely damaged when exposed to storms (*e.g.*, hurricanes and tornados): “*Building structures* are often *severely damaged when exposed to high-wind conditions, such as those associated with hurricanes and tornados. For example, high winds often strip shingles from the roofs of residential homes to expose a roof understructure that is vulnerable to rain damage.* Accordingly, there is a *need for improved apparatuses and methods*

for protecting the roofs of building structures from storm conditions.” E.g., EX1004 (Crook), ¶1 (emphases added).

138. Crook states that its roof covers may be used “for securing roofs *during roof repair.*” E.g., EX1004 (Crook), ¶73 (emphasis added). POSITA would have understood Crook’s disclosure of a “roof repair” to mean that the roof was previously damaged by, for example, winds of a hurricane or tornado (*i.e.*, a storm), as Crook discusses.

139. Crook discloses that its protective roof cover includes, *e.g.*, “a membrane that is adapted to cover at least a portion of the roof of a building structure.” E.g., EX1004 (Crook), ¶2; *see also, e.g.*, EX1004 (Crook), ¶¶6-8 (“method of protecting a roof from high winds... comprises the steps of... *covering substantially the entire upper surface of the roof with the roof cover*”), 60 (“roof cover is described as comprising one to three membranes”).

140. Crook discloses how to install its roof cover. E.g., EX1004 (Crook), ¶65 (“method of applying such a *roof cover [‘roof cover compris[ing] shrink wrap material’]*... *positioning a first end of at least a portion of a roof cover so that the first end extends adjacent (and preferably over) a first edge of a roof* and so that the first end is held in place adjacent the first edge... *positioning the second end of the roof cover so that the second end of the roof cover extends adjacent (and preferably over) a second edge of the roof*”), 67 (“Furthermore, although various

embodiments of the invention in which individual membranes comprise a plurality of membrane strips are described above as having overlapping membrane strips (e.g., the side edges of two or more of the membrane strips that form a particular membrane overlap), in an alternative embodiment of the invention, the side edges of the strips do not overlap substantially. In one such embodiment of the invention, *the strips are laid side by side and are attached together by lengths of tape.*) (emphases added).

141. In my opinion, POSITA would have understood Crook's discussions of, e.g., "severe[] damage [from] high-wind conditions, such as those associated with hurricanes and tornados [including] high winds often strip[ping] shingles from the roofs of residential homes" and the associated "need for improved apparatuses and methods for protecting the roofs of building structures from storm conditions," and of using its roof covers "for securing roofs during roof repair," to be an express disclosure of using its roof covers to secure roofs being repaired due to damage by storms. *E.g.*, EX1004 (Crook), ¶¶1, 22, 25-26, 72-73.

142. **Alternatively, to the extent it is argued further disclosure of a storm damaged built structure is required, in my opinion, Crook at minimum renders obvious a storm damaged built structure (Grounds 1-2).** POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook's teachings to provide covers over at least a portion of a roof of a

storm damaged built structure, including because, for example, Crook expressly teaches that its roof covers may beneficially be used “for securing roofs during roof repair” and “to protect the roof 15 from weather conditions (such as high winds) produced by a storm.” *E.g.*, EX1004 (**Crook**), ¶¶22, 73. In my opinion, doing so would advantageously secure the roof of a storm damaged structure from further damage by weather conditions, as taught by Crook. *E.g.*, EX1004 (**Crook**), Abstract, ¶¶1, 22, 73. For POSITA, particularly in light of these express teachings, this would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with reasonable expectation of success. Reasonable expectation of success in protecting a storm-damaged roof by covering it with a plastic membrane is further supported by the fact that it was well known to do. *See, e.g.*, §V above (¶¶32-38); EX1018 (**Blue-Roof-Tarps**), 1; EX1016-1 (**Lowe’s Video**), 0:15-0:27; EX1017 (**This-Old-House**), 22; EX1020 (**EMA**), 47-48; EX1021 (**Americover**), 1.

143. I further note that, to the extent Stormseal argues that “covers” in the preamble is limiting and requires a strip, multiple strips, or a sheet, it is my opinion that: (1) Crook discloses providing each of (i) a strip, (ii) multiple strips, and (iii) a sheet over at least a portion of a roof (Grounds 1, 3, 5) (*see* cl.1a(i)); and (2) Crook in view of Vanderzee renders obvious providing each of (i) multiple strips and (ii) a sheet over at least a portion of a roof (Grounds 2, 4, 6) (*see* cl.1a(i)). To the extent

Stormseal argues that “covers” in the preamble requires multiple “sheets,” this is also rendered obvious by Crook. In my opinion, **POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook’s teachings (Grounds 1, 3, 5) or Crook in view of Vanderzee’s combination (Grounds 2, 4, 6) using Crook’s teachings of using multiple pieces of sheeting, particularly where the size of the damaged portion of the roof was larger than one sheet.** POSITA would have found using multiple sheets to be an obvious, routine implementation choice, and clear this would work, predicatably yielding the expected functionality with a reasonable expectation of success.

144. **In my opinion, Crook in view of Americover also renders obvious this limitation, including in particular a storm damaged built structure.** (Grounds 3-6).

145. In my opinion, **Americover discloses protecting storm damaged built structures** (*e.g.*, providing “[p]rotection from the elements” to “[h]urricane and storm damaged structures”).

146. For example, Americover discloses a “protective cover[]” such as “Exterior and interior coverings” for a variety of purposes including “[b]uildings, scaffolding, bridges, and ships.” *E.g.*, EX1021 (**Americover**), 1.

147. Americover explains that such coverings offer “[p]rotection from the elements” for, *e.g.*, “[j]obsite materials,” “[r]estoration projects,” and “[h]urricane and storm damaged structures.” *E.g.*, EX1021 (**Americover**), 1.

148. In my opinion, **POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook’s teachings of providing covers over at least a portion of a roof on a built structure using Americover’s advantageous teachings of protecting storm damaged roofs.** POSITA would have recognized that doing so would advantageously protect the damaged roof and underlying structure from further damage. For POSITA, this would have been an obvious, routine implementation choice and (particularly given their express disclosures) clear this would work, predictably yielding the expected functionality with a reasonable expectation of success. Reasonable expectation of success in protecting a storm-damaged roof by covering it with a plastic membrane is further supported by the fact that it was well known to do so. *See, e.g.*, §V above (¶¶32-38); EX1018 (**Blue-Roof-Tarps**), 1; EX1016-1 (**Lowe’s Video**), 0:15-0:27; EX1017 (**This-Old-House**), 22; EX1020 (**EMA**), 47-48; EX1021 (**Americover**), 1.

* * *

149. Thus, in my opinion, Crook discloses or at minimum renders obvious this limitation, and Crook in view of Americover renders obvious this limitation.

2. Element 1.a(i)

150. Claim 1.a recites “applying a sheet of heat shrinkable film over the portion of the roof, the sheet having a leading edge and a trailing edge.”⁷ **In my opinion, Crook discloses or renders obvious⁸ this limitation (Grounds 1, 3, and**

⁷ The plain and ordinary meaning of “applying a sheet” is that the action (applying) is performed on the fully assembled “sheet,” and not just individual, unassembled lengths/strips.

⁸ From reading Crook POSITA would have at once envisaged a method for covering roofs with sheets that employs each of the Crook teachings cited herein, including making the roof cover out of a sheet/membrane formed from a plurality strips by laying the strips side-by-side and attaching them with tape (*e.g.*, EX1004 (**Crook**), ¶67). To the extent it is argued POSITA instead would somehow have considered these separate, unjoined teachings, POSITA would at minimum have found it obvious to combine them as described herein with a reasonable expectation of success, including because Crook explicitly teaches that each of them is an available design choice for its disclosed roof covering method. For example, when Crook teaches positioning the shrink-wrap roof cover over the roof (*e.g.*, EX1004

5). Crook in view of Vanderzee also renders obvious this limitation (Grounds 2, 4, and 6).

151. In my opinion, **in Crook’s Off-The-Roof Method,⁹ Crook discloses applying** (*e.g.*, “positioning” a first end of the roof cover adjacent or over a first

(**Crook**), ¶¶7-8, 65) (*see* cl.1a(i)), for POSITA it would at minimum have been obvious to use Crook’s **roof-cover resulting from its disclosed assembly method** with side-by-side taped strips (*e.g.*, EX1004 (**Crook**), ¶67).

⁹ For this method (referred to herein as the “Off-The-Roof Method”), Crook teaches laying a “plurality of membrane strips” side by side and “attach[ing] [them] together by lengths of tape,” to form a “membrane.” EX1004 (**Crook**), ¶67. Crook teaches using a single “membrane” (which is made up of the plurality of taped together membrane strips) as a “roof cover.” *E.g.*, EX1004 (**Crook**), ¶60. Using the “Off-The-Roof Method,” Crook teaches covering the roof by “positioning” the ends of this assembled “roof cover,” *i.e.*:

“(A) positioning the first end of the roof cover so that the first end of the roof cover extends over a first edge of the roof and so that the first

edge of the roof, holding the first end in place adjacent to the first edge of the roof, “pulling the roof cover” so that it is placed in tension, and then “positioning” the second end of the roof cover adjacent or over a second edge of the roof) **a sheet of heat shrinkable film** (*e.g.*, “roof cover compris[ing] shrink wrap material that is configured to shrink in response to being exposed to heat,” where the cover includes “strips” that have already been “attached together by lengths of tape”¹⁰ (including “water-resistant tape”)) **over the portion of the roof** (*see* Cl.1.pre), **the sheet**

end of the roof cover is held in place adjacent that first edge; (B) pulling the roof cover so that the intermediate portion of the roof cover is placed into tension; and (C) while the roof cover is in tension, positioning the second end of the roof cover so that the second end of the roof cover extends over a second edge of the roof and so that the second end of the roof cover is held in place adjacent the second edge.”

EX1004 (**Crook**), ¶¶7-8; *see also*, EX1004 (**Crook**), ¶65.

¹⁰ In my opinion, Crook discloses a “sheet”: a single-membrane “roof cover” that is an assembly of two or more membrane strips. *E.g.*, EX1004 (**Crook**), ¶¶4, 60, 65, 67.

having a leading edge (e.g., “a first end of at least a portion of a roof cover”) **and a trailing edge** (e.g., a “second end of the roof cover”).

152. **Crook discloses applying a roof cover which has a leading edge and a trailing edge:** “In a particular embodiment of the invention, the roof cover comprises a first end, a second end, and an intermediate portion disposed between the first and second ends of the roof cover, and the step of covering substantially the entire upper surface of the roof with the roof cover comprises: (A) *positioning the first end of the roof cover so that the first end of the roof cover extends over a first edge of the roof* and so that the first end of the roof cover is held in place adjacent that first edge; (B) *pulling the roof cover* so that the intermediate portion of the roof cover is placed into tension; and (C) while the roof cover is in tension, *positioning the second end of the roof cover so that the second end of the roof cover extends over a second edge of the roof* and so that the second end of the roof cover is held in place adjacent the second edge. In this embodiment of the invention, the roof cover may comprise, for example, shrink wrap or stretch wrap.” E.g., EX1004 (Crook), ¶7 (emphases added); *see also*, e.g., EX1004 (Crook), ¶¶2, (“*[T]he membrane is adapted to extend from a first edge of the roof to a second edge of the roof*.” In one embodiment, the first edge is a front edge of the roof and the second edge is a rear edge of the roof. In another embodiment, the first edge is a first side edge of the roof and the second edge is a second side edge of the roof. In a particular

embodiment of the invention, the second edge is substantially parallel to, and offset from, the first edge. In various embodiments of the invention, the roof cover may comprise, for example, shrink wrap material or stretch wrap material”), ¶8 (“(A) *positioning the roof cover so that it extends between a first edge of the roof and a second edge of the roof*; and (B) applying heat to the roof cover until the roof cover shrinks and thereby attaches adjacent the roof”) (emphases added), ¶65, ¶67.

153. In my opinion, **Crook discloses a roof cover that is a sheet of heat shrinkable film.**

154. As noted above, Crook discloses that its roof cover is a sheet. Crook teaches laying a “plurality of membrane strips” side by side (such that the strips “do not overlap substantially”) and “attach[ing] [them] together by lengths of tape,” to form a “membrane.” *E.g.*, EX1004 (**Crook**), ¶67. Crook also teaches using a single “membrane” (which is made up of the plurality of taped together membrane strips) as a “roof cover.” *E.g.*, EX1004 (**Crook**), ¶60; *see also* EX1004 (**Crook**), ¶67 (“Furthermore, although various embodiments of the invention in which individual membranes comprise a plurality of membrane strips are described above as having overlapping membrane strips (e.g., the side edges of two or more of the membrane strips that form a particular membrane overlap), in an alternative embodiment of the invention, the side edges of the strips *do not overlap substantially*. In one such embodiment of the invention, the strips are *laid side by side and are attached*

together by lengths of tape.”) (emphases added); *see also, e.g.,* EX1004 (**Crook**), ¶¶60 (“roof cover is described as comprising one to three membranes”), ¶70 (“A preferred kit in accordance with one embodiment of the present invention is illustrated in FIG. 5 and includes at least one roof *membrane* supply roll 520, at least one roll of *water-resistant tape* 580, a roller 540 (e.g., an extendable roller), and optionally a knife or cutting blade 590.”), ¶35 (“in one embodiment... the roof cover 100, 200, 250, 300 is comprised of at least one sheet of material that is *substantially impermeable to water and/or substantially impermeable to wind*”) (emphases added).

155. Crook further discloses that its roof cover is a sheet of heat shrinkable film.

156. Crook discloses that “*the roof cover comprises shrink wrap material that is configured to shrink in response to being exposed to heat.* A method of applying such a roof cover according to one embodiment of the invention comprises: (A) positioning a first end of at least a portion of a roof cover so that the first end extends adjacent (and preferably over) a first edge of roof and so that the first end is held in place adjacent the first edge; (B) positioning the second end of the roof cover so that the second end of the roof cover extends adjacent (and preferably over) a second edge of the roof and so that the second end of the roof cover is held in place adjacent the second edge; and (C) *using a heat source to apply heat to the roof*

*cover until the roof cover shrinks and thereby is secured adjacent the roof.” E.g., EX1004 (Crook), ¶65 (emphases added); see also, e.g., EX1004 (Crook), Abstract (“The membrane, which may comprise stretch wrap or shrink wrap”), ¶8 (“applying heat to the roof cover until the roof cover shrinks and thereby attaches adjacent the roof.”), ¶34 (“The roof cover may be made of any suitable material. For example, in various embodiments of the invention, the roof cover 100, 200, 250, 300 is made of one or more of the following types of material: **shrink wrap material**, stretch rap material, tarpaulin material, plastic sheeting, nylon, Gortex™, rubber sheeting, or any other suitable material.”) (emphases added).*

157. As just discussed, Crook teaches laying a “plurality of membrane strips” side by side (such that the strips “do not overlap substantially”) and “attach[ing] [them] together by lengths of tape,” to form a “membrane.” E.g., EX1004 (Crook), ¶67. Crook thus teaches using a single “membrane” (which is made up of the plurality of taped together membrane strips) as a “roof cover.” E.g., EX1004 (Crook), ¶60. Crook teaches the ordered steps of “positioning” the first end of the roof cover (which is made up of a plurality of membrane strips) adjacent or over a first edge of the roof, then holding the first end in place adjacent to the first edge of the roof, then “pulling the roof cover” so that it is placed in tension, and then finally “positioning” the second end of the roof cover adjacent or over a second edge of the roof. E.g., EX1004 (Crook), ¶¶7-8, 65. **In my opinion, POSITA would**

have understood Crook’s teachings of “positioning” the ends of the roof cover, which is made up of a plurality of membrane strips (which do not substantially overlap) taped together along their sides, including with “water-resistant tape”—yielding, *e.g.*, a “sheet... substantially impermeable to water and/or... wind”—to mean that the roof cover is first assembled (by joining together the plurality of membrane strips) off the roof surface and then subsequently raised and applied to the roof. *E.g.*, EX1004 (Crook), ¶¶7-8, 35, 65, 67, 70.

158. Crook¹¹ in view of Vanderzee also renders obvious this limitation based on the same Crook disclosures above in addition to the Vanderzee disclosures below, including in particular performing the assembly of a sheet from strips off the roof surface (before placement on the roof). (Grounds 2, 4, and 6).

159. In my opinion, Vanderzee discloses performing the assembly of parallel strips of plastic (*e.g.*, performing the assembly of “two sheets together along common edges”) for a roof (*e.g.*, “[r]oofing applications”) off the roof surface (*e.g.*, sheet is assembled before being “transport[ed]” for use).

160. Vanderzee describes “[a] seam... wherein *two sheets of material* are bonded together *to form one unified sheet*... This is preferably used to form a

¹¹ See n.8.

longitudinal seam in a roll of sheet material.” E.g., EX1035 (Vanderzee), Abstract (emphases added).

161. Vanderzee discloses that, “[d]ue to the capital expense of the forming apparatus, the original width of plastic sheeting is relatively limited.” *E.g., EX1035 (Vanderzee), 1:6-43, 1:6-19.* Vanderzee teaches that many applications, including “[r]oofing applications” require material wider than the manufactured supply rolls. *E.g., EX1035 (Vanderzee), 1:6-43, 1:6-19.*

162. Vanderzee describes a method of preparing the wider plastic material. Vanderzee teaches forming “a unitary enlarged sheet 10...by *bonding a first sheet 11 and a second sheet 12 along longitudinal edges 14 and 15 respectively to form a longitudinal seam.*” *E.g., EX1035 (Vanderzee), 3:29-32; EX1035 (Vanderzee), 2:31-39 (joining “two sheets together along common edges”)* (emphases added). Vanderzee teaches assembling this sheet before rolling it up and transporting the roll for use on, e.g., a “*roof.*” *E.g., EX1035 (Vanderzee), 2:61-64 (“[F]ormed sheets are rolled up with the seam perpendicular to the axis of the roll thus making this sheet construction practical for storage and transportation.”): EX1035 (Vanderzee), 2:64-65 (“formed sheet is used in for example a *roof*”).*

163. In my opinion, POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook’s teachings of assembling the roof cover by taping non-overlapping strips together, using

Vanderzee's advantageous teachings of performing the assembly off the roof surface. *E.g.*, EX1035 (**Vanderzee**), 2:31-64.

164. Indeed, POSITA would have understood that using Vanderzee's teachings of joining plastic sheeting (resulting from taping as described in Crook) off the roof would be more convenient than taping lengths of narrow sheeting together while on the angled roof, and that the wider sheeting prepared off the roof (including off site) would be of better quality, *e.g.*, have better sealed seams. Moreover, POSITA would have been motivated to perform the assembling operations off the roof because it would be impractical to form a water-resistant membrane made up of strips taped together (and thus, *e.g.*, taped continuously along the entirety of their adjoining edges) while on a roof and because performing these operations off the roof significantly increases freedom of movement and positioning (*e.g.*, a person applying the tape (directly or by machine) would be able more easily to manipulate the strips, spread and align their corresponding edges, and apply tape without, *inter alia*, standing on one or both of the strips), decreases time and the number of operations taking place on the roof, and thus increases safety and ease of

installation.¹² For example, POSITA would have understood that taping side-by-side non-overlapping strips together such that the seam was sealed against water and to withstand the wind, would not practically be accomplished on the roof and instead would be performed, *e.g.*, on the ground or indoors. Further, POSITA would have understood that a water-resistant seam created by strips of tape (as Crook describes (EX1004 (**Crook**), ¶¶67)) would better be accomplished on a flat and stable surface (*e.g.*, rather than on an angled roof surface in need of “repair” (*e.g.*, EX1004, ¶¶73) and may have holes and concavities from storm damage, for example), and without the interference of as much wind. POSITA would have been particularly motivated to decrease time and operations performed on the roof in inclement weather.

¹² In my opinion, POSITA would have understood that using tape to join strips of heat shrinkable film, as Crook teaches, did not impact the film’s ability to shrink and conform to the roof surface after heating, and that heat shrink tape was known. *E.g.*, EX1004 (**Crook**), ¶¶66-67; *see also, e.g.*, EX1040 (Americover website FAQ page referring to “Heat Shrink Tape” to be used with heat shrinkable film). In fact, the ’484 patent itself refers (without any further explanation or disclosure) to taping together lengths of heat shrinkable film before heating the assembled sheet to shrink and conform to the roof. *E.g.*, EX1001 (**’484 patent**), 7:26-33.

165. Additionally, POSITA would have been motivated to perform those operations off the roof if, *e.g.*, the roof had severe damage or the severity of the roof damage could not be ascertained. For example, if the damage to the roof was wider than the width of the membrane strip, POSITA would have been motivated and found it obvious, straightforward, and advantageous to perform the assembly of strips off the roof (as taught in Vanderzee) so that the width of the resulting roof cover is at least as wide as the damaged area. POSITA would have been motivated to apply this wider resulting roof cover to the roof, avoiding working and performing any taping operations to assemble the cover on severely damaged or unstable portions of the roof. POSITA would have been particularly motivated to use a pre-assembled roof cover for jobs involving large roofs, to reduce the time and operations performed on the roof. In addition, performing those sheet-assembly operations off the roof facilitates performance of the same steps and leads to the same end result with added ease of installation benefits for those performing the method and therefore would have been obvious to try.

166. Moreover, POSITA would have understood that forming a water-resistant membrane by taping strips together off the roof would be beneficially facilitated using machinery to join the strips together, without requiring (as assembly on the roof would) that such machinery be moved to and operated on the rooftop or imposing limits on the parameters (*e.g.*, size, shape and weight) of such machinery

that was practically and safely used for this purpose. For POSITA, particularly in light of these teachings (including the explicit disclosures in both references of longitudinally joining parallel strips into a wider sheet), assembling the sheet off the roof and then lifting the sheet to the roof surface for positioning would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with (as the references themselves reflect) a reasonable expectation of success.

167. Additionally, to the extent the plain and ordinary meaning of the claim limitation is interpreted more broadly such that “applying a sheet of heat shrinkable film over the portion of the roof, the sheet having a leading edge and a trailing edge” includes joining strips of film (having leading and trailing edges) together to form a sheet on the roof (as opposed to assembling a sheet (having a leading and trailing edge) prior to applying the sheet over the roof), in my opinion, Crook discloses such a method (Grounds 1, 3, and 5). *See also e.g.*, EX1002 (**’484 patent prosecution history**), 263-264, 214, 177, 128-130 (“Crook teaches a method of covering a roof structure (See Abstract), the method comprising: selecting a roll (37,520) of shrink wrap material; cutting a required number of strips (33,35,233,235,270,272) from the roll, wherein the strips are of sufficient length to extend from one end of roof structure to an opposite end thereof; positioning the strips over the roof structure by attaching a leading edge of a strip to a first edge of the roof structure and attaching

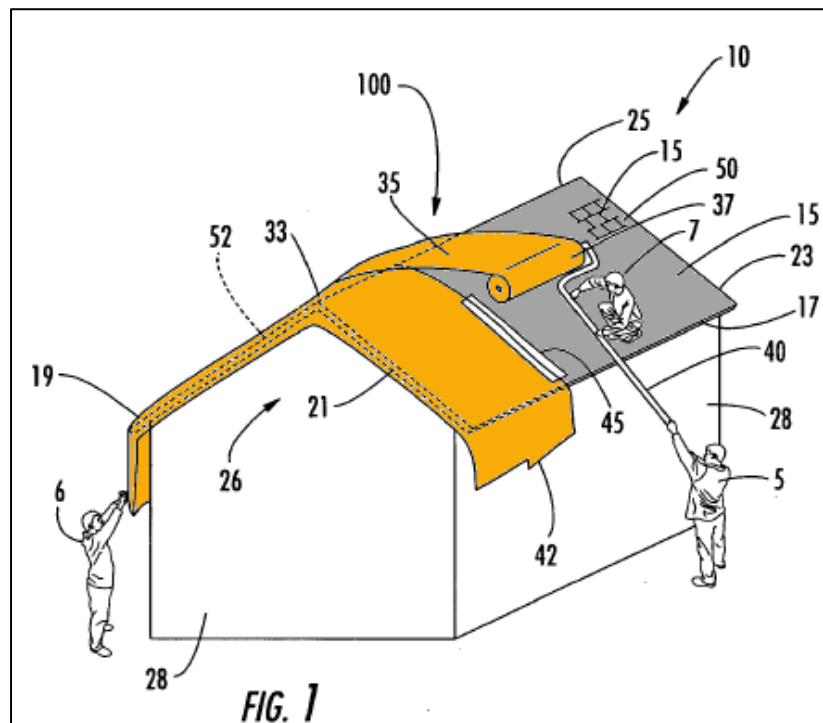
a trailing edge of the strip to a second edge of the roof structure which is opposite the first edge; applying multiple strips to the roof structure with overlapping portions between adjacent strips; applying adhesive tape to the overlapping portions such that the strips are assembled into a sheet (100,200,250,300); and using a heat gun to apply heat to the sheet such that shrinking occurs and a tight fit between the sheet and the roof structure is achieved (See Figures; [0022]-[0066]).”); *see also, e.g.*, EX1011 (**’787 Application prosecution history**), 285, 288 (“Crook teaches a method of covering a roof structure, the method comprising: cutting strips (33,35) from a roll (37) of heat shrinkable film, each strip having leading and trailing edges, applying the strips over a roof such that leading and trailing edges of strips are attached to respective front and rear edges (17,19) of the roof, joining the strips along their edges to form a sheet, and heating the sheet such that it shrinks and conforms to the roof (See Figures; [0022]-[0073]).”), 290.

168. Indeed, in my opinion, **in Crook’s On-The-Roof Method**,¹³ **Crook discloses cutting a required number of strips from a roll, wherein the strips are of sufficient length to extend from one end of roof structure to an opposite end thereof; positioning the strips over the roof structure by attaching a leading edge of a strip to a first edge of the roof structure and attaching a trailing edge of the strip to a second edge of the roof structure which is opposite the first edge; applying multiple strips to the roof structure with overlapping portions between adjacent strips; and applying adhesive tape to the overlapping portions such that the strips are assembled into a sheet on the roof (e.g., Figs. 1, 2A-B, and 3; On-The-Roof Method described in ¶¶46-52, 66).**

169. Crook discloses “[a]s may be understood from FIG. 1, in one embodiment of the invention, the protective roof cover 100, 200, 250, 300 comprises at least one membrane that, when installed adjacent the roof 15, covers at least a portion of the roof 15. In the embodiment of the invention shown in FIG. 1 (which

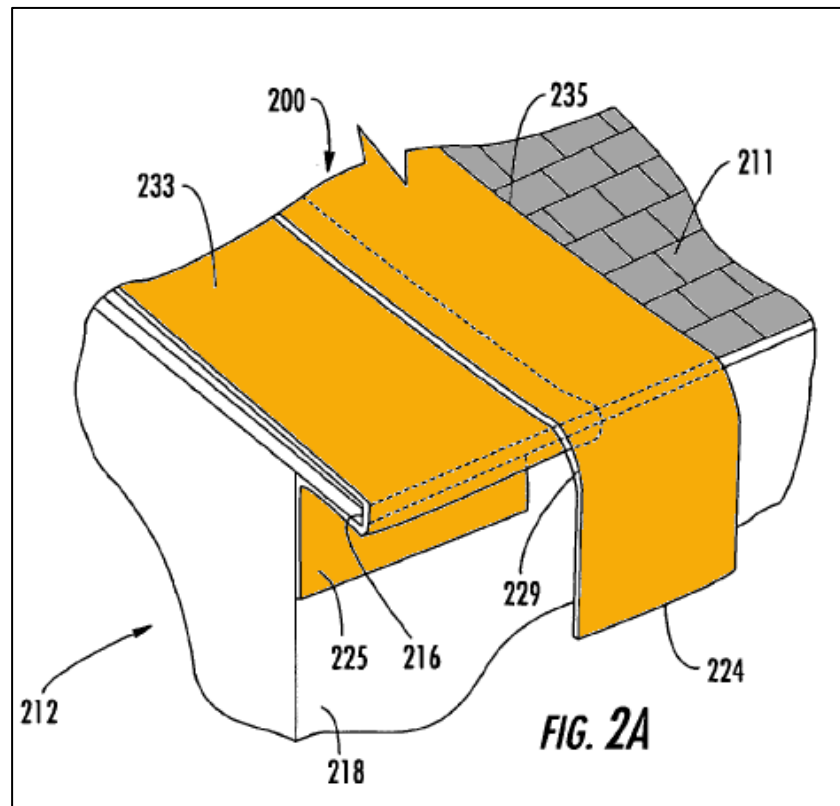
¹³ For this method (referred to herein as the “On-The-Roof Method”), Crook teaches assembling the “sheet” on the roof. *E.g.*, EX1004 (**Crook**), ¶¶46-52 (On-The-Roof Method installation steps), 66, Fig.1.

shows the membrane partially installed on the roof 15 of a building structure 10), *the membrane is comprised of a plurality of membrane strips 33, 35, that may, for example, be positioned so that they are parallel to each other.*” E.g., EX1004 (Crook), ¶26 (emphasis added). This is illustrated in Figure 1 of Crook (color annotations added):



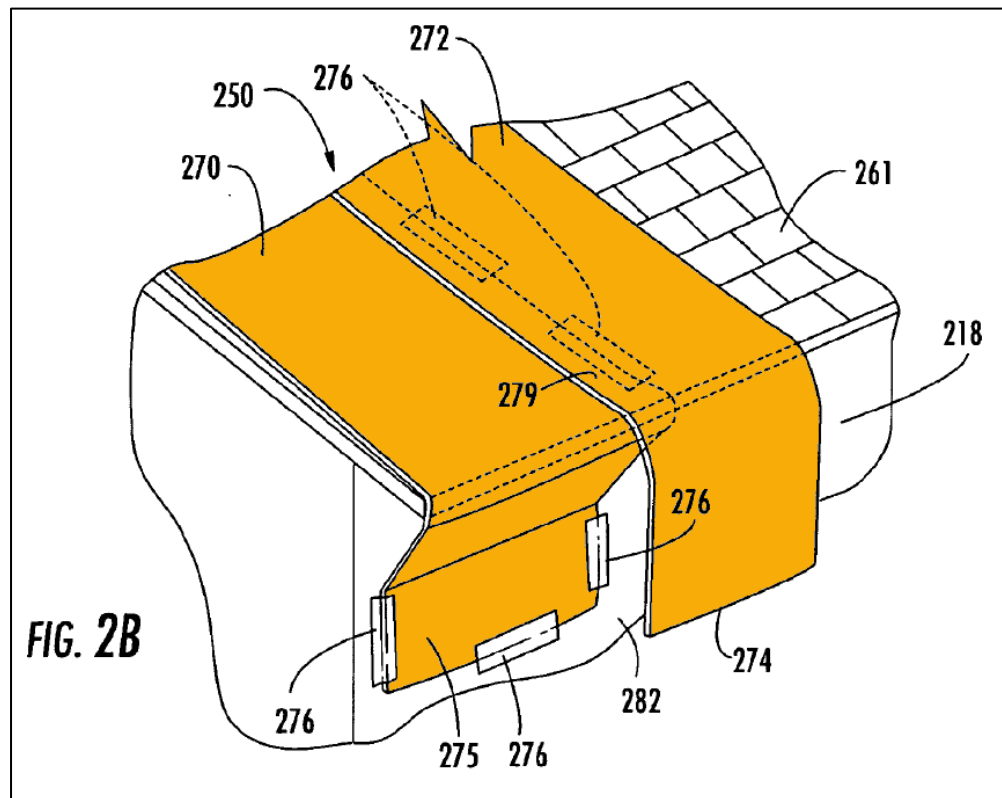
170. Crook additionally discloses, e.g., that “**FIG. 2A shows how a roof cover 200 according to one embodiment of the invention is attached adjacent the front edge 216 of a roof 211.** In this embodiment of the invention, *the roof cover 200 comprises a plurality of membrane strips 233, 235.* In this embodiment, the membrane strips 233, 235 have inherent physical properties that allow them to cling to other materials without fasteners. In one embodiment of the invention, the

membrane strips 233, 235 are comprised of stretch wrap material. *As may be understood from FIG. 2A, the membrane strips 233, 235 may be attached adjacent the roof 211 by stretching the membrane strips 233, 235 over an edge (e.g., the front edge 216) of the roof 211 and then pressing the membrane strips 233, 235 against the bottom surface of the roof's front edge 216 and against a vertical wall 218 adjacent the roof 211.* E.g., EX1004 (Crook), ¶29 (emphases added). This is illustrated in Figure 2A (color annotations added):



171. As another example of assembling the sheet on the roof, Crook discloses “FIG. 2B also shows how a roof cover 250 according to one embodiment of the invention is attached adjacent the front edge 216 of a roof 261. In this

embodiment of the invention, the roof cover 250 comprises a plurality of membrane strips 270, 272.... *As may be understood from FIG. 2B, the membrane strips 270, 272 may be attached adjacent the roof 261 by stretching the membrane strips 270, 272 over an edge (e.g., the front edge 216) of the roof 261 and then pressing the membrane strips 270, 272 against a vertical wall 218 adjacent the roof 261. The ends of the membrane strips 270, 272 may then be secured in place adjacent the vertical wall 282 with fasteners or strips of tape (such as water resistant tape) 276.*”
E.g., EX1004 (Crook), ¶30 (emphasis added). This is illustrated in Figure 2B (color annotations added):



172. Crook additionally discloses that “strips may be secured in place relative to each other by *taping the membrane strips to each other.*” *E.g.*, EX1004 (Crook), ¶66 (“In regard to various embodiments of the invention in which individual membranes comprise a plurality of membrane strips (e.g., substantially parallel membrane strips), it should be understood that the strips may be secured in place relative to each other by *taping the membrane strips to each other.*”) (emphasis added); *see also, e.g.*, EX1004 (Crook), ¶¶46-52 (discussion of installation method for Crook’s On-The-Roof Method), 60 (“roof cover is described as comprising *one* to three membranes”) (emphasis added).

173. Additionally, to the extent Stormseal asserts that the above-discussed analysis does not cover a “sheet,” as I have been advised to interpret the term, it is my opinion that, for the same reasons discussed above, Crook discloses applying a “sheet” (under a broader interpretation of “sheet” that includes a single strip of film and does not require that two strips of film be connected) of heat shrinkable film over the portion of the roof, the sheet having a leading edge and a trailing edge (Grounds 1, 3, and 5).

* * *

174. Thus, in my opinion, Crook discloses or renders obvious this limitation. Crook in view of Vanderzee also renders obvious this limitation.

3. Element 1.a(ii)

175. Claim 1.a(ii) recites “the sheet... being a film of low density polyethylene including shrinking resins.” **In my opinion, Crook in view of Best renders obvious this limitation (Grounds 1-2). Crook in view of Americover also renders obvious this limitation (Grounds 3-6).**

176. In my opinion, **Crook in view of Best renders obvious a sheet of low density polyethylene including shrinking resins.** (Grounds 1-2).

177. I have reviewed the declaration of Dr. Yash Khanna. I understand from Dr. Khanna that **Best discloses heat shrinkable films of low density polyethylene (LDPE) including shrinking resins** (*e.g.*, “heat-shrinkable films” prepared using non-linear low density polyethylene resins (with or without any linear low density polyethylene (LLDPE) resins)). *E.g.*, EX1030 (**Khanna Declaration**), ¶¶45-53.

178. **In my opinion, Crook in view of Best renders obvious a sheet of low density polyethylene including shrinking resins.** As discussed above, Crook teaches the use of a heat shrinkable wrap, but does not explicitly disclose details regarding the composition of that wrap. POSITA would have been motivated to identify a specific heat shrinkable wrap to use based on Crook’s teachings about the

use of shrink wrap material (*e.g.*, EX1004 (**Crook**), ¶65).¹⁴ I understand from Dr. Khanna that Best teaches shrink wrap of low density polyethylene including shrinking resins to be beneficial as a heat shrinkable wrap, including to protect houses. *E.g.*, EX1007 (**Best**), 2:10-19, 15:8-19; 21:4-15; EX1030 (**Khanna Declaration**), ¶¶32, 37, 45-53. In my opinion, POSITA would have found it obvious, straightforward, and advantageous to implement Crook's heat shrinkable wrap using Best's advantageous teachings of utilizing heat shrinkable wrap of low density polyethylene including shrinking resins, as explained by Dr. Khanna. *See* EX1030 (**Khanna Declaration**), ¶¶45-48.

179. I understand from Dr. Khanna that Best discloses films of LDPE including shrinking resins, such as films of non-linear LDPE (alone or in a blend with LLDPE resins). EX1030 (**Khanna Declaration**), ¶¶45-53. In my opinion, each of these two examples of Best's films would have been an obvious choice for a POSITA to use with Crook in appropriate circumstances, as explained by Dr. Khanna. For example, I understand from Dr. Khanna that POSITA would have understood that films made of only non-linear LDPE generally are more readily

¹⁴ POSITA, such as myself, with experience protecting (including waterproofing) roofs would have consulted POSITA with expertise in materials science related to heat shrinkable films.

available, are more easily manufactured, and result in a cheaper film (by weight) than films of only LLDPE. EX1030 (Khanna Declaration), ¶46. I further understand from Dr. Khanna that POSITA would have understood that heat shrinkable films of only non-linear LDPE resins were advantageously used to cover structures, including large outdoor structures. *E.g.*, EX1030 (**Khanna Declaration**), ¶46. I understand from Dr. Khanna that, depending on the POSITA's budget and other design priorities, POSITA with a lower budget less concerned about the film's long-term durability would have been motivated to use a heat shrinkable film made of only non-linear LDPE resins for cost reasons. EX1030 (Khanna Declaration), ¶46. Therefore, based on Dr. Khanna's opinions about the advantages of using only non-linear LDPE, in my opinion, POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook using Best's teachings of films using only non-linear LDPE.

180. On the other hand, I understand from Dr. Khanna, that certain POSITA with a higher budget seeking a more durable film would have been motivated to prepare their film by blending an amount of LLDPE. EX1030 (Khanna Declaration), ¶47. I understand from Dr. Khanna that blending in some LLDPE has other advantages too that POSITA would have understood. EX1030 (Khanna Declaration), ¶47. Therefore, based on Dr. Khanna's opinions about the advantages of using films of non-linear LDPE blended with LLDPE, in my opinion, a POSITA

would also have been motivated and found it obvious, straightforward, and advantageous to implement Crook using Best's teachings of films using blends of LDPE and LLDPE.

181. Accordingly, a POSITA would thus have been motivated and found it obvious, straightforward, and advantageous to implement Crook using the teachings of each of these two implementation choices disclosed in Best (*i.e.*, it would have been obvious to implement Crook using Best's teachings of a film of non-linear LDPE resins made without LLDPE resins, and it would have been obvious to implement Crook using Best's teachings of a film of non-linear LDPE resins blended with LLDPE resins) depending on the circumstances. For POSITA, it would have been routine and obvious to make each of these as an implementation choice, and clear either would work and provide the expected functionality to yield predictable results with a reasonable expectation of success. EX1030 (**Khanna Declaration**), ¶48.

182. **In my opinion, Crook in view of Americover also renders obvious a sheet of low density polyethylene including shrinking resins. (Grounds 3-6).**

183. I understand from Dr. Khanna that **Americover discloses heat shrinkable films of low density polyethylene including shrinking resins** (*e.g.*, "Heat Shrink Films" "made using Low Density Polyethylene containing fractional melt virgin resins and other additives" and "shrinks in all directions" when heated;

“biaxial shrinking process”; “will shrink 20-25%”). *E.g.*, EX1030 (**Khanna Declaration**), ¶¶54-58. Americover discloses a “tight fitting film forms a skin-like protective covering” by shrinking, “allowing the film to mold itself to just about any structure.” EX1021 (**Americover**), 1.

184. In my opinion, Crook in view of Americover renders obvious a sheet of low density polyethylene including shrinking resins. As discussed above, Crook teaches the use of a heat shrinkable wrap, but does not explicitly disclose details regarding the composition of that wrap. POSITA would have been motivated to identify a specific heat shrinkable wrap to use to implement Crook’s teachings about the use of heat shrinkable material (*e.g.*, EX1004 (**Crook**), ¶65).¹⁵ And I understand from Dr. Khanna that Americover teaches shrink wrap of low density polyethylene including shrinking resins to be beneficial as a heat shrinkable wrap, including to protect houses after hurricanes. *E.g.*, EX1021 (**Americover**), 1; EX1030 (**Khanna Declaration**), ¶¶32, 36, 56. POSITA would have found it obvious, straightforward, and advantageous to implement Crook’s heat shrinkable wrap using Americover’s advantageous teachings of utilizing low density polyethylene processed into a heat shrinkable film. EX1030 (**Khanna Declaration**), ¶¶54-58. POSITA would have understood that using Americover’s teachings to

¹⁵ See n.14.

implement Crook was beneficial because Americover teaches a known, predictable method to cover a roof with a heat shrinkable film. For POSITA, it would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with a reasonable expectation of success, particularly because, as I understand from Dr. Khanna, it was well known to use low density polyethylene for heat shrinkable films. EX1030 (**Khanna Declaration**), ¶¶32-33, 35.

* * *

185. Crook in view of Best renders obvious this limitation. Crook in view of Americover also renders obvious this limitation.

4. Element 1.b

186. Claim 1.b recites “wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the built structure.” **In my opinion, Crook in view of Kelly and Inzeo renders obvious this limitation (Grounds 1-4). Crook in view of Lowe’s Video also renders obvious this limitation (Grounds 5-6).**

187. In my opinion, **Crook discloses attaching portions of the leading edge (see cl.1a(i)) to the built structure adjacent to the roof edge (e.g., “positioning a first end of at least a portion of a roof cover so that the first end extends**

adjacent (and preferably over) a first edge of a roof and so that the first end is held in place adjacent the first edge”).¹⁶

188. As discussed above, Crook discloses a “method of applying such a *roof cover [‘roof cover compris[ing] shrink wrap material’]...positioning a first end of at least a portion of a roof cover so that the first end extends adjacent (and preferably over) a first edge of a roof* and so that the first end is held in place *adjacent the first edge...positioning the second end of the roof cover so that the second end of the roof cover extends adjacent (and preferably over) a second edge of the roof and so that the second end of the roof cover is held in place adjacent the second edge.*” E.g., EX1004 (Crook), ¶65 (emphases added); *see also* EX1004 (Crook), ¶¶7-8, 67 (“the side edges of the strips do not overlap substantially. In one such embodiment of the invention, *the strips are laid side by side and are attached together by lengths of tape.*”) (emphasis added).

¹⁶ Although Crook discloses both assembling a sheet off the roof (Off-The-Roof Method) and on the roof (On-The-Roof Method), there is no distinction between the methods with respect to how the sheet is attached to the roof. POSITA would have understood the disclosures in Crook of attaching the sheet or sheeting to the roof in Crook as applying regardless of where the sheet is assembled.

189. Crook teaches examples of attaching: “[a]s may be understood from FIG. 2A, *the membrane strips 233, 235 may be attached adjacent the roof 211 by stretching the membrane strips 233, 235 over an edge (e.g., the front edge 216) of the roof 211 and then pressing the membrane strips 233, 235 against the bottom surface of the roof’s front edge 216 and against a vertical wall 218 adjacent the roof 211. The ends of the membrane strips 233, 235 may then be secured in place adjacent the vertical wall 218 with fasteners* or, as discussed in greater detail below, with a girdle member, such as the girdle member 330 shown in FIG. 3.” *E.g.*, EX1004 (Crook), ¶29 (emphasis added); *see also, e.g.*, EX1004 (Crook), ¶¶37 (“As noted above, the *various membrane strips may also extend over the front, rear, and/or side edges of the roof 311 to facilitate attaching the strips adjacent the roof 311* (e.g., via a girdle member 330).”), 44 (“attaching the end of the membrane... adjacent a portion of the roof...”) 49 (“secur[ing] the cut end of the first membrane strip 33 to the wall by using a fastener such as tape, nails, clips, clamps, *or any other appropriate fastening device*”), 50 (“The first installer 5 may secure the cut leading end of the second membrane strip 35 to the wall by using a fastener such as tape, nails, clips, clamps, or *any other appropriate fastening device.*”), 60 (“roof cover is described as comprising *one* to three membranes”), 66 (“the strips may be secured in place relative to each other by *taping the membrane strips to each other.*”) (emphases added).

190. In my opinion, Crook in view of Kelly and Inzeo renders obvious wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the built structure. (Grounds 1-4).

191. In my opinion, Kelly discloses wrapping a roof covering's edge around a batten (e.g., “extend[ing] [a waterproof membrane] beyond the wall 12 far enough to have a wrap portion 46 of the membrane 44 back wrap around a stiff member 40 [i.e., a batten] and allow an interior edge 48 to lay back upon a membrane portion 41 of the membrane 44,” “encapsulating the stiff member 40 within the waterproof membrane 44”; Figs. 2A-2B (annotated below with roof covering's edge in orange and batten in red)) and attaching it to a built structure (e.g., “fasteners 42 in this embodiment attach the encapsulated stiff member 40, which lies flush with a surface of the wall 12, to the building structure of the wall 12”; Figs. 2A-2B).

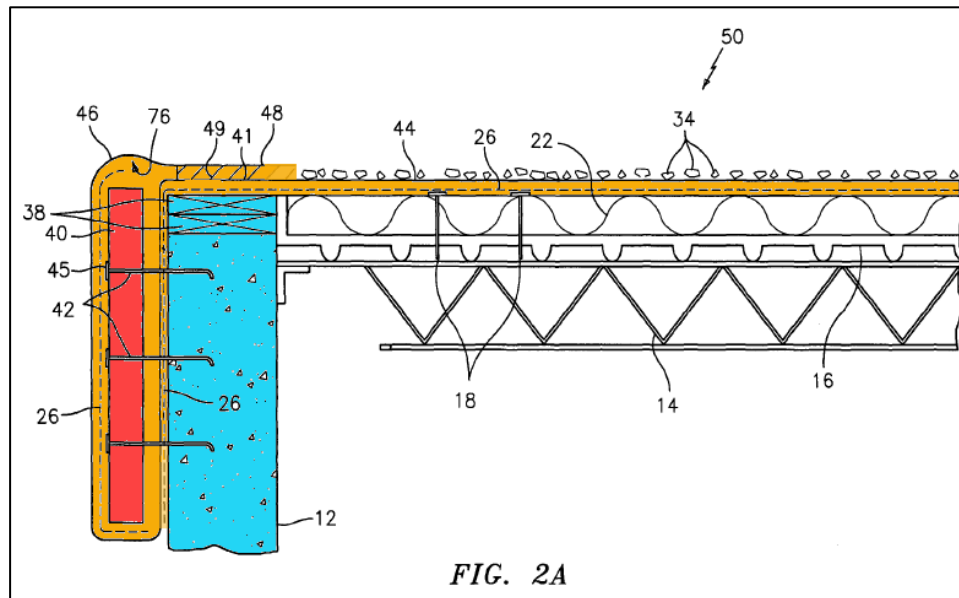
192. For example, Kelly discloses “extend[ing] [the membrane] beyond the wall 12 far enough to have a wrap portion 46 of the membrane 44 back wrap around a stiff member 40 [i.e., a batten] and allow an interior edge 48 to lay back upon a membrane portion 41 of the membrane 44... encapsulating the stiff member 40 within the waterproof membrane 44... fasteners 42 in this embodiment *attach the encapsulated stiff member 40, which lies flush with a surface of the wall 12, to the*

building structure of the wall 12.” E.g., EX1005 (Kelly), 2:62-3:26 (emphasis added).

193. Kelly additionally discloses that “[b]y *sandwiching the membrane portion 46 between the stiff member 40 and the wall 12 the membrane portion 46 is retained uniformly along the length of the wall 12.* This uniformity prevents the formation of any local stress risers, which could exceed the strength of the membrane material, resulting in tearing when the membrane portion 46 is pulled as occurs when wind blows up the side and over the roof creating a lower pressure on the upper surface of the membrane 44. Additionally, *by being sealed in a waterproof envelope created by the encapsulating membrane portion 46 the stiff member 40 will remain dry; preventing it from rotting.” E.g., EX1005 (Kelly), 3:31-41 (emphases added); see also EX1005 (Kelly), Fig. 12, 3:52-62 (“Additionally the stiff member 40 has properties of stiffness such that it holds its shape even while being pulled nonuniformly by attachments to roof and building structures and membranes for example. By holding its shape the stiff member 40 distributes any loads applied to it over the entire body of the stiff member 40 thereby minimizing localized stress levels.”), 7:42-49 (“A *piece of membrane 162 is wrapped around the stiff member 40 and welded or glued 49 to itself thereby encapsulating the stiff member 40 in an air and water tight enclosure.* The stiff member 40 is attached to the membrane 162 by adhesive 26 to prevent relative movement between the two components. This*

universal perimeter edge 162 can be applied to other embodiments of the invention such as that depicted in FIG. 2B for example.”) (emphases added).

194. Kelly’s batten-wrapping disclosure is illustrated, for example, in Figs. 2A-2B (color annotations added):

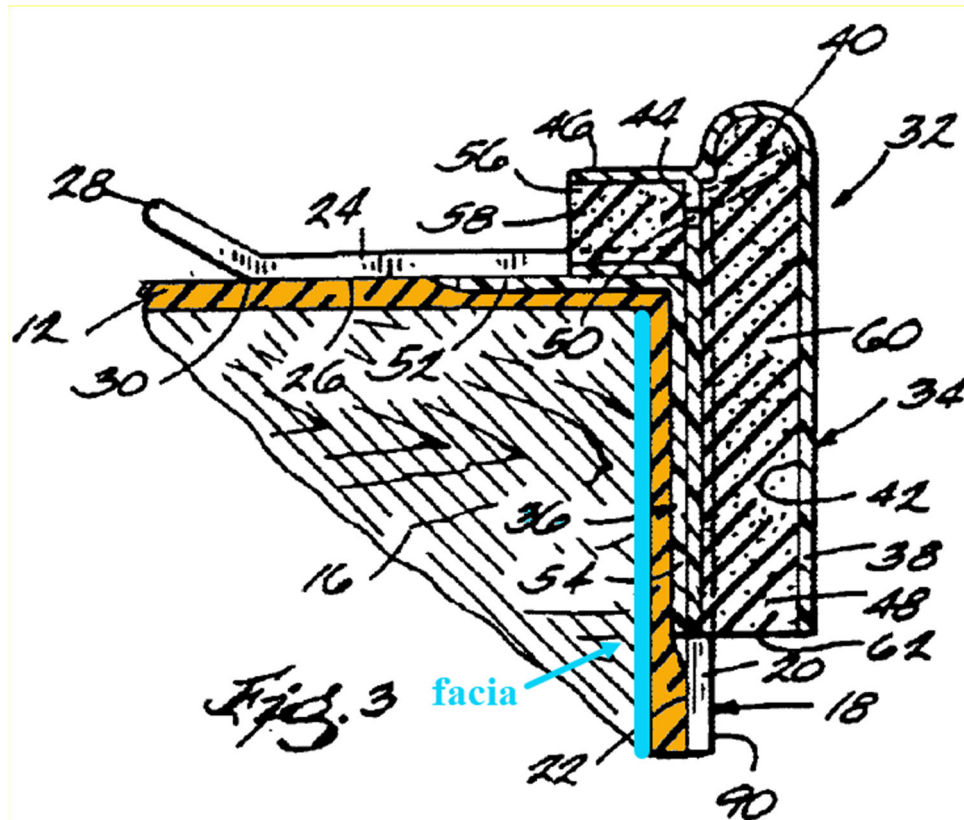


195. Additionally, in my opinion, **Inzeo discloses attaching a roof covering (e.g., a membrane) to a fascia of a roof** (e.g., “the extending portion of the membrane 12 can be secured against the vertical face of the nailer 16” (fascia) using a “fascia assembly”).

196. For example, Inzeo discloses “the extending portion of the membrane 12 can be secured against the vertical face of the nailer 16,” which is a fascia (see added blue annotation in Fig. 3 below). *E.g.*, EX1006 (**Inzeo**), 2:38-43.

197. Inzeo discloses that “[t]he rigid plate 20 also clamps that portion of the membrane 12 *securely against the vertical face or surface of the nailer 16.*” *E.g.*, EX1006 (**Inzeo**), 2:52-54 (emphasis added).

198. And Inzeo further explains that “[w]hen the anchor bars 18 are in place, as illustrated in FIG. 1, the lower surfaces 26 of the rearwardly extending flanges 24 clamp the edge of the rubber membrane 12 downwardly against the upper surface of the wooden nailer 16, *and the rearward faces 22 of the vertical plate portions 20 of the anchor bars 18 similarly clamp the downwardly extending edge of the rubber membrane 12 firmly against the vertical planar face of the wooden nailer 16.* The *fascia assembly* 10 thus provides a very rigid and secure mechanism for clamping the edge of the rubber membrane 12 against the surface of the roof 14 and secures the rubber membrane 12 in place and is resistant to even large upward forces on the membrane 12 which might be caused by high winds.” *E.g.*, EX1006 (**Inzeo**), 4:7-20. This is illustrated by Figs. 1 and 3 (annotated with roof covering in orange and fascia in blue):



199. In my opinion, POSITA would have found it obvious, straightforward, and advantageous to implement Crook's disclosure of securing the leading edge of the sheet using Kelly's advantageous teachings of wrapping an edge of material around a batten to fasten waterproof membranes on roof structures. *E.g.*, EX1005 (Kelly), 3:4-26, 3:31-47, 3:52-58, 7:42-49, Figs.2A-2B, 12. Wrapping the film around a batten, as taught in Kelly, to implement Crook's teachings to use an "appropriate fastening device" (rather than attaching the film directly to the structure using the examples of tape, nails, clips, or clamps identified in Crook (*e.g.*, EX1004 (Crook), ¶49)), would have uniformly distributed the load on the film associated with the attachment over a larger area, thereby

reducing stress and the risk of tearing of the film caused by tension on the heat shrinkable film, which would pull tight across the roof, as well as tension caused by wind and other forces. The batten wrapping technique would also help create a better seal between the edge of the film and the surface to which the batten is attached. EX1005, 3:31-47, 3:52-58. For POSITA it would have been an obvious, routine implementation choice and clear it would work, predictably yielding the expected functionality with a reasonable expectation of success. Reasonable expectation of success in wrapping the edge of the roof cover around the batten to secure it over the roof is further supported by the fact that it was well known to do so. *See, e.g.*, §V above (¶¶18-30); EX1005 (**Kelly**), 3:4-25, Fig.2A; EX1020 (**EMA**), 50; EX1015 (**Panasik**), ¶8, ¶¶21-0022, ¶24, Figs. 7 & 9; EX1019 (**Plastic-Sheeting**), 26; EX1018 (**Blue-Roof-Tarps**), 1; EX1016 (**Lowe's Video**); EX1017 (**This-Old-House**), 22.

200. In addition, in my opinion, POSITA would have found it obvious, straightforward, and advantageous to implement the combination of Crook and Kelly using Inzeo's advantageous teaching of using the fascia as the attachment point. Crook describes attaching the roof membrane adjacent to the portion of the roof including, *e.g.*, on the vertical wall (*e.g.*, EX1004 (**Crook**), ¶65). POSITA would have recognized that attaching the membrane on the fascia, as taught in Inzeo, to implement Crook's teachings to attach adjacent to the portion of the roof (rather than

on another surface such as the vertical house wall) would advantageously have required less membrane material while still protecting the entire roof surface, as well as the edge of the roof between the roof and fascia. Additionally, POSITA would have understood that the fascia material is frequently an easier surface to secure something to by nailing, as compared to the vertical surface of a house which may be made of, *e.g.*, brick, and would create more visible unsightly holes after removal of the material. Additionally, attachment to the fascia or to the underside of the eaves would have been an obvious choice for POSITA where, for example, there was damage to the roof and walls, making attachment to those locations more difficult. For POSITA, it would have been an obvious, routine implementation choice and clear it would work, predictably yielding the expected functionality with a reasonable expectation of success. Reasonable expectation of success in attaching the roof cover at the fascia or under the eaves is further supported by the fact that it was well known to do so. *See, e.g.*, §V above (¶¶18-30); EX1006 (Inzeo), 2:38-43, Fig.3; EX1020 (EMA), Fig.4:4; EX1018 (Blue-Roof-Tarps), 1; EX1016 (Lowe's Video); EX1037 (**Lowe's Transcript**), 4:12-14 ("nail under the e[a]ve"); *see also* EX1011 (**'787 Application prosecution history**), 286-287 ("It would have been obvious to one of ordinary skill in the art at the time of invention that the 'suitable fasteners' disclosed by Crook would include battens functioning in the claimed manner because Kelly teaches that battens were recognized in the prior art as being

suitable for fastening waterproof membranes on roof structures...It would have been obvious to one of ordinary skill in the art at the time of invention that the strips of Crook could be attached to a fascia of a roof rather than the wall. Since it was known in the prior art to attach membranes to walls (as taught by Crook and Kelly) or to fascia (as taught by Inzeo), the substitution of one known attachment point for another would have been obvious. Furthermore, it would be a routine matter of design choice for one of ordinary skill to select an attachment point for a membrane. There is no advantage or new result achieved by attaching to eaves or fascia rather than a wall. As long as the point of attachment is structurally sound the result is the same and predictable. Therefore any attachment point, including a wall, eaves, fascia, soffit, rafters, nailers, or any other roof structure would have been obvious to one of ordinary skill in the art.”), 16-17 (same).

201. **In my opinion, Crook in view of Lowe’s Video also renders obvious wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the built structure.** (Grounds 5-6).

202. **In my opinion, Lowe’s Video discloses wrapping portions of an edge of a tarp around a batten (e.g., “rolling” the “end of the tarp around another 2x4”) and attaching the wrapped batten to an underside of a first eave or to a fascia of**

the built structure (e.g., “nail under the e[a]ve”; video showing man nailing tarp-wrapped batten to fascia of roof).

203. For example, Lowe’s Video discloses “roll[ing]” the “end of the tarp around another 2x4 and nail[ing] under the e[a]ve.” E.g., EX1037 (**Lowe’s Transcript**), 4:12-14; EX1016-5 (**Lowe’s Video**), 0:28 (showing attachment of wrapped batten to the fascia):



204. In my opinion, POSITA would have found it obvious, straightforward, and advantageous to implement Crook’s attachment using the teachings of the 2x4 (batten) wrapping and attachment techniques (to each of fascia and the underside of eaves) from Lowe’s Video for the reasons described in connection with Kelly and Inzeo above (but substituting Lowe’s Video’s

teachings for Kelly's and Inzeo's). Wrapping the cover around a batten, as taught in Lowe's Video, to implement Crook's teachings to use an "appropriate fastening device" (rather than attaching the film directly to the structure using the examples of tape, nails, clips, or clamps identified in Crook (*e.g.*, EX1004 (**Crook**), ¶49)), would have uniformly distributed the load on the film associated with the attachment over a larger area, thereby reducing stress and the risk of tearing of the film caused by tension on the heat shrinkable film, which would pull tight across the roof, as well as tension caused by wind and other forces. The batten wrapping would also help create a better seal between the edge of the cover and the surface to which the batten is attached. For POSITA it would have been an obvious, routine implementation choice and clear it would work, predictably yielding the expected functionality with a reasonable expectation of success. This is particularly so given that the technique of wrapping material around a batten and attaching it to the structure was a known method to attach tarpaulins for roof repair after storm damage. *See supra* §V above (¶¶18-30).

205. Further, POSITA would have recognized that attaching the batten to the fascia or under the eaves, as taught in Lowe's Video, to implement Crook's teachings to attach adjacent to the portion of the roof (rather than on another surface such as the vertical house wall), would advantageously have required less covering material while still protecting the entire roof surface, as well as the edge of the roof between

the roof and fascia. Additionally, POSITA would have understood that the fascia material is frequently an easier surface to secure something to by nailing, as compared to the vertical surface of a house which may be made of, *e.g.*, brick, and would create more visible unsightly holes after removal of the material. Additionally, attachment to the fascia or to the underside of the eaves would have been an obvious choice for POSITA where, for example, there was damage to the roof and walls, making attachment to those locations more difficult. For POSITA, it would have been an obvious, routine implementation choice and clear it would work, predictably yielding (as confirmed by these references) the expected functionality with a reasonable expectation of success.

* * *

206. Thus, Crook in view of Kelly and Inzeo renders obvious this limitation. Crook in view of Lowe's Video also renders obvious this limitation.

5. Element 1.c

207. Claim 1.c recites "wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the fascia of the built structure at a location different than the first batten; and." **In my opinion, Crook in view of Kelly and Inzeo renders obvious this limitation (Grounds 1-4). Crook in view of Lowe's video also renders obvious this limitation (Grounds 5-6).**

208. In my opinion, **Crook discloses attaching portions of the trailing edge** (*see* cl.1a(i), *e.g.*, “second end of the roof cover”) **to the built structure adjacent to the roof edge** (*see* cl.1b; “positioning the second end of the roof cover so that the second end of the roof cover extends adjacent (and preferably over) a second edge of the roof and so that the second end of the roof cover is held in place adjacent the second edge”) **at a location different than the first batten** (*e.g.*, “second edge of the roof”).

209. In my opinion, **Crook in view of Kelly and Inzeo renders obvious wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the facia of the built structure at a location different than the first batten.** (Grounds 1-4).

210. In my opinion and as discussed above, **Kelly discloses wrapping a roof covering’s edge around a batten** (*see* cl.1b) **and attaching it to the built structure** (*see* cl.1b).

211. Additionally, in my opinion and as discussed above, **Inzeo discloses attaching a roof covering** (*see* cl.1b) **to a facia of a roof** (*see* cl.1b).

212. As discussed, it would have been obvious, straightforward, and advantageous to POSITA to implement Crook using the teachings of Kelly and Inzeo to secure the trailing edge of the sheet to the *second* end of the roof (as disclosed in

Crook) for the same reasons discussed above regarding securing the leading edge of the *first* end of the roof (*see* cl.1b).

213. **In my opinion, Crook in view of Lowe's Video also renders obvious wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the fascia of the built structure at a location different than the first batten.** (Grounds 5-6).

214. In my opinion and as discussed above, **Lowe's Video discloses wrapping portions of the edge of a tarp around a batten (*see* cl.1b) and attaching the wrapped batten to an underside of an eave or to a fascia of the built structure (*see* cl.1b).**

215. As discussed above, it would have been obvious, straightforward, and advantageous to POSITA to implement Crook using Lowe's Video's teachings of batten-wrapping and attachment techniques to secure the trailing edge of the sheet to the *second* end of the roof (as disclosed in Crook), for the same reasons discussed above regarding securing the leading edge to the *first* end of the roof (*see* cl.1b).

* * *

216. Thus, Crook in view of Kelly and Inzeo renders obvious this limitation. Crook in view of Lowe's Video also renders obvious this limitation.

6. Element 1.d

217. Claim 1.d recites “heating the sheet of heat shrinkable film to bring the film into conformity with the portion of the roof, wherein said heating step shrinks the sheet of film tight against the built structure to cover over the portion of the roof.”

In my opinion, Crook discloses this limitation (Grounds 1-6).

218. In my opinion, **Crook discloses heating** (e.g., “applying heat to the roof cover”) **the sheet¹⁷ of heat shrinkable film** (see cl.1a(i)) **to bring the film into conformity with the portion of the roof** (e.g., “roof cover shrinks and thereby attaches adjacent the roof”), **wherein said heating step shrinks the sheet of film tight against the built structure to cover over the portion of the roof** (e.g., “apply heat to the roof cover until the roof cover shrinks and thereby is secured adjacent the roof”).

219. For example, Crook discloses *“applying heat to the roof cover until the roof cover shrinks and thereby attaches adjacent the roof.”* A heat gun or any other appropriate heat source may be used to apply heat to the roof cover.” E.g., EX1004 (Crook), ¶8 (emphasis added); see also, e.g., EX1004 (Crook), ¶65 (“As

¹⁷ As discussed above in cl.1a, “the sheet” is rendered obvious by Crook in view of Americover, Crook in view of Americover and Vanderzee, Crook in view of Best, and Crook in view of Vanderzee and Best.

noted above, in one embodiment of the invention, the roof cover comprises *shrink wrap material that is configured to shrink in response to being exposed to heat...* using a heat source to apply heat to the roof cover until the roof cover shrinks and thereby is secured adjacent the roof.” (emphasis added); *see also* EX1002 (**’484 patent prosecution history**), 263 (Crook teaches “using a heat gun to apply heat to the sheet such that shrinking occurs and a tight fit between the sheet and the roof structure is achieved”), 214 (“Regarding the newly added limitations requiring heat application for shrinking the sheet and bringing it into tight conformity with a surface area of a built structure, the heating of the sheet of Crook causes the sheet to shrink and thereby conform tightly against the roof structure (See Figures; [0008]) which meets the claim.”), 177 (same), 128-129 (same); EX1011 (**’787 Application prosecution history**), 285 (same), 288 (same).

220. POSITA would have understood Crook’s disclosures regarding its heat shrinkable film that the “roof cover shrinks and thereby attaches adjacent the roof” and that “roof cover shrinks and thereby is secured adjacent the roof” (*e.g.*, EX1004 (**Crook**), ¶¶8, 65), to mean that the film is brought into conformity with the covered portion of the roof and that the heating step shrinks the sheet of film tight against the roof. POSITA would, *e.g.*, have understood that heat shrinkable film used to cover a roof provided a tight-fitting film forming a “skin-like protective covering” and would have “mold[ed]” itself to the structure. EX1021 (**Americover**), 1.

* * *

221. Thus, in my opinion, Crook discloses this limitation.

222. Accordingly, in my opinion, claim 1 is rendered obvious by (a) Crook in view of Kelly, Inzeo, and Best, (b) Crook in view of Kelly, Inzeo, Best, and Vanderzee, (c) Crook in view of Kelly, Inzeo, and Americover, (d) Crook in view of Kelly, Inzeo, Americover, and Vanderzee, (e) Crook in view of Lowe's Video and Americover, or (f) Crook in view of Lowe's Video, Americover, and Vanderzee.

D. Claim 2 is Rendered Obvious By (a) Crook in view of Kelly and Inzeo, (b) Crook in view of Kelly, Inzeo, and Vanderzee, (c) Crook in view of Lowe's Video, or (d) Crook in view of Lowe's Video and Vanderzee.

223. In my opinion, claim 2 is rendered obvious over (a) Crook in view of Kelly and Inzeo (Ground 7), (b) Crook in view of Kelly, Inzeo, and Vanderzee (Ground 8), (c) Crook in view of Lowe's Video (Ground 9), or (d) Crook in view of Lowe's Video and Vanderzee (Ground 10). *See infra*, Appendix C, Claim 2.

1. Element 2.pre (preamble of claim 2)¹⁸

224. Claim 2.pre recites "A method of covering at least a portion of a roof of a [built] structure comprising the steps of." **In my opinion, Crook discloses this limitation (Grounds 7-10).**

¹⁸ To the extent deemed limiting, the preamble is disclosed.

225. In my opinion, **Crook discloses a method of covering at least a portion of a roof of a built structure** (*e.g.*, “method of applying... a roof cover,” comprising, *e.g.*, “a plurality of membrane strips,” including “positioning a first end of at least a portion of a roof cover so that the first end extends adjacent (and preferably over) a first edge of a roof and so that the first end is held in place adjacent the first edge” and “positioning the second end of the roof cover so that the second end of the roof cover extends adjacent (and preferably over) a second edge of the roof”; *see* cl.1.pre¹⁹).

226. Crook discloses that “[t]he present invention is directed to an improved ***cover for securing the roof*** a residential home or other building structure from the weather conditions that are associated with severe storms such as hurricanes.... In a particular embodiment, ***the membrane is configured to cover substantially the entire roof surface.***” *E.g.*, EX1004 (**Crook**), Abstract (emphases added).

227. Crook further discloses a method of covering built structures, which POSITA would understand to include the roof such built structures: “***Building structures*** are often ***severely damaged when exposed to high-wind conditions, such***

¹⁹ Citations to Claim 1 (*e.g.*, cl.1.pre) incorporate the citations for the corresponding reference for that claim element (*e.g.*, EX1004 (**Crook**) citations in cl.1.pre chart).

as those associated with hurricanes and tornados. For example, high winds often strip shingles from the roofs of residential homes to expose a roof understructure that is vulnerable to rain damage. Accordingly, there is a *need for improved apparatuses and methods for protecting the roofs of building structures from storm conditions.*” E.g., EX1004 (Crook), ¶1 (emphases added); *see also*, EX1004 (Crook), ¶73 (“securing roofs during roof repair”).

228. Crook discloses that its protective roof cover includes, e.g., “a membrane that is adapted to cover at least a portion of the roof of a building structure.” E.g., EX1004 (Crook), ¶2; *see also*, e.g., EX1004 (Crook), ¶¶6-8 (“method of protecting a roof from high winds... comprises the steps of... *covering substantially the entire upper surface of the roof with the roof cover*”), 60 (“roof cover is described as comprising one to three membranes”); EX1004 (Crook), ¶65 (“method of applying such a *roof cover [‘roof cover compris[ing] shrink wrap material’]*... *positioning a first end of at least a portion of a roof cover so that the first end extends adjacent (and preferably over) a first edge of a roof* and so that the first end is held in place adjacent the first edge... *positioning the second end of the roof cover so that the second end of the roof cover extends adjacent (and preferably over) a second edge of the roof*”), 67 (“Furthermore, although various embodiments of the invention in which individual membranes comprise a plurality of membrane strips are described above as having overlapping membrane strips

(e.g., the side edges of two or more of the membrane strips that form a particular membrane overlap), in an alternative embodiment of the invention, the side edges of the strips do not overlap substantially. In one such embodiment of the invention, ***the strips are laid side by side and are attached together by lengths of tape.***) (emphases added).

* * *

229. Thus, in my opinion, Crook discloses this limitation.

2. Element 2.a

230. Claim 2.a recites “cutting a sheet of film from a roll of heat shrinkable film.”²⁰ **In my opinion, Crook renders obvious this limitation (Grounds 7 and 9). Crook in view of Vanderzee also renders obvious this limitation (Grounds 8 and 10).**

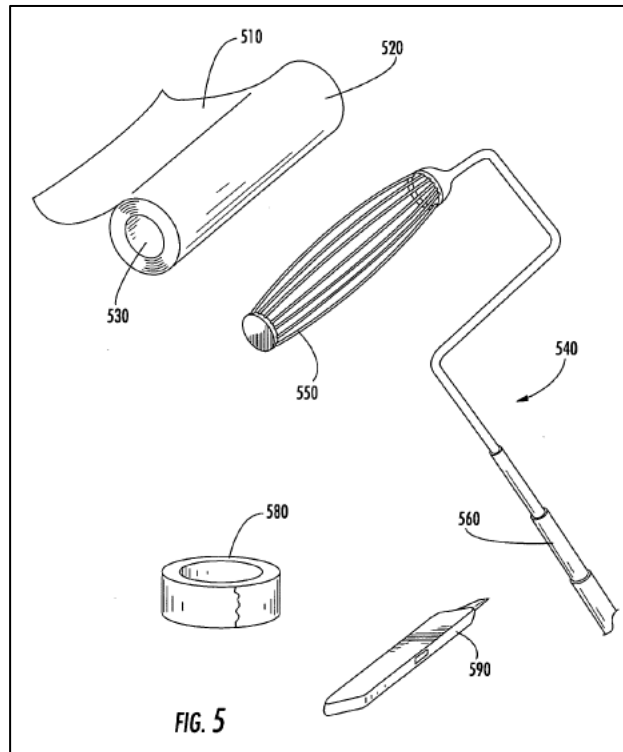
231. In my opinion, **Crook discloses a sheet of heat shrinkable film** (*see* Crook’s Off-The-Roof Method in cl.1a(i))²¹ **and a consumer roof wrap kit**

²⁰ The plain and ordinary meaning of “cutting a sheet” is that the action (cutting) is performed on the fully assembled “sheet,” and not individual, unassembled lengths/strips.

²¹ *See* n.8.

including a knife and a roof membrane supply roll (e.g., an “improved protective roof wrap kit” including “at least one roof membrane supply roll 520, at least one roll of water-resistant tape 580, a roller 540 (e.g., an extendable roller), and optionally a knife or cutting blade 590.”; Fig. 5).

232. For example, Crook discloses that “[a]dvantageously, the above-described preferred embodiments of the present invention may be sold to retail consumers as part of an improved protective roof wrap kit. A preferred kit in accordance with one embodiment of the present invention is illustrated in FIG. 5 and includes at least one roof membrane supply roll 520, at least one roll of water-resistant tape 580, a roller 540 (e.g., an extendable roller), and optionally a knife or cutting blade 590.” *E.g.*, EX1004 (**Crook**), ¶70; *see also*, e.g., EX1004 (**Crook**), Fig. 5:



233. In my opinion, Crook renders obvious cutting a sheet from a roll before applying the sheet. As discussed above, Crook’s Off-The-Roof Method discloses a sheet. *See* cl.1a(i). Crook’s Off-The-Roof Method also discloses (or, alternatively, at minimum, renders obvious in view of Vanderzee, as discussed below) applying a sheet having a leading and trailing edge over the roof (*see* cl.1a(i)). Crook additionally teaches a kit for a user to store at their home until needed, the kit including “at least one roof membrane supply roll 520, at least one roll of water-resistant tape 580, a roller 540 (e.g., an extendable roller), and

optionally a knife or cutting blade 590.” *E.g.*, EX1004 (**Crook**), ¶¶70-72, Fig. 5.²² POSITA would have understood that, for those entities assembling such kits for distribution to consumers (as disclosed in Crook (*e.g.*, EX1004 (**Crook**), ¶70)), plastic sheeting purchased from an original manufacturer is more available, affordable, manufacturable, transportable, and manipulable in widths of only several feet (and not likely wide enough to cover a roof from edge to edge). *E.g.*, EX1035 (**Vanderzee**), 1:6-19 (“Due to the capital expense of the forming apparatus, the original width of plastic sheeting is relatively limited. Calender rolls or extrusion heads suitable to form for example 100 foot wide sheets of plastic materials are prohibitively expensive.”).

234. In my opinion, POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook’s teachings of its Off-The-Roof Method and of a roll of membrane in a kit designed for consumers by including a membrane that is sufficiently wide to reduce the number of membranes a consumer would need to install to cover their roof, because taping together membranes to form a water-resistant seam (*see supra*

²² POSITA would have understood that distributors would have also beneficially created kits (as disclosed in Crook) for purchase and use by roof repair professionals.

claim 1.a(i); e.g., EX1004 (Crook), ¶¶7-8, 35, 65, 67, 70), either on or off the roof, would be difficult for consumers. This would have also allowed those assembling kits to create membranes of different widths for deployment—e.g., double or triple the single width—but starting with a single width supply of plastic, which would be lighter, less bulky, and more available, affordable, manufacturable, and transportable, than rolls that are, e.g., double or triple that width. Thus, POSITA would have been motivated and found it obvious, straightforward, and advantageous—including based on Crook’s explicit teachings of pre-taping such strips of membrane together to form a sheet (or a wider sheet) (e.g., EX1004 (Crook), ¶67)—to implement Crook’s teachings of providing a consumer kit including rolls of membrane assembled of multiple, taped-together widths of narrower plastic sheeting available from original manufacturers. Additionally, this would beneficially facilitate users of the kit cutting complete, water-resistant sheets (which comprise at least two lengths previously taped together) from the rolls. For POSITA, particularly in light of these teachings, cutting a sheet from a roll prior to lifting the sheet to the roof surface for positioning would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with a reasonable expectation of success.

235. **Crook²³ in view of Vanderzee also renders obvious this limitation based on the same Crook disclosures above, in addition to the Vanderzee disclosures discussed below, including in particular performing the assembly of a sheet from strips off the roof surface (before placement on the roof) and rolling it up. (Grounds 8 and 10).**

236. In my opinion, **Vanderzee discloses performing the assembly of parallel strips of plastic (*see* cl.1a(i)) for a roof (*see* cl.1a(i)) off the roof surface (*see* cl.1a(i)) and rolling them up (*e.g.*, “[f]ormed sheets are rolled up”).**

237. Vanderzee discloses that, after their assembly, “formed sheets are rolled up with the seam perpendicular to the axis of the roll thus making this sheet construction practical for storage and transportation.” *E.g.*, EX1035 (**Vanderzee**), 2:61-64; *see also, e.g.*, EX1035 (**Vanderzee**), 2:31-39 (“a **roll** of longitudinally spliced material... formed by bonding two sheets together along common edges...”), Abstract (“A seam is described wherein two sheets of material are bonded together to form one unified sheet... This is preferably used to form a longitudinal seam in a **roll** of sheet material.”) (emphases added).

238. **In my opinion, POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook’s teachings**

²³ *See* n.8.

(in its Off-The-Roof Method) of assembling the roof cover by taping non-overlapping strips together, using Vanderzee's advantageous teachings of performing the assembly off the roof surface and then rolling up the formed sheeting for movement to where it will be used. See cl.1a(i); *see also, e.g.,* EX1035 (Vanderzee), 2:31-64. POSITA would have understood that using Vanderzee's teachings of joining plastic sheeting (resulting from taping as described in Crook) off the roof would be more convenient than taping lengths of narrow sheeting together while *on* the angled roof, and that the wider sheeting prepared off the roof (including off site) would be of better quality, *e.g.,* have better sealed seams. Moreover, POSITA would have been motivated to perform the assembling operations off the roof because it would be impractical to form a water-resistant membrane made up of strips taped together (and thus, *e.g.,* taped continuously along the entirety of their adjoining edges) while on a roof and because performing these operations off the roof significantly increases freedom of movement and positioning (*e.g.,* a person applying the tape (directly or by machine) would be able more easily to manipulate the strips, spread and align their corresponding edges, and apply tape without, *inter alia*, standing on one or both of the strips), decreases time and the number of operations taking place on the roof, and thus increases safety and ease of installation. See cl.1a(i). For example, POSITA would have understood that taping side-by-side non-overlapping strips together such that the seam was sealed against

water and to withstand the wind, would not practically be accomplished on the roof and instead would be performed, *e.g.*, on the ground or indoors.

239. Further, POSITA would have understood that a water-resistant seam created by strips of tape (as Crook describes (*e.g.*, EX1004 (**Crook**), ¶67)) would better be accomplished on a flat and stable surface (*e.g.*, rather than on an angled roof surface in need of “repair” (*e.g.*, EX1004 (**Crook**), ¶73) and may have holes and concavities from storm damage, for example), and without the interference of as much wind. POSITA would have been motivated to decrease time and operations, including cutting and taping operations, performed on the roof, to increase the efficiency and safety of the installation, particularly in inclement weather. Moreover, POSITA would have been motivated to perform those operations off the roof if, *e.g.*, the roof had severe damage or the severity of the roof damage could not be ascertained. For example, if the damage to the roof was wider than the width of the membrane strip, POSITA would have been motivated and found it obvious, straightforward, and advantageous to perform the assembly of strips off the roof (as taught in Vanderzee) so that the width of the resulting roof cover is at least as wide as the damaged area. POSITA would have been motivated to apply this wider resulting roof cover to the roof, avoiding working and performing any cutting or any taping operations to assemble the cover on severely damaged or unstable portions of the roof.

240. POSITA would have been particularly motivated to use a pre-assembled roof cover for jobs involving large roofs, to reduce the time and operations performed on the roof. In addition, performing those operations off the roof facilitates performance of the same steps and leads to the same end result with added ease of installation benefits for those performing the method and therefore would have been obvious to try. Further, POSITA would have understood that forming a water-resistant membrane by taping strips together (as Crook describes (*e.g.*, EX1004 (**Crook**), ¶67)) off the roof would be beneficially facilitated using machinery to join the strips together, without requiring (as assembly on the roof would) that such machinery be moved to and operated on the rooftop or imposing limits on the parameters (*e.g.*, size, shape and weight) of such machinery that was practically and safely used for this purpose. For POSITA, particularly in light of these teachings (including the explicit disclosures in both references of longitudinally joining parallel strips into a wider sheet), assembling the sheet off the roof and rolling it into a roll would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with (as the references themselves reflect) a reasonable expectation of success. *See* cl.1a(i).

241. Having rolled (as taught by Vanderzee) the sheet and having a knife to cut strips from a roll (as taught by Crook (*e.g.*, EX1004 (**Crook**), ¶70)), POSITA

would have been motivated and found it obvious, straightforward, and advantageous to implement Crook's teachings by cutting a sheet (which comprises at least two lengths previously taped together) from the roll and then lifting the sheet (now having a leading and trailing edge) to the roof surface for positioning. *E.g.*, EX1004 (Crook), ¶¶7-8, 65. For POSITA, particularly in light of these teachings, cutting a sheet from a roll and then lifting the sheet to the roof surface for positioning would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with a reasonable expectation of success.

242. **Additionally, to the extent the plain and ordinary meaning of this limitation is interpreted more broadly such that “cutting a sheet of film from a roll of heat shrinkable film” includes cutting strips of film and then joining the strips together to form a sheet, in my opinion, Crook’s On-The-Roof Method discloses such a method (Grounds 7 and 9). See cl.1a(i).** For example, as discussed above, Crook’s On-The-Roof Method discloses cutting a required number of strips from a roll, wherein the strips are of sufficient length to extend from one end of roof structure to an opposite end thereof; positioning the strips over the roof structure by attaching a leading edge of a strip to a first edge of the roof structure and attaching a trailing edge of the strip to a second edge of the roof structure which is opposite the first edge; applying multiple strips to the roof structure with

overlapping portions between adjacent strips; applying adhesive tape to the overlapping portions such that the strips are assembled into a sheet. *See* cl.1a(i). Additionally, to the extent Stormseal asserts that the above-discussed analysis does not cover a “sheet,” as I have been advised to interpret it, it is my opinion that, for the same reasons discussed above, Crook discloses cutting a “sheet” of film from a roll of heat shrinkable film (using this broader interpretation of “sheet”).

* * *

243. Thus, in my opinion, Crook renders obvious this limitation. Crook in view of Vanderzee also renders obvious this limitation.

3. Element 2.b

244. Claim 2.b recites “after said cutting step, applying the sheet of film over the portion of the roof to extend from a first edge to a second edge of the [built] structure, wherein the film includes a leading edge and a trailing edge.”²⁴ **In my opinion, Crook renders obvious this limitation (Grounds 7 and 9). Crook in view of Vanderzee also renders obvious this limitation (Grounds 8 and 9).**

²⁴ The plain and ordinary meaning of “applying the sheet” is that the action (applying) is performed on the fully assembled “sheet,” and not individual, unassembled lengths/strips.

245. In my opinion, **Crook's Off-The-Roof Method discloses applying** (*see* cl.1a(i)) **the sheet of film** (*see* cl.1a(i)) **over the portion of the roof to extend from a first edge to a second edge of the [built] structure** (*see* cl.1a(i)), **wherein the film includes a leading edge** (*see* cl.1a(i)) **and a trailing edge** (*see* cl.1a(i)).

246. As discussed above, **Crook renders obvious cutting the sheet before applying it (Grounds 7 and 9).**

247. As discussed above, POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook's teachings to cut the sheet before applying it. *See* cl.2a. For POSITA, cutting the sheet from a roll before lifting the sheet to the roof surface for positioning would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with a reasonable expectation of success. *See* cl.2a.

248. **Crook in view of Vanderzee also renders obvious this limitation based on the same Crook disclosures above, in addition to the Vanderzee disclosures below, including in particular rolling a sheet (cut by the knife of Crook). (Grounds 8 and 10).**

249. As discussed above, **Vanderzee discloses performing the assembly of parallel strips of plastic** (*see* cl.1a(i)) **for a roof** (*see* cl.1a(i)) **off the roof surface** (*see* cl.1a(i)) **and rolling them up** (*see* cl.2a).

250. As discussed above, POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook by rolling up (as taught by Vanderzee) the sheet and cutting a sheet from the roll before applying it. *See* cl.2a. For the reasons provided above, POSITA would have been motivated to perform the cutting off the roof. *See* cl.2a. For POSITA, cutting the sheet from a roll before lifting the sheet to the roof surface for positioning would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with a reasonable expectation of success. *See* cl.2a.

251. **Additionally, to the extent the plain and ordinary meaning of this limitation is interpreted more broadly such that “applying the sheet of film over the portion of the roof to extend from a first edge to a second edge of the built structure” includes cutting strips of film from a roll to extend from a first edge to a second edge of the built structure and then joining the strips together to form a sheet on the roof (as opposed to assembling a sheet to extend from a first edge to a second edge of the built structure, prior to applying the sheet over the roof), in my opinion, Crook’s On-The-Roof Method discloses such a method (Grounds 7 and 9).** For example, Crook’s On-The-Roof Method discloses cutting a required number of strips from a roll, wherein the strips are of sufficient length to extend from one end of roof structure to an opposite end thereof; positioning the

strips over the roof structure by attaching a leading edge of a strip to a first edge of the roof structure and attaching a trailing edge of the strip to a second edge of the roof structure which is opposite the first edge; applying multiple strips to the roof structure with overlapping portions between adjacent strips; applying adhesive tape to the overlapping portions such that the strips are assembled into a sheet. *See* cl.1a(i).

252. **Additionally, in my opinion, Crook's On-The-Roof Method renders obvious applying the sheet after the cutting step.** POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook's teachings to perform the cutting operations off the roof before applying strips to the roof. *See* cl.2a. Cutting off the roof increases the safety and efficiency of the installation, as discussed above. *See* cl.2a. For POSITA, cutting before lifting the strips to the roof surface would have been an obvious, routine implementation choice and clear this would work, predictably yielding (as confirmed by the cited disclosures of, *e.g.*, Crook and Vanderzee) the expected functionality with a reasonable expectation of success. *See* cl.2a; *see also* EX1011 (**'787 Application prosecution history**), 285.

253. Further, whether the strips are cut and then applied or whether the film is first applied via a roll and then cut, the same predicable result of having a film of the desired size applied to a roof of a built structure is achieved.

254. Moreover, to the extent Stormseal asserts that the above-discussed analysis does not cover a “sheet,” as I have been advised to interpret it, it is my opinion that, for the same reasons as discussed above (*supra* ¶¶245-247, 252-253), Crook renders obvious applying a “sheet” of film after cutting the “sheet” from a roll of heat shrinkable film (using this broader interpretation of sheet) (Grounds 7 and 9).

* * *

255. Thus, in my opinion, Crook renders obvious this limitation. Crook in view of Vanderzee also renders obvious this limitation.

4. Element 2.c

256. Claim 2.c recites “wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the [built] structure.” **In my opinion, Crook in view of Kelly and Inzeo renders obvious this limitation (Grounds 7-8). Crook in view of Lowe’s Video also renders obvious this limitation (Grounds 9-10).**

257. In my opinion, **Crook discloses attaching portions of the leading edge (*see* cl.1b) to the built structure adjacent to the roof edge (*see* cl.1b).**

258. As discussed above, in my opinion, **Crook in view of Kelly and Inzeo renders obvious wrapping portions of the leading edge around a first batten**

and attaching the first batten to an underside of a first eave or to a fascia of the built structure. See cl.1b. (Grounds 7-8).

259. As also discussed above, in my opinion **Kelly discloses wrapping a roof covering's edge around a batten (see cl.1b) and attaching it to a built structure (see cl.1b).**

260. Additionally, and as discussed above, in my opinion **Inzeo discloses attaching a roof covering (see cl.1b) to a fascia of a roof (see cl.1b).**

261. In my opinion, **POSITA would have found it obvious, straightforward, and advantageous to implement Crook's disclosure of securing the leading edge of the sheet using Kelly's advantageous teachings of wrapping an edge of material around a batten to fasten waterproof membranes on roof structures. See cl.1b. Reasonable expectation of success in wrapping the edge of the roof cover around the batten to secure it over the roof is further supported by the fact that it was well known to do so. See cl.1b.**

262. In addition, in my opinion, **POSITA would have found it obvious, straightforward, and advantageous to implement the combination of Crook and Kelly using Inzeo's advantageous teaching of using the fascia as the attachment point. See cl.1b. Reasonable expectation of success in attaching the roof cover at the fascia or under the eaves is further supported by the fact that it was well known to do so. See cl.1b.**

263. In my opinion and as discussed above, Crook in view of Lowe's Video also renders obvious wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the built structure. *See* cl.1b. (Grounds 9-10).

264. Lowe's Video discloses wrapping portions of an edge of a tarp around a batten (*see* cl.1b) and attaching the wrapped batten to an underside of a first eave or to a fascia of the built structure (*see* cl.1b).

265. In my opinion, POSITA would have found it obvious, straightforward, and advantageous to implement Crook's attachment using the teachings of the 2x4 (batten) wrapping and attachment techniques (to each of fascia and the underside of eaves) from Lowe's Video for the reasons described in connection with Kelly and Inzeo above (but substituting Lowe's Video's teachings for Kelly's and Inzeo's). *See* cl.1b. For POSITA it would have been an obvious, routine implementation choice and clear it would work, predictably yielding the expected functionality with a reasonable expectation of success. *See* cl.1b.

* * *

266. Thus, in my opinion, Crook in view of Kelly and Inzeo renders obvious this limitation. Crook in view of Lowe's Video also renders obvious this limitation.

5. Element 2.d

267. Claim 2.d recites “wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the fascia of the built structure at a location different than the first batten; and.” **In my opinion, Crook in view of Kelly and Inzeo renders obvious this limitation (Grounds 7-8). Crook in view of Lowe’s Video also renders obvious this limitation (Grounds 9-10).**

268. In my opinion, **Crook discloses attaching portions of the trailing edge (see cl.1c) to the built structure adjacent to the roof edge (see cl.1c) at a location different than the first batten (see cl.1c).**

269. As discussed above, in my opinion, **Crook in view of Kelly and Inzeo renders obvious wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the fascia of the built structure at a location different than the first batten. See cl.1c. (Grounds 7-8).**

270. As also discussed above, in my opinion **Kelly discloses wrapping a roof covering’s edge around a batten (see cl.1c) and attaching it to the built structure (see cl.1c).**

271. Additionally, and as discussed above, in my opinion **Inzeo discloses attaching a roof covering (see cl.1c) to a fascia of a roof (see cl.1c).**

272. As discussed, it would have been obvious, straightforward, and advantageous to POSITA to implement Crook using the teachings of Kelly and Inzeo to secure the trailing edge of the sheet to the *second* end of the roof (as disclosed in Crook) for the same reasons discussed above regarding securing the leading edge of the *first* end of the roof (*see* cl.1b and cl.2c).

273. **In my opinion Crook in view of Lowe's Video also renders obvious wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the fascia of the built structure at a location different than the first batten.** *See* cl.1c. (Grounds 9-10).

274. In my opinion, **Lowe's Video discloses wrapping portions of the edge of a tarp around a batten (*see* cl.1c) and attaching the wrapped batten to an underside of an eave or to a fascia of the built structure (*see* cl.1c).**

275. As discussed above, it would have been obvious, straightforward, and advantageous to POSITA to implement Crook using Lowe's Video's teachings of batten-wrapping and attachment techniques to secure the trailing edge of the sheet to the *second* end of the roof (as disclosed in Crook), for the same reasons discussed above regarding securing the leading edge to the *first* end of the roof (*see* cl.1b and cl.2c).

* * *

276. Thus, in my opinion, Crook in view of Kelly and Inzeo renders obvious this limitation. Crook in view of Lowe's Video also renders obvious this limitation.

6. Element 2.e

277. Claim 2.e recites "heating the film to cause the film to conform to the portion of the roof." **In my opinion, Crook discloses this limitation (Grounds 7-10).**

278. In my opinion, **Crook discloses heating the film** (*see* cl.1d) **to cause the film to conform to the portion of the roof** (*see* cl.1d).

* * *

279. Thus, in my opinion, Crook discloses this limitation.

280. Accordingly, in my opinion, claim 2 is rendered obvious by (a) Crook in view of Kelly and Inzeo, (b) Crook in view of Kelly, Inzeo, and Vanderzee, (c) Crook in view of Lowe's Video, or (d) Crook in view of Lowe's Video and Vanderzee.

E. Claim 3 is Rendered Obvious By (a) Crook in view of Kelly and Inzeo, (b) Crook in view of Kelly, Inzeo, and Vanderzee, (c) Crook in view of Lowe's Video, or (d) Crook in view of Lowe's Video and Vanderzee.

281. **In my opinion, claim 3 is rendered obvious over (a) Crook in view of Kelly and Inzeo (Ground 7), (b) Crook in view of Kelly, Inzeo, and Vanderzee (Ground 8), (c) Crook in view of Lowe's Video (Ground 9), or (d) Crook in view of Lowe's Video and Vanderzee (Ground 10). *See infra*, Appendix C, Claim 3.**

1. Element 3.pre²⁵

282. Claim 3.pre recites “A method of covering at least a portion of a roof of a [built] structure comprising the steps of.” **In my opinion, Crook discloses this limitation (Grounds 7-10).**

283. In my opinion, **Crook discloses a method of covering at least a portion of a roof of a built structure** (*see* cl.2.pre).

* * *

284. Thus, in my opinion, Crook discloses this limitation.

2. Element 3.a

285. Claim 3.a recites “applying a pre-cut sheet of heat shrinkable film over the portion of the roof to extend from a first edge to a second edge of the [built] structure, wherein the film includes a leading edge and a trailing edge.”²⁶ **In my opinion, Crook renders obvious limitation (Grounds 7 and 9). Crook in view of Vanderzee discloses this limitation (Grounds 8 and 10).**

²⁵ To the extent deemed limiting, the preamble is disclosed.

²⁶ The plain and ordinary meaning of “applying a pre-cut sheet” is that the action (applying) is performed on the fully assembled “pre-cut sheet,” and not individual, unassembled lengths/strips.

286. In my opinion, **Crook’s Off-The-Roof Method discloses applying** (*see* cl.1a(i)) **a sheet of heat shrinkable film** (*e.g.*, “roof cover compris[ing] shrink wrap material that is configured to shrink in response to being exposed to heat,” where the cover comprises “strips” that have already been “attached together by lengths of tape”; *see* cl.1a(i))²⁷ **over the portion of the roof to extend from a first edge to a second edge of the built structure** (*see* cl.1a(i)), **wherein the film includes a leading edge** (*see* cl.1a(i)) **and a trailing edge** (*see* cl.1a(i)).

287. Additionally, Crook renders obvious pre-cutting the sheet. In my opinion, POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook’s Off-The-Roof Method by cutting strips to extend from a first edge to a second edge prior to assembling them into a sheet. *See* cl.2a and c2.b. POSITA would have understood that they could have advantageously cut strips of film from supply rolls, as taught by Crook, prior to assembling the strips into a pre-cut sheet. *E.g.*, EX1004 (**Crook**), ¶70, Fig. 5. For POSITA, particularly in light of these teachings, this would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with a reasonable expectation of success.

²⁷ *See* n.8.

288. **Crook²⁸ in view of Vanderzee also renders obvious this limitation based on the same Crook disclosures above, in addition to the Vanderzee disclosures below, including in particular performing the assembly of a sheet from strips off the roof surface (before placement on the roof), rolling it up (to be pre-cut by the knife of Crook). (Grounds 8 and 10).**

289. As discussed above, in my opinion, **Vanderzee discloses performing the assembly of parallel strips of plastic (*see* cl.1a(i)) for a roof (*see* cl.1a(i)) off the roof surface (*see* cl.1a(i)) and rolling them up (*see* cl.2a).**

290. As discussed above, POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook by rolling up (as taught by Vanderzee) the sheet and pre-cutting a sheet from the roll before applying it. *See* cl.2a and cl.2b. For POSITA, cutting the sheet before lifting the sheet to the roof surface for positioning would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with a reasonable expectation of success. *See* cl.2a and cl.2b.

291. **Additionally, to the extent the plain and ordinary meaning of this limitation is interpreted more broadly such that “applying a pre-cut sheet of a heat shrinkable film over the portion of the roof to extend from a first edge to**

²⁸ *See* n.8.

a second edge of the [built] structure, wherein the film includes a leading edge and a trailing edge” includes cutting strips of film to have leading and trailing edges and then joining the strips together to form a pre-cut sheet on the roof (as opposed to assembling a pre-cut sheet (having a leading and trailing edge) prior to applying the sheet over the roof), in my opinion, Crook’s On-The-Roof Method also renders obvious such a method (Grounds 7 and 9). See cl.2b.

292. Moreover, to the extent the plain and ordinary meaning of “sheet” is interpreted to include a single strip of film and does not require that the two strips of film be connected, for the same reasons discussed above, Crook renders obvious applying a pre-cut “sheet” (using this broader interpretation of sheet) (Grounds 7 and 9).

* * *

293. Thus, in my opinion, Crook renders obvious this limitation. Crook in view of Vanderzee also renders obvious this limitation.

3. Element 3.b

294. Claim 3.b recites “wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the [built] structure.” **In my opinion Crook in view of Kelly and Inzeo renders obvious this limitation (Grounds 7-8). Crook in view of Lowe’s Video also renders obvious this limitation (Grounds 9-10).**

295. In my opinion, **Crook discloses attaching portions of the leading edge (see cl.1b) to the built structure adjacent to the roof edge (see cl.1b).**

296. As discussed above, in my opinion **Crook in view of Kelly and Inzeo renders obvious wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the built structure. See cl.1b. (Grounds 7 and 8).**

297. Additionally, and as discussed above, in my opinion **Kelly discloses wrapping a roof covering's edge around a batten (see cl.1b) and attaching it to a built structure (see cl.1b).**

298. As also discussed above, in my opinion **Inzeo discloses attaching a roof covering (see cl.1b) to a fascia of a roof (see cl.1b).**

299. In my opinion, **POSITA would have found it obvious, straightforward, and advantageous to implement Crook's disclosure of securing the leading edge of the sheet using Kelly's advantageous teachings of wrapping an edge of material around a batten to fasten waterproof membranes on roof structures. See cl.1b. Reasonable expectation of success in wrapping the edge of the roof cover around the batten to secure it over the roof is further supported by the fact that it was well known to do so. See cl.1b.**

300. In addition, in my opinion, **POSITA would have found it obvious, straightforward, and advantageous to implement the combination of Crook**

and Kelly using Inzeo's advantageous teaching of using the fascia as the attachment point. *See* cl.1b. Reasonable expectation of success in attaching the roof cover at the fascia or under the eaves is further supported by the fact that it was well known to do so. *See* cl.1b.

301. In my opinion, Crook in view of Lowe's Video also renders obvious wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the built structure. *See* cl.1b. (Grounds 9-10).

302. In my opinion, Lowe's Video discloses wrapping portions of an edge of a tarp around a batten (*see* cl.1b) and attaching the wrapped batten to an underside of a first eave or to a fascia of the built structure (*see* cl.1b).

303. In my opinion, POSITA would have found it obvious, straightforward, and advantageous to implement Crook's attachment using the teachings of the 2x4 (batten) wrapping and attachment techniques (to each of fascia and the underside of eaves) from Lowe's Video for the reasons described in connection with Kelly and Inzeo above (but substituting Lowe's Video's teachings for Kelly's and Inzeo's). *See* cl.1b. For POSITA it would have been an obvious, routine implementation choice and clear it would work, predictably yielding the expected functionality with a reasonable expectation of success. *See* cl.1b.

* * *

304. Thus, in my opinion, Crook in view of Kelly and Inzeo renders obvious this limitation. Crook in view of Lowe's Video also renders obvious this limitation.

4. Element 3.c

305. Claim 3.c recites “wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the fascia of the built structure at a location different than the first batten; and.” **In my opinion Crook in view of Kelly and Inzeo renders obvious this limitation (Grounds 7-8). Crook in view of Lowe's Video also renders obvious this limitation (Grounds 9-10).**

306. In my opinion, **Crook discloses attaching portions of the trailing edge (see cl.1c) to the built structure adjacent to the roof edge (see cl.1c) at a location different than the first batten (see cl.1c).**

307. Additionally, as discussed above, in my opinion **Crook in view of Kelly and Inzeo renders obvious wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the fascia of the built structure at a location different than the first batten. See cl.1c. (Grounds 7-8).**

308. In my opinion, **Kelly discloses wrapping a roof covering's edge around a batten (see cl.1c) and attaching it to the built structure (see cl.1c).**

309. As also discussed above, in my opinion, **Inzeo discloses attaching a roof covering (see cl.1c) to a fascia of a roof (see cl.1c).**

310. As discussed, it would have been obvious, straightforward, and advantageous to POSITA to implement Crook using the teachings of Kelly and Inzeo to secure the trailing edge of the sheet to the *second* end of the roof (as disclosed in Crook) for the same reasons discussed above regarding securing the leading edge of the *first* end of the roof (see cl.1b and cl.3b).

311. **In my opinion, Crook in view of Lowe's also renders obvious wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the fascia of the built structure at a location different than the first batten. See cl.1c. (Grounds 9-10).**

312. In my opinion, **Lowe's Video discloses wrapping portions of the edge of a tarp around a batten (see cl.1c) and attaching the wrapped batten to an underside of an eave or to a fascia of the built structure (see cl.1c).**

313. As discussed above, it would have been obvious, straightforward, and advantageous to POSITA to implement Crook using Lowe's Video's teachings of batten-wrapping and attachment techniques to secure the trailing edge of the sheet to the *second* end of the roof (as disclosed in Crook), for the same reasons discussed above regarding securing the leading edge to the *first* end of the roof (see cl.1b and cl.3b).

* * *

314. Thus, in my opinion, Crook in view of Kelly and Inzeo renders obvious this limitation. Crook in view of Lowe's Video also renders obvious this limitation.

5. Element 3.d

315. Claim 3.d recites "heating the film to cause the film to conform to the portion of the roof." **In my opinion, Crook discloses this limitation (Grounds 7-10).**

316. In my opinion, **Crook discloses heating the film** (*see* cl.1d) **to conform to the portion of the roof** (*see* cl.1d).

* * *

317. Thus, in my opinion, Crook discloses this limitation.

318. Accordingly, in my opinion, claim 3 is rendered obvious by (a) Crook in view of Kelly and Inzeo, (b) Crook in view of Kelly, Inzeo, and Vanderzee, (c) Crook in view of Lowe's Video, or (d) Crook in view of Lowe's Video and Vanderzee.

VIII. SECONDARY CONSIDERATIONS

319. At this time, including after review of the documents and materials cited herein, those identified in the list of exhibits above, those identified in Appendix C, and those identified by Patent Owner, there is no evidence of secondary considerations, and it is my opinion that each of the Challenged Claims of the '484

patent is obvious over the prior art. I have been advised that Patent Owner has not provided any evidence of secondary considerations of non-obvious with a nexus to (and thus relevant to) the '484 patent. I understand that if the Patent Owner presents additional, relevant evidence of objective factors that it argues supports a finding of non-obviousness, I may be asked to review such evidence and to formulate an opinion and reserve the right to address any such evidence and/or arguments that Patent Owner may raise in this regard.

IX. CONCLUSION

320. In summary, for the reasons described above and in Appendix C, I have concluded that each of the Challenged Claims is invalid as obvious under 35 U.S.C. § 103 in light of the prior art references discussed above and the knowledge of a POSITA.

321. Specifically it is my opinion that **Ground 1**: Claim 1 is rendered obvious by Crook in view of Kelly, Inzeo, and Best; **Ground 2**: Claim 1 is rendered obvious by Crook in view of Kelly, Inzeo, Best, and Vanderzee; **Ground 3**: Claim 1 is rendered obvious by Crook in view of Kelly, Inzeo, and Americover; **Ground 4**: Claim 1 is rendered obvious by Crook in view of Kelly, Inzeo, Americover, and Vanderzee; **Ground 5**: Claim 1 is rendered obvious by Crook in view of Lowe's Video and Americover; **Ground 6**: Claim 1 is rendered obvious by Crook in view of Lowe's Video, Americover, and Vanderzee; **Ground 7**: Claims 2-3 are rendered

obvious by Crook in view of Kelly and Inzeo; **Ground 8**: Claims 2-3 are rendered obvious by Crook in view of Kelly, Inzeo, and Vanderzee; **Ground 9**: Claims 2-3 are rendered obvious by Crook in view of Lowe's Video; **Ground 10**: Claims 2-3 are rendered obvious by Crook in view of Lowe's Video and Vanderzee.

322. To the extent it is argued that any further disclosure is required for any of the limitations in the Challenged Claims that I have identified herein as being disclosed, either explicitly or inherently, by the references listed in Appendix C, POSITA would certainly have found that limitation obvious to include based on the same explicit disclosure or inherent disclosures and analysis I have identified in my declaration.

323. I reserve the right to supplement by opinions in the future and to respond to any arguments that Patent Owner or its expert(s) may raise and to take into account any new information as it becomes available to me.

324. I have been warned that willful false statements and the like are punishable by fine or imprisonment, or both. I make this declaration of my own personal knowledge, and all statements made of my own knowledge are true. All statements made on information and belief are believed to be true. If called to testify as to the truth of the matters stated herein, I could and would testify competently.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on October 28, 2023 at Fort Lauderdale, Florida.

/Douglas Stieve/
Douglas R. Stieve

APPENDIX A

DOUGLAS R. STIEVE, RA, AIA, RRC
SENIOR PRINCIPAL, WISS, JANNEY, ELSTNER ASSOCIATES, INC.

Experience

Mr. Douglas Stieve is a building envelope consultant with a specialization in roof and waterproofing consulting as well as masonry construction. Since joining WJE in 1991, he has provided professional services for over eight hundred buildings and other structures. Mr. Stieve has experience with many types of materials including low- and steep-slope roofing as well as plaza deck, vegetative roof, and subgrade waterproofing systems. He also has experience with masonry, glazed curtain walls, natural stone, and Exterior Insulation and Finish Systems (EIFS).

Mr. Stieve has managed the design and construction period services for several multimillion-dollar repair and rehabilitation projects as well as provided consulting services to architects, contractors, and owners for new buildings. His work includes some of the largest and most complicated waterproofing projects in the New York metropolitan area.

Projects that Mr. Stieve has been involved with have won awards at the national, state, and local levels from organizations including the American Institute of Architects, *Engineering News Record*, and the National Trust for Historic Preservation. He has also authored several articles and technical papers and has lectured throughout the United States on the subjects of roofing, waterproofing, and masonry construction.

Education

Mr. Stieve holds a Bachelor of Architecture from the University of Oklahoma.

Qualifications

Mr. Stieve is a registered architect in the states of Connecticut, Delaware, Florida, Massachusetts, North Carolina, New Jersey, New York, and Pennsylvania. Mr. Stieve is also a Green Roof Professional, Registered Roof Consultant, and holds a National Council of Architectural Registration Boards certificate.

Civic and Professional Associations

Mr. Stieve is a member of the American Institute of Architects

Mr. Stieve is a member of ASTM International.

Mr. Stieve is a member of the Deep Foundations Institute.

Mr. Stieve is a member of Green Roofs for Healthy Cities.

Mr. Stieve is a member of the New York City Department of Buildings - Construction Requirements and Materials Committee

Mr. Stieve is a member of IIBEC

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Presentations

Moisture Issues Within New and Existing Concrete Decks

Addressing the Apparent Watertight Integrity of Building Facades

Ask the Structure - Common Causes of Construction Defects

Below-grade and Plaza Waterproofing

Below Grade Waterproofing System Types and Usage

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Roofing Adhesives

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Subgrade Waterproofing Failures - Tips and Techniques for Successful Repairs

Top Ten Problems Observed in New Masonry Construction

Water Infiltration Through Building Facades

Waterproofing Challenges in Hydrostatic Conditions

Water-Resistive Barriers - Tying It All Together

Water-Resistive Barrier Detailing - The Devil is in the Details

Professional Services During Trial, Litigation, or Deposition Requiring Testimony

SUNY New Paltz – Wooster Hall

New Paltz, NY

Deposition, 2023

Constructability Issues Related to Atrium Glazing

168 Willie Paulk Parkway

Dublin, GA

Deposition, 2023

Failure of roofing metal edge

Carlton Condominiums

Boca Raton, FL

Deposition, 2022

Failures at roof deck

50 United Nations Plaza

New York, NY

Deposition, 2022

Shower pan waterproofing failure

Sinai Residences

Boca Raton, FL

Deposition, 2022

Waterproofing failure at vegetative and amenity roofs

Fire Crash Rescue Station

Patrick Airforce Base – Brevard County, FL

Deposition, 2022

Concrete tile roof failure

GCP v. ACM

N/A

Deposition, 2021

Waterproofing product patent infringement

The Metropolitan Downtown Columbia Parcel C

Columbia, MD

Mediation, 2020

Exterior wall panel failure

Miami-Dade South District Wastewater Treatment Plant

Cutler Bay, FL

Deposition, 2019

Chemical tank liner failure

No. 7 Line Extension Site J

New York, NY

Deposition, 2017

Water infiltration at new subway station

Walker Art Center

Minneapolis, MN

Arbitration, 2017

Water infiltration and condensation failure at roof

The Carlyle Garage

New York, NY

Deposition, 2014

Trial, 2016

Business interruption due to masonry repairs

Rohrick Cadillac

Pittsburgh, PA

Arbitration, 2016

Water infiltration at exterior walls and roof

Sachem East High School

Farmingville, NY

Mediation, 2010

Water infiltration at masonry and roofs

South Ferry Structural Box

New York, NY

Dispute Resolution Board Hearing (arbitration), 2008

Water infiltration at new subway running tunnels and station

444, 448, 450 West 56th Street

New York, NY

Deposition, 2007

Roof leaks relative to storm

201 East 25th Street

New York, NY

Arbitration, 2004

Failure of masonry repairs

APPENDIX B

Exhibit	Description
EX1001	U.S. Patent No. 11,168,484
EX1002	U.S. Patent No. 11,168,484 File History
EX1004	U.S. Patent Application Pub. No. 2005/0217202 (“Crook”)
EX1005	U.S. Patent No. 8,407,958 (“Kelly”)
EX1006	U.S. Patent No. 6,851,229 (“Inzeo”)
EX1007	U.S. Patent No. 7,951,873 (“Best”)
EX1008	U.S. Patent No. 6,206,991 (“Starr”)
EX1009	U.S. Patent No. 6,425,213 (“Lachapelle”)
EX1010	U.S. Patent No. 7,517,941 (“Myhre”)
EX1011	U.S. Application No. 17/519,787 File History
EX1012	U.S. Application No. 17/977,136 File History
EX1015	U.S. Patent Publication No. US 2005/0279040 (“Panasik”)
EX1016	Video Screen Recording of https://www.youtube.com/watch?v=2PKUMDmVRMY (“Lowe’s Video” or “Lowe’s”)
EX1017	<i>This Old House</i> Magazine, March 2005 Issue (“This-Old-House”)
EX1018	Blue Roof Tarps Webpage (“Blue-Roof-Tarps”)
EX1019	Plastic Sheeting: A guide to the specification and use of plastic sheeting in humanitarian relief (IFRC & Oxfam, 2007) (“Plastic-Sheeting”)
EX1020	Emergency Management Australia, Storm and Water Damage Operations, Third Edition (2007) (“EMA”)
EX1021	Americover Heat Shrink Wrap Webpage (“Americover”)
EX1030	Declaration of Yash P. Khanna, Ph.D
EX1031	U.S. Patent Application Pub. No. 2002/009589 (“Bettencourt”)
EX1035	U.S. Patent No. 4,715,915 (“Vanderzee”)
EX1037	Transcript of EX1016 “Tarp Your Roof,” https://www.youtube.com/watch?v=2PKUMDmVRMY (“Lowe’s Transcript”)
EX1040	Americover Heat Shrink Wrap FAQ Webpage (“Americover-FAQ”)
EX1044	Fine Homebuilding Discussion Forum, https://www.finehomebuilding.com/forum/temporary-12-month-roof-covering

APPENDIX C

Ground 1: Crook in view of Kelly, Inzeo, and Best renders obvious Claim 1.

Ground 2: Crook in view of Kelly, Inzeo, Best, and Vanderzee renders obvious Claim 1.

Ground 3: Crook in view of Kelly, Inzeo, and Americover renders obvious Claim 1.

Ground 4: Crook in view of Kelly, Inzeo, Americover, and Vanderzee renders obvious Claim 1.

Ground 5: Crook in view of Lowe’s Video and Americover renders obvious Claim 1.

Ground 6: Crook in view of Lowe’s Video, Americover, and Vanderzee renders obvious Claim 1.

Claim 1	Prior Art
[1.pre] A method of providing covers over at least a portion of a roof of a storm damaged built structure comprising the steps of:	To the extent the preamble is limiting, Crook discloses it. (Grounds 1-2) Alternatively, Crook renders the preamble obvious. (Grounds 1-2) Crook in view of Americover also renders the preamble obvious. (Grounds 3-6) Crook discloses a method of providing covers¹ over at least a portion of a roof (<i>e.g.</i>, “method of applying...a roof cover” comprising, <i>e.g.</i>, “a plurality of membrane strips,” including “positioning a first end of at least a portion of a roof cover so that the first end extends adjacent (and preferably over) a first edge of a

¹ The plain and ordinary meaning of “providing covers over at least a portion of a roof” includes providing a strip or strips, or a sheet or sheets of material over part of a roof. To the extent Stormseal argues this term is limited to any of those meanings individually, each is disclosed or at minimum rendered obvious by the prior art references cited in Grounds 1 to 6.

Claim 1	Prior Art
	roof and so that the first end is held in place adjacent the first edge” and “positioning the second end of the roof cover so that the second end of the roof cover extends adjacent (and preferably over) a second edge of the roof”) of a storm damaged built structure (e.g., “roofs of building structures” in need of “repair,” including those “severely damaged when exposed to high-wind conditions, such as those associated with hurricanes and tornados... [and other] storm conditions.”). See e.g., EX1004, Abstract (“The present invention is directed to an improved <i>cover for securing the roof</i> a residential home or other building structure from the weather conditions that are associated with severe storms such as hurricanes.... In a particular embodiment, <i>the membrane is configured to cover substantially the entire roof surface.</i>”), ¶1 (“<i>Building structures are often severely damaged when exposed to high-wind conditions, such as those associated with hurricanes and tornados. For example, high winds often strip shingles from the roofs of residential homes to expose a roof understructure that is vulnerable to rain damage.</i> Accordingly, there is a <i>need for improved apparatuses and methods for protecting the roofs of building structures from storm conditions.</i>”), ¶2 (“A protective roof cover according to one embodiment of the invention comprises <i>a membrane that is adapted to cover at least a portion of the roof of a building structure</i>”), ¶73 (“<i>[r]oof covers</i> according to other embodiments of the invention may be used for other purposes, such as for <i>securing roofs during roof repair</i>”), ¶¶6-8 (“method of protecting a roof from high winds...comprises the steps of...<i>covering substantially the entire upper surface of the roof with the roof cover.</i>”), ¶60 (“roof cover is described as comprising one to three membranes”), ¶65 (“method of applying such a <i>roof cover [‘roof cover compris[ing] shrink wrap material’]...positioning a first end of at least a portion of a roof cover so that the first end extends adjacent (and preferably over) a first edge of a roof</i> and so that the first end is held in place adjacent the first edge...<i>positioning the second end of the roof cover so that the second end of the roof cover extends adjacent (and preferably over) a second edge of the roof</i>”), ¶67 (“Furthermore, although various embodiments of the invention in which individual

Claim 1	Prior Art
	membranes comprise a plurality of membrane strips are described above as having overlapping membrane strips (e.g., the side edges of two or more of the membrane strips that form a particular membrane overlap), in an alternative embodiment of the invention, the side edges of the strips do not overlap substantially. In one such embodiment of the invention, <i>the strips are laid side by side and are attached together by lengths of tape.</i>) (emphases added). POSITA would have understood Crook’s discussions of, e.g., “severe[] damage [from] high-wind conditions, such as those associated with hurricanes and tornados [including] high winds often strip[ping] shingles from the roofs of residential homes” and the associated “need for improved apparatuses and methods for protecting the roofs of building structures from storm conditions,” and of using its roof covers “for securing roofs during roof repair,” to be an express disclosure of using its roof covers to secure roofs being repaired due to damage by storms. EX1004, ¶¶1, 22, 25-26, 72-73. Alternatively, to the extent it is argued further disclosure of a storm damaged built structure is required, Crook at minimum renders obvious a storm damaged built structure (Grounds 1-2). POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook’s teachings to provide covers over at least a portion of a roof of a storm damaged built structure, including because Crook expressly teaches that its roof covers may beneficially be used “for securing roofs during roof repair” and “to protect the roof 15 from weather conditions (such as high winds) produced by a storm.” EX1004, ¶¶22, 73. Doing so would advantageously secure the roof of a storm damaged structure from further damage by weather conditions, as taught by Crook. E.g., EX1004, Abstract, ¶¶1, 22, 73. For POSITA, particularly in light of these teachings, this would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with reasonable expectation of success.

Claim 1	Prior Art
	Crook in view of Americover also renders obvious this limitation, including in particular a storm damaged built structure. (Grounds 3-6). Americover discloses protecting storm damaged built structures (e.g., providing “[p]rotection from the elements” to “[h]urricane and storm damaged structures”). <i>See, e.g.,</i> EX1021 at 1 (“protective covering”), 1 (“Exterior and interior covering”: “Buildings, scaffolding, bridges, and ships”), 1 (“Protection from the elements”: “Jobsite materials”; “Restoration projects”; “Hurricane and storm damaged structures”). POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook’s teachings of providing covers over at least a portion of a roof on a built structure using Americover’s advantageous teachings of protecting storm damaged roofs. POSITA would have recognized that doing so would advantageously protect the damaged roof and underlying structure from further damage. For POSITA, this would have been an obvious, routine implementation choice and (particularly given their express disclosures) clear this would work, predictably yielding the expected functionality with a reasonable expectation of success. To the extent Stormseal argues that “covers” in the preamble is limiting and requires a strip, multiple strips, or a sheet: (1) Crook discloses providing each of (i) a strip, (ii) multiple strips, and (iii) a sheet over at least a portion of a roof (Grounds 1, 3, 5) (<i>see</i> cl.1a(i)); and (2) Crook in view of Vanderzee renders obvious providing each of (i) multiple strips and (ii) a sheet over at least a portion of a roof (Grounds 2, 4, 6) (<i>see</i> cl.1a(i)). To the extent Stormseal argues that “covers” in the preamble requires multiple “sheets,” this is also rendered obvious by Crook. POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook’s teachings (Grounds 1, 3, 5) or Crook in view of Vanderzee’s combination (Grounds 2, 4, 6) using Crook’s teachings of using multiple pieces of sheeting, particularly where

Claim 1	Prior Art
	the size of the damaged portion of the roof was larger than one sheet. POSITA, for the same reasons discussed above would have found using multiple sheets to be an obvious, routine implementation choice, and clear this would work, predicatably yielding the expected functionality with a reasonable expectation of success.
[1.a(i)] applying a sheet² of heat shrinkable film over the portion of the roof, the	Crook discloses or renders obvious³ this limitation. (Grounds 1, 3, and 5) Crook in view of Vanderzee also renders this limitation obvious. (Grounds 2, 4, and 6) In Crook’s Off-The-Roof Method,⁴ Crook discloses applying (e.g., “positioning” a first end of the roof cover adjacent or over a

² The plain and ordinary meaning of “applying a sheet” is that the action (applying) is performed on the fully assembled “sheet,” and not just individual, unassembled lengths/strips.

³ From reading Crook POSITA would have at once envisaged a method for covering roofs with sheets that employs each of the Crook teachings cited herein, including making the roof cover out of a sheet/membrane formed from a plurality strips by laying the strips side-by-side and attaching them with tape (e.g., EX1004, ¶67). To the extent it is argued POSITA instead would somehow have considered these separate, unjoined teachings, POSITA would at minimum have found it obvious to combine them as described herein with a reasonable expectation of success, including because Crook explicitly teaches that each of them is an available design choice for its disclosed roof covering method. For example, when Crook teaches positioning the shrink-wrap roof cover over the roof (e.g., EX1004, ¶¶7-8, 65) (see cl.1a(i)), for POSITA it would at minimum have been obvious to use Crook’s **roof-cover resulting from its disclosed assembly method** with side-by-side taped strips (e.g., EX1004, ¶67).

⁴ For this method (referred to herein as the “Off-The-Roof Method”), Crook teaches laying a “plurality of membrane strips” side by side and “attach[ing] [them] together by lengths of tape,” to form a “membrane.” EX1004, ¶67. Crook teaches using a single “membrane” (which is made up of the plurality of taped

Claim 1	Prior Art
sheet having a leading edge and a trailing edge	first edge of the roof, holding the first end in place adjacent to the first edge of the roof, “pulling the roof cover” so that it is placed in tension, and then “positioning” the second end of the roof cover adjacent or over a second edge of the roof) a sheet of heat shrinkable film (e.g., “roof cover compris[ing] shrink wrap material that is configured to shrink in response to being exposed to heat,” where the cover includes “strips” that have already been “attached together by lengths of tape”⁵ (including “water-resistant tape”)) over the portion of the roof (see cl.1.pre), the sheet having a leading edge (e.g., “a first end of at least a portion of a roof cover”) and a trailing edge (e.g., a “second end of the roof cover”). <i>See, e.g., EX1004, Abstract (“The membrane, which may comprise stretch wrap or <i>shrink wrap</i>”), ¶2 (“<i>the membrane is adapted to extend from a first edge of the roof to a second edge of the roof.</i> In one embodiment, the <i>first edge is a front edge of the roof</i> and <i>the second edge is a rear edge of the roof.</i> In another embodiment, the <i>first edge is a first side edge of the roof</i> and the <i>second edge is a second side edge of the roof.</i> In a particular embodiment of the</i>

together membrane strips) as a “roof cover.” E.g., EX1004, ¶60. Using the “Off-The-Roof Method,” Crook teaches covering the roof by “positioning” the ends of this assembled “roof cover,” *i.e.*:

“(A) positioning the first end of the roof cover so that the first end of the roof cover extends over a first edge of the roof and so that the first end of the roof cover is held in place adjacent that first edge; (B) pulling the roof cover so that the intermediate portion of the roof cover is placed into tension; and (C) while the roof cover is in tension, positioning the second end of the roof cover so that the second end of the roof cover extends over a second edge of the roof and so that the second end of the roof cover is held in place adjacent the second edge.”

EX1004, ¶¶7-8; *accord*, EX1004, ¶65.

⁵ Crook teaches a “sheet”: a single-membrane “roof cover” that is an assembly of two or more membrane strips. E.g., EX1004, ¶¶4, 60, 65, 67.

Claim 1	Prior Art
	invention, the second edge is substantially parallel to, and offset from, the first edge. In various embodiments of the invention, the roof cover may comprise, for example, <i>shrink wrap material</i> or stretch wrap material”), ¶7 (“In a particular embodiment of the invention, <i>the roof cover comprises a first end, a second end</i>, and an intermediate portion disposed between the first and second ends of the roof cover, and <i>the step of covering substantially the entire upper surface of the roof with the roof cover comprises: (A) positioning the first end of the roof cover so that the first end of the roof cover extends over a first edge of the roof and so that the first end of the roof cover is held in place adjacent that first edge; (B) pulling</i> the roof cover so that the intermediate portion of the roof cover is placed into tension; and (C) while the roof cover is in tension, <i>positioning the second end of the roof cover so that the second end of the roof cover extends over a second edge of the roof</i> and so that the second end of the roof cover is held in place adjacent the second edge. In this embodiment of the invention, <i>the roof cover may comprise, for example, shrink wrap</i> or stretch wrap.”), ¶8 (“(A) <i>positioning</i> the roof cover so that it extends between a first edge of the roof and a second edge of the roof; and (B) <i>applying heat to the roof cover until the roof cover shrinks</i> and thereby attaches adjacent the roof”), ¶34 (“The roof cover may be made of <i>any suitable material</i>. For example, in various embodiments of the invention, the roof cover 100, 200, 250, 300 is made of one or more of the following types of material: <i>shrink wrap material</i>, stretch rap material, tarpaulin material, plastic sheeting, nylon, Gortex™, rubber sheeting, or any other suitable material.”), ¶35 (“in one embodiment...the roof cover 100, 200, 250, 300 is comprised of at least one sheet of material that is <i>substantially impermeable to water and/or substantially impermeable to wind</i>”), ¶60 (“roof cover is described as comprising <i>one</i> to three membranes”), ¶65 (“the roof cover comprises <i>shrink wrap material that is configured to shrink in response to being exposed to heat</i>. A method of applying such a roof cover according to one embodiment of the invention comprises: (A) <i>positioning a first end of at least a portion of a roof cover</i> so that the first end extends adjacent (and preferably over) a first edge of roof and so that the first end is held in place adjacent the first edge; (B) <i>positioning the second end of the roof cover</i> so that the

Claim 1	Prior Art
	second end of the roof cover extends adjacent (and preferably over) a second edge of the roof and so that the second end of the roof cover is held in place adjacent the second edge; and (C) <i>using a heat source to apply heat to the roof cover until the roof cover shrinks and thereby is secured adjacent the roof.</i>”), ¶67 (“Furthermore, although various embodiments of the invention in which individual membranes comprise a plurality of membrane strips are described above as having overlapping membrane strips (e.g., the side edges of two or more of the membrane strips that form a particular membrane overlap), in an alternative embodiment of the invention, the side edges of the strips do not overlap substantially. In one such embodiment of the invention, <i>the strips are laid side by side and are attached together by lengths of tape.</i>”), ¶70 (“A preferred kit in accordance with one embodiment of the present invention is illustrated in FIG. 5 and includes at least one roof <i>membrane</i> supply roll 520, at least one roll of <i>water-resistant tape</i> 580, a roller 540 (e.g., an extendable roller), and optionally a knife or cutting blade 590.”) (emphases added). Crook teaches laying a “plurality of membrane strips” side by side (such that the strips “do not overlap substantially”) and “attach[ing] [them] together by lengths of tape,” to form a “membrane.” EX1004, ¶67. Crook thus teaches using a single “membrane” (which is made up of the plurality of taped together membrane strips) as a “roof cover.” E.g., EX1004, ¶60. Crook teaches the ordered steps of “positioning” the first end of the roof cover (which is made up of a plurality of membrane strips) adjacent or over a first edge of the roof, then holding the first end in place adjacent to the first edge of the roof, then “pulling the roof cover” so that it is placed in tension, and then finally “positioning” the second end of the roof cover adjacent or over a second edge of the roof. E.g., EX1004, ¶¶7-8, 65. POSITA would have understood Crook’s teachings of “positioning” the ends of the roof cover, which is made up of a plurality of membrane strips (which do not substantially overlap) taped together along their sides, including with “water-resistant tape”—yielding, e.g., a “sheet...substantially impermeable to water and/or...wind”—to mean that the roof cover is first assembled (by joining together the plurality of membrane strips) off

Claim 1	Prior Art
	the roof surface and then subsequently raised and applied to the roof. EX1004, ¶¶7-8, 35, 65, 67, 70. Crook⁶ in view of Vanderzee also renders obvious this limitation based on the same Crook disclosures above in addition to the Vanderzee disclosures below, including in particular performing the assembly of a sheet from strips off the roof surface (before placement on the roof). (Grounds 2, 4, and 6). Vanderzee discloses performing the assembly of parallel strips of plastic (e.g., performing the assembly of “two sheets together along common edges”) for a roof (e.g., “[r]oofing applications”) off the roof surface (e.g., sheet is assembled before being “transport[ed]” for use). See, e.g., EX1035, Abstract (“A seam is described wherein <i>two sheets of material</i> are bonded together to <i>form one unified sheet...</i> This is preferably used to form a <i>longitudinal seam in a roll of sheet material.</i>”), 1:5-12 (“Due to the capital expense of the forming apparatus, the original width of plastic sheeting is relatively limited. Calender rolls or extrusion heads suitable to form for example 100 foot wide sheets of plastic materials are prohibitively expensive.”); 1:13-19 (“Calender rolls are typically 5 feet in width or less, although, a very few 10 foot wide calender rolls are now being used. This generally limits the width of formed sheet material, particularly formed rubber sheet material, to 5 feet. Many applications require substantially wider material. <i>Roofing applications typically require 50 to 100 foot wide rolls.</i>”), 2:31-39 (joining “<i>two sheets together along common edges</i>”), 3:29-32 (“a unitary enlarged sheet 10 is formed by <i>bonding a first sheet</i> 11 and a <i>second sheet</i> 12 <i>along longitudinal edges</i> 14 and 15 respectively to form a longitudinal seam”), 2:61-64 (“<i>[F]ormed sheets</i> are rolled up with the seam perpendicular to the axis of the roll thus making this sheet construction practical for storage and <i>transportation.</i>”), 2:64-65 (“formed sheet is used in for example a <i>roof</i>”) (emphases added).

⁶ See n.3.

Claim 1	Prior Art
	POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook’s teachings of assembling the roof cover by taping non-overlapping strips together, using Vanderzee’s advantageous teachings of performing the assembly off the roof surface. EX1035, 2:31-64. POSITA would have understood that using Vanderzee’s teachings of joining plastic sheeting (resulting from taping as described in Crook) off the roof would be more convenient than taping lengths of narrow sheeting together while on the angled roof, and that the wider sheeting prepared off the roof (including off site) would be of better quality, <i>e.g.</i>, have better sealed seams. Moreover, POSITA would have been motivated to perform the assembling operations off the roof because it would be impractical to form a water-resistant membrane made up of strips taped together (and thus, <i>e.g.</i>, taped continuously along the entirety of their adjoining edges) while on a roof and because performing these operations off the roof significantly increases freedom of movement and positioning (<i>e.g.</i>, a person applying the tape (directly or by machine) would be able more easily to manipulate the strips, spread and align their corresponding edges, and apply tape without, <i>inter alia</i>, standing on one or both of the strips), decreases time and the number of operations taking place on the roof, and thus increases safety and ease of installation.⁷ For example, POSITA would have understood that taping side-by-side non-overlapping strips together such that the seam was sealed against water and to withstand the wind, would not practically be accomplished on the roof and instead would be performed, <i>e.g.</i>, on the ground or indoors. Further, POSITA would have understood that a water-resistant seam created

⁷ POSITA would have understood that using tape to join strips of heat shrinkable film, as Crook teaches, did not impact the film’s ability to shrink and conform to the roof surface after heating, and that heat shrink tape was known. *E.g.*, EX1004, ¶¶66-67; *see also, e.g.*, EX1040 (Americover website FAQ page referring to “Heat Shrink Tape” to be used with heat shrinkable film). Indeed, the ’484 patent itself refers (without any further explanation or disclosure) to taping together lengths of heat shrinkable film before heating the assembled sheet to shrink and conform to the roof. EX1001, 7:26-33.

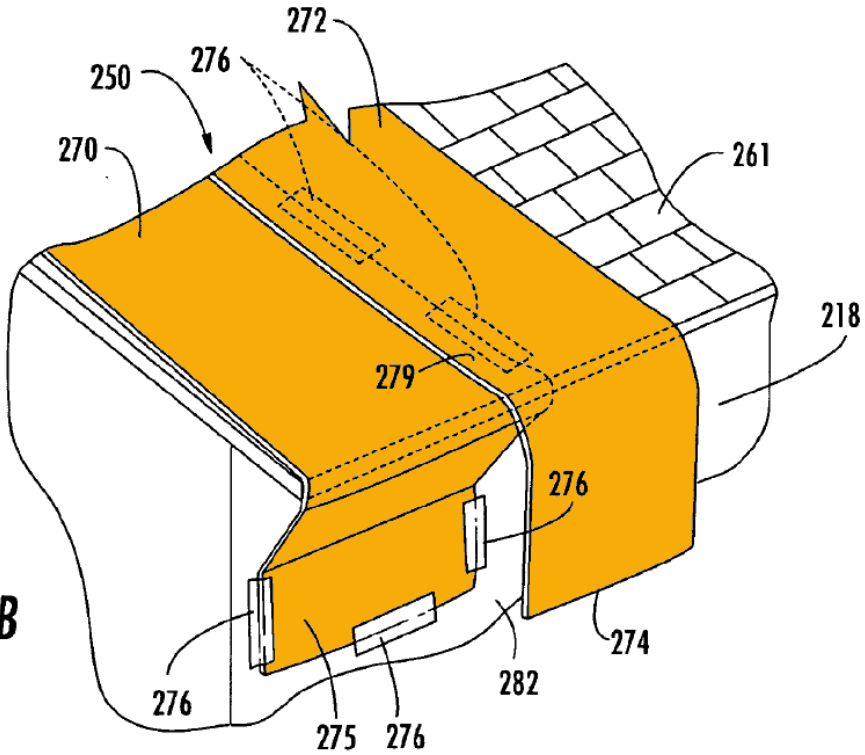
Claim 1	Prior Art
	by strips of tape (as Crook describes (EX1004, ¶67)) would better be accomplished on a flat and stable surface (<i>e.g.</i>, rather than on an angled roof surface in need of “repair” (<i>e.g.</i>, EX1004, ¶73) and may have holes and concavities from storm damage, for example), and without the interference of as much wind. POSITA would have been particularly motivated to decrease time and operations performed on the roof in inclement weather. Further, POSITA would have been motivated to perform those operations off the roof if, <i>e.g.</i>, the roof had severe damage or the severity of the roof damage could not be ascertained. For example, if the damage to the roof was wider than the width of the membrane strip, POSITA would have been motivated and found it obvious, straightforward, and advantageous to perform the assembly of strips off the roof (as taught in Vanderzee) so that the width of the resulting roof cover is at least as wide as the damaged area. POSITA would have been motivated to apply this wider resulting roof cover to the roof, avoiding working and performing any taping operations to assemble the cover on severely damaged or unstable portions of the roof. A POSITA would have been particularly motivated to use a pre-assembled roof cover for jobs involving large roofs, to reduce the time and operations performed on the roof. In addition, performing those sheet-assembly operations off the roof facilitates performance of the same steps and leads to the same end result with added ease of installation benefits for those performing the method and therefore would have been obvious to try. Further, POSITA would have understood that forming a water-resistant membrane by taping strips together off the roof would be beneficially facilitated using machinery to join the strips together, without requiring (as assembly on the roof would) that such machinery be moved to and operated on the rooftop or imposing limits on the parameters (<i>e.g.</i>, size, shape and weight) of such machinery that was practically and safely used for this purpose. For POSITA, particularly in light of these teachings (including the explicit disclosures in both references of longitudinally joining parallel strips into a wider sheet), assembling the sheet off the roof and then lifting the sheet to the roof surface for positioning would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected

Claim 1	Prior Art
	functionality (as the references themselves reflect) with a reasonable expectation of success. <u>Grounds 1, 3, and 5:</u> Additionally, to the extent the plain and ordinary meaning of the claim limitation is interpreted more broadly such that “applying a sheet of heat shrinkable film over the portion of the roof, the sheet having a leading edge and a trailing edge” includes joining strips of film (having leading and trailing edges) together to form a sheet on the roof (as opposed to assembling a sheet (having a leading and trailing edge) prior to applying the sheet over the roof), Crook discloses such a method (Grounds 1, 3, and 5). <i>See also e.g.</i>, EX1002, 263-264, 214, 177, 128-130 (“Crook teaches a method of covering a roof structure (See Abstract), the method comprising: selecting a roll (37,520) of shrink wrap material; cutting a required number of strips (33,35,233,235,270,272) from the roll, wherein the strips are of sufficient length to extend from one end of roof structure to an opposite end thereof; positioning the strips over the roof structure by attaching a leading edge of a strip to a first edge of the roof structure and attaching a trailing edge of the strip to a second edge of the roof structure which is opposite the first edge; applying multiple strips to the roof structure with overlapping portions between adjacent strips; applying adhesive tape to the overlapping portions such that the strips are assembled into a sheet (100,200,250,300); and using a heat gun to apply heat to the sheet such that shrinking occurs and a tight fit between the sheet and the roof structure is achieved (See Figures; [0022]-[0066]).”); <i>see also</i>, <i>e.g.</i>, EX1011, 285, 288 (“Crook teaches a method of covering a roof structure, the method comprising: cutting strips (33,35) from a roll (37) of heat shrinkable film, each strip having leading and trailing edges, applying the strips over a roof such that leading and trailing edges of strips are attached to respective front and rear edges (17,19) of the roof, joining the strips along their edges to form a sheet, and heating the sheet such that it shrinks and conforms to the roof (See Figures; [0022]-[0073]).”), 290. Indeed, in Crook’s On-The-Roof

Claim 1	Prior Art
	Method,⁸ Crook discloses cutting a required number of strips from a roll, wherein the strips are of sufficient length to extend from one end of roof structure to an opposite end thereof; positioning the strips over the roof structure by attaching a leading edge of a strip to a first edge of the roof structure and attaching a trailing edge of the strip to a second edge of the roof structure which is opposite the first edge; applying multiple strips to the roof structure with overlapping portions between adjacent strips; and applying adhesive tape to the overlapping portions such that the strips are assembled into a sheet on the roof (e.g., Figs. 1, 2A-B, and 3; On-The-Roof Method described in ¶¶46-52, 66). <i>See, e.g., EX1004, ¶26 (“As may be understood from FIG. 1, in one embodiment of the invention, the protective roof cover 100, 200, 250, 300 comprises at least one membrane that, when installed adjacent the roof 15, covers at least a portion of the roof 15. In the embodiment of the invention shown in FIG. 1 (which shows the membrane partially installed on the roof 15 of a building structure 10), the membrane is comprised of a plurality of membrane strips 33, 35, that may, for example, be positioned so that they are parallel to each other.”), ¶29 (“FIG. 2A shows how a roof cover 200 according to one embodiment of the invention is attached adjacent the front edge 216 of a roof 211. In this embodiment of the invention, the roof cover 200 comprises a plurality of membrane strips 233, 235. In this embodiment, the membrane strips 233, 235 have inherent physical properties that allow them to cling to other materials without fasteners. In one embodiment of the invention, the membrane strips 233, 235 are comprised of stretch wrap material. As may be understood from FIG. 2A, the membrane strips 233, 235 may be attached adjacent the roof 211 by stretching the membrane strips 233,235 over an edge (e.g., the front edge 216) of the roof</i>

⁸ For this method (referred to herein as the “On-The-Roof Method”), Crook teaches assembling the “sheet” on the roof. EX1004, ¶¶46-52 (On-The-Roof Method installation steps), 66, Fig.1.

Claim 1	Prior Art
	<i>211 and then pressing the membrane strips 233, 235 against the bottom surface of the roof's front edge 216 and against a vertical wall 218 adjacent the roof 211.”</i>), ¶30 (“FIG. 2B also shows how a roof cover 250 according to one embodiment of the invention is attached adjacent the front edge 216 of a roof 261. In this embodiment of the invention, the roof cover 250 comprises a plurality of membrane strips 270, 272...As may be understood from FIG. 2B, the membrane strips 270, 272 may be attached adjacent the roof 261 by stretching the membrane strips 270, 272 over an edge (e.g., the front edge 216) of the roof 261 and then pressing the membrane strips 270, 272 against a vertical wall 218 adjacent the roof 261. The ends of the membrane strips 270, 272 may then be secured in place adjacent the vertical wall 282 with fasteners or strips of tape (such as water resistant tape) 276.”), ¶37 (“As may be understood from FIG. 3, in a particular embodiment of the invention in which the roof cover 300 comprises a plurality of elongate membrane strips 362, 364, 372, 374, one or more membrane strips (e.g., membrane strips 362, 364) are positioned so that they extend between, and are substantially perpendicular to, a first and a second side edge of the roof 311. In another embodiment of the invention, one or more membrane strips (e.g., membrane strips 372, 374) are positioned so that they extend between, and are substantially perpendicular to, a front and a rear edge of the roof 311. In this embodiment of the invention, the membrane strips 372, 374 preferably extend from the front edge of the roof, over the roof's ridge 314, and to the rear edge of the roof 311.”), ¶¶46-52 (discussion of installation method for one embodiment), ¶60 (“roof cover is described as comprising one to three membranes”), ¶66 (“In regard to various embodiments of the invention in which individual membranes comprise a plurality of membrane strips (e.g., substantially parallel membrane strips), it should be understood that the strips may be secured in place relative to each other by taping the membrane strips to each other.”) (emphases added), Figs. 1, 2A-B, 3 (each annotated with coloring):

Claim 1	Prior Art
	FIG. 2B 

Claim 1	Prior Art
	As discussed immediately below, I understand that Best discloses heat shrinkable films of low density polyethylene (LDPE) including shrinking resins (e.g., “heat-shrinkable films” prepared using non-linear low density polyethylene resins (with or without any linear low density polyethylene (LLDPE) resins)). <i>E.g.</i>, EX1030 (Khanna Declaration), ¶¶45-53. Crook teaches the use of a heat shrinkable wrap, but does not explicitly disclose details regarding the composition of that wrap. POSITA would have been motivated to identify a specific heat shrinkable wrap to use based on Crook’s teachings about the use of shrink wrap material (e.g., EX1004, ¶65).⁹ I understand that Best teaches shrink wrap of low density polyethylene including shrinking resins to be beneficial as a heat shrinkable wrap, including to protect houses. <i>E.g.</i>, EX1007, 2:10-19, 15:8-19; 21:4-15; EX1030 (Khanna Declaration), ¶¶32, 37, 45-53. POSITA would have found it obvious, straightforward, and advantageous to implement Crook’s heat shrinkable wrap using Best’s advantageous teachings of utilizing heat shrinkable wrap of low density polyethylene including shrinking resins, as explained by Dr. Khanna. <i>See</i> EX1030 (Khanna Declaration), ¶¶45-48. I understand that Best discloses films of LDPE including shrinking resins, such as films of non-linear LDPE (alone or in a blend with LLDPE resins). EX1030 (Khanna Declaration), ¶¶45-53. Each of these two examples of Best’s films would have been an obvious choice for POSITA to use with Crook in appropriate circumstances, as explained by Dr. Khanna. For example, I understand that POSITA would have understood that films made of only non-linear LDPE generally are more readily available, are more easily manufactured, and result in a cheaper film (by weight) than films of only LLDPE. EX1030 (Khanna Declaration), ¶46. I further understand that POSITA would have understood that heat shrinkable films of only non-linear LDPE resins were advantageously used to

⁹ POSITA, such as myself, with experience protecting (including waterproofing) roofs would have consulted POSITA with expertise in materials science related to heat shrinkable films.

Claim 1	Prior Art
	cover structures, including large outdoor structures. <i>E.g.</i>, EX1030 (Khanna Declaration), ¶46. I understand that, depending on the POSITA's budget and other design priorities, POSITA with a lower budget less concerned about the film's long-term durability would have been motivated to use a heat shrinkable film made of only non-linear LDPE resins for cost reasons. EX1030 (Khanna Declaration), ¶46. Therefore, based on Dr. Khanna's opinions about the advantages of using only non-linear LDPE, POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook using Best's teachings of films using only non-linear LDPE. On the other hand, I understand that certain POSITA with a higher budget seeking a more durable film would have been motivated to prepare their film by blending an amount of LLDPE. EX1030 (Khanna Declaration), ¶47. I understand that blending in some LLDPE has other advantages too that POSITA would have understood. EX1030 (Khanna Declaration), ¶47. Therefore, based on Dr. Khanna's opinions about the advantages of using films of non-linear LDPE blended with LLDPE, POSITA would also have been motivated and found it obvious, straightforward, and advantageous to implement Crook using Best's teachings of films using blends of LDPE and LLDPE. Accordingly, POSITA would thus have been motivated and found it obvious, straightforward, and advantageous to implement Crook using the teachings of each of these two implementation choices disclosed in Best (<i>i.e.</i>, it would have been obvious to implement Crook using Best's teachings of a film of non-linear LDPE resins made without LLDPE resins, and it would have been obvious to implement Crook using Best's teachings of a film of non-linear LDPE resins blended with LLDPE resins) depending on the circumstances. For POSITA, it would have been routine and obvious to make each of these as an implementation choice, and clear either would work and provide the expected functionality to yield predictable results with a reasonable expectation of success. EX1030 (Khanna Declaration), ¶48.

Claim 1	Prior Art
	Crook in view of Americover also renders obvious a sheet of low density polyethylene including shrinking resins. (Grounds 3-6). I understand that Americover discloses heat shrinkable films of low density polyethylene including shrinking resins (e.g., “Heat Shrink Films” “made using Low Density Polyethylene containing fractional melt virgin resins and other additives” and “shrinks in all directions” when heated; “biaxial shrinking process”; “will shrink 20-25%”). E.g., EX1030 (Khanna Declaration), ¶¶54-58. Americover discloses a “tight fitting film forms a skin-like protective covering” by shrinking, “allowing the film to mold itself to just about any structure.” EX1021, 1. Crook in view of Americover renders obvious a sheet of low density polyethylene including shrinking resins. As discussed above, Crook teaches the use of a heat shrinkable wrap, but does not explicitly disclose details regarding the composition of that wrap. POSITA would have been motivated to identify a specific heat shrinkable wrap to use to implement Crook’s teachings about the use of heat shrinkable material (e.g., EX1004, ¶65).¹⁰ And I understand that Americover teaches shrink wrap of low density polyethylene including shrinking resins to be beneficial as a heat shrinkable wrap, including to protect houses after hurricanes. E.g., EX1021, 1; EX1030 (Khanna Declaration), ¶¶32, 36, 56. POSITA would have found it obvious, straightforward, and advantageous to implement Crook’s heat shrinkable wrap using Americover’s advantageous teachings of utilizing low density polyethylene processed into a heat shrinkable film. EX1030 (Khanna Declaration), ¶¶54-58. POSITA would have understood that using Americover’s teachings to implement Crook was beneficial because Americover teaches a known, predictable method to cover a roof with a heat shrinkable film. For POSITA, it would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with a reasonable expectation of success, particularly because, as I understand, it was

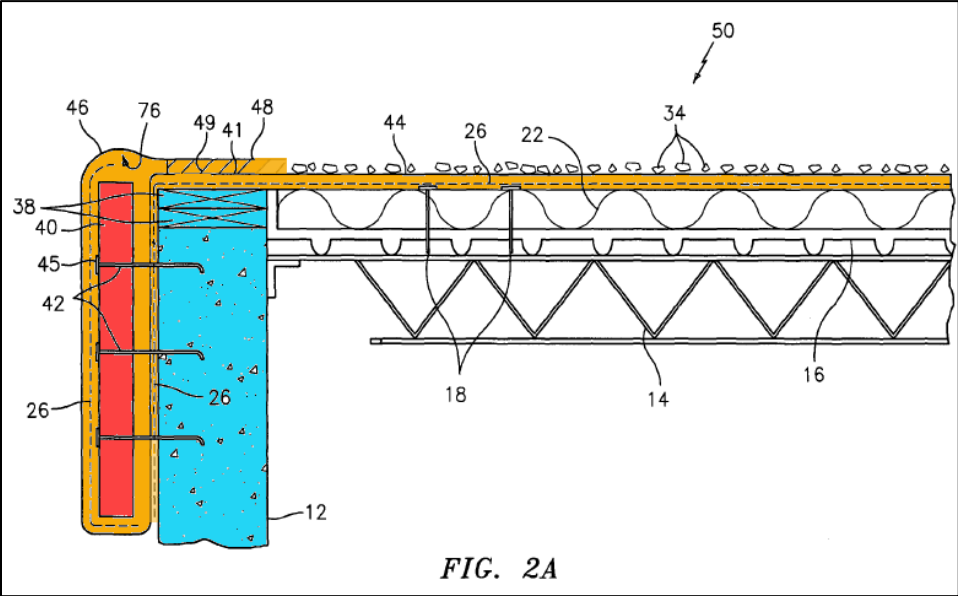
¹⁰ See n.9.

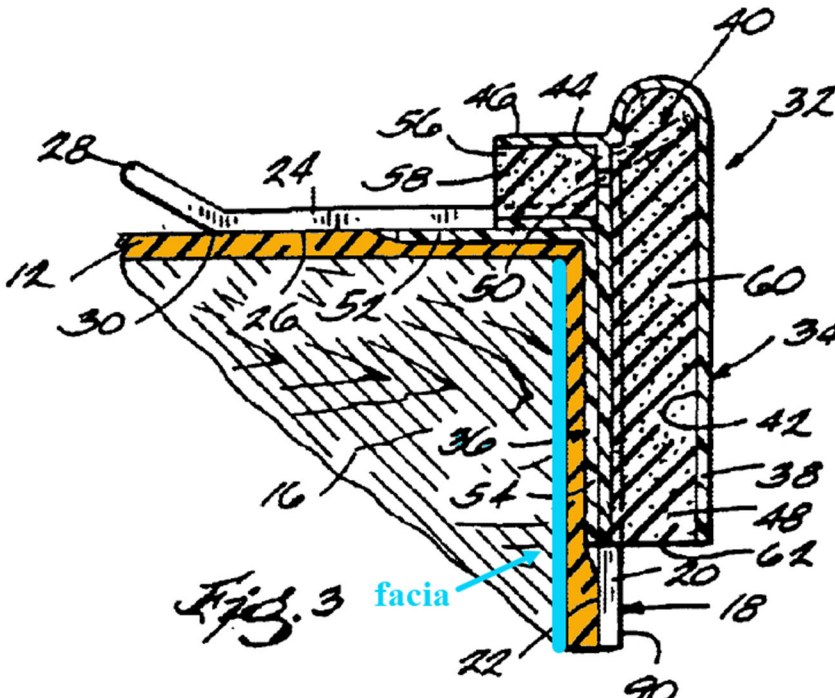
Claim 1	Prior Art
	well known to use low density polyethylene for heat shrinkable films. EX1030 (Khanna Declaration), ¶¶32-33, 35.
[1.b] wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the built structure;	Crook in view of Kelly and Inzeo renders this limitation obvious. (Grounds 1-4) Crook in view of Lowe’s Video also renders this limitation obvious. (Grounds 5-6) Crook discloses attaching portions of the leading edge (<i>see</i> cl.1a(i)) to the built structure adjacent to the roof edge (<i>e.g.</i>, “positioning a first end of at least a portion of a roof cover so that the first end extends adjacent (and preferably over) a first edge of a roof and so that the first end is held in place adjacent the first edge”).¹¹ <i>See, e.g.</i>, EX1004, ¶¶7-8 (“In a particular embodiment of the invention, the roof cover comprises a first end, a second end, and an intermediate portion disposed between the first and second ends of the roof cover, and the step of covering substantially the entire upper surface of the roof with the roof cover comprises: (A) positioning the first end of the roof cover so that the first end of the roof cover extends over a first edge of the roof and <i>so that the first end of the roof cover is held in place adjacent that first edge</i>; (B) pulling the roof cover so that the intermediate portion of the roof cover is placed into tension; and (C) while the roof cover is in tension, positioning the second end of the roof cover so that the second end of the roof cover extends over a second edge of the roof and <i>so that the second end of the roof cover is held in place adjacent the second edge</i>. In this embodiment of the invention, the roof cover may comprise, for example, shrink wrap or stretch wrap.”), ¶29 (“As may be understood from FIG. 2A, <i>the membrane strips 233, 235 may be</i>

¹¹ Although Crook discloses both assembling a sheet off the roof (Off-The-Roof Method) and on the roof (On-The-Roof Method), there is no distinction between the methods with respect to how the sheet is attached to the roof. POSITA would have understood the disclosures in Crook of attaching the sheet or sheeting to the roof in Crook as applying regardless of where the sheet is assembled.

Claim 1	Prior Art
	<i>attached adjacent the roof 211 by stretching the membrane strips 233,235 over an edge (e.g., the front edge 216) of the roof 211 and then pressing the membrane strips 233, 235 against the bottom surface of the roof's front edge 216 and against a vertical wall 218 adjacent the roof 211. The ends of the membrane strips 233, 235 may then be secured in place adjacent the vertical wall 218 with fasteners</i> or, as discussed in greater detail below, with a girdle member, such as the girdle member 330 shown in FIG. 3.”), ¶37 (“As noted above, the <i>various membrane strips may also extend over the front, rear, and/or side edges of the roof 311 to facilitate attaching the strips adjacent the roof 311</i> (e.g., via a girdle member 330).”), ¶44 (“attaching the end of the membrane... adjacent a portion of the roof...”); ¶49 (“secur[ing] the cut end of the first membrane strip 33 to the wall by using a fastener such as tape, nails, clips, clamps, <i>or any other appropriate fastening device</i>”), ¶50 (“The first installer 5 may secure the cut leading end of the second membrane strip 35 to the wall by using a fastener such as tape, nails, clips, clamps, or <i>any other appropriate fastening device.</i>”); ¶60 (“roof cover is described as comprising <i>one</i> to three membranes”), ¶65 (“method of applying such a <i>roof cover [‘roof cover compris[ing] shrink wrap material’]...positioning a first end of at least a portion of a roof cover so that the first end extends adjacent (and preferably over) a first edge of a roof</i> and so that the first end is held in place <i>adjacent the first edge...positioning the second end of the roof cover so that the second end of the roof cover extends adjacent (and preferably over) a second edge of the roof and so that the second end of the roof cover is held in place adjacent the second edge</i>”), ¶66 (“the strips may be secured in place relative to each other by <i>taping the membrane strips to each other.</i>”), ¶67 (“the side edges of the strips do not overlap substantially. In one such embodiment of the invention, <i>the strips are laid side by side and are attached together by lengths of tape.</i>”) (emphases added). Crook in view of Kelly and Inzeo renders obvious wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the built structure. (Grounds 1-4).

Claim 1	Prior Art
	Kelly discloses wrapping a roof covering's edge around a batten (e.g., “extend[ing] [a waterproof membrane] beyond the wall 12 far enough to have a wrap portion 46 of the membrane 44 back wrap around a stiff member 40 [i.e., a batten] and allow an interior edge 48 to lay back upon a membrane portion 41 of the membrane 44,” “encapsulating the stiff member 40 within the waterproof membrane 44”; Figs. 2A-2B (annotated below with roof covering's edge in orange and batten in red)) and attaching it to a built structure (e.g., “fasteners 42 in this embodiment attach the encapsulated stiff member 40, which lies flush with a surface of the wall 12, to the building structure of the wall 12”; Figs. 2A-2B). <i>See, e.g., EX1005, 2:62-3:26 (“extend[ing] [the membrane] beyond the wall 12 far enough to have a wrap portion 46 of the membrane 44 back wrap around a stiff member 40 [i.e., a batten] and allow an interior edge 48 to lay back upon a membrane portion 41 of the membrane 44... encapsulating the stiff member 40 within the waterproof membrane 44... fasteners 42 in this embodiment attach the encapsulated stiff member 40, which lies flush with a surface of the wall 12, to the building structure of the wall 12”), Fig. 12, 3:31-41 (“By sandwiching the membrane portion 46 between the stiff member 40 and the wall 12 the membrane portion 46 is retained uniformly along the length of the wall 12. This uniformity prevents the formation of any local stress risers, which could exceed the strength of the membrane material, resulting in tearing when the membrane portion 46 is pulled as occurs when wind blows up the side and over the roof creating a lower pressure on the upper surface of the membrane 44. Additionally, by being sealed in a waterproof envelope created by the encapsulating membrane portion 46 the stiff member 40 will remain dry; preventing it from rotting.”), 3:52-62 (“Additionally the stiff member 40 has properties of stiffness such that it holds its shape even while being pulled nonuniformly by attachments to roof and building structures and membranes for example. By holding its shape the stiff member 40 distributes any loads applied to it over the entire body of the stiff member 40 thereby minimizing localized stress levels.”), 7:42-49 (“A piece of membrane 162 is wrapped around the stiff member 40 and welded or glued 49 to itself thereby encapsulating the stiff</i>

Claim 1	Prior Art
	<i>member 40 in an air and water tight enclosure.</i> The stiff member 40 is attached to the membrane 162 by adhesive 26 to prevent relative movement between the two components. This universal perimeter edge 162 can be applied to other embodiments of the invention such as that depicted in FIG. 2B for example.”) (emphases added), Figs. 2A-2B (annotated with color):  Inzeo discloses attaching a roof covering (e.g., a membrane) to a fascia of a roof (e.g., “the extending portion of the membrane 12 can be secured against the vertical face of the nailer 16” (fascia) using a “fascia assembly”). See, e.g., EX1006, 2:38-43 (“the extending portion of the membrane 12 can be secured against the vertical face of the nailer 16”), 2:52-54 (“The rigid plate 20 also clamps that portion of the membrane 12 <i>securely against the vertical face or surface of the nailer 16.</i>”), 4:7-20 (“When the anchor bars 18 are in place, as illustrated in FIG. 1, the lower surfaces 26 of the rearwardly extending flanges 24 clamp the edge of the rubber membrane 12 downwardly against the upper surface of the wooden nailer 16, <i>and the rearward faces 22 of the vertical plate portions 20 of the anchor bars 18 similarly clamp the downwardly extending edge of the rubber membrane 12 firmly against the vertical planar face of the wooden nailer 16.</i> The fascia

Claim 1	Prior Art
	<i>assembly</i> 10 thus provides a very rigid and secure mechanism for clamping the edge of the rubber membrane 12 against the surface of the roof 14 and secures the rubber membrane 12 in place and is resistant to even large upward forces on the membrane 12 which might be caused by high winds.”) (emphases added), Figs. 1 and 3 (annotated with roof covering in orange and fascia in blue):  POSITA would have found it obvious, straightforward, and advantageous to implement Crook’s disclosure of securing the leading edge of the sheet using Kelly’s advantageous teachings of wrapping an edge of material around a batten to fasten waterproof membranes on roof structures. EX1005, 3:4-26, 3:31-47, 3:52-58, 7:42-49, Figs.2A-2B, 12. Wrapping the film around a batten, as taught in Kelly, to implement Crook’s teachings to use an “appropriate fastening device” (rather than attaching the film directly to the structure using the examples of tape, nails, clips, or clamps identified in Crook (EX1004 ¶49)), would have uniformly distributed the load on the film associated with the attachment over a larger area, thereby reducing stress and the risk of tearing of the film

Claim 1	Prior Art
	caused by tension on the heat shrinkable film, which would pull tight across the roof, as well as tension caused by wind and other forces. The batten wrapping technique would also help create a better seal between the edge of the film and the surface to which the batten is attached. EX1005, 3:31-47, 3:52-58. For POSITA it would have been an obvious, routine implementation choice and clear it would work, predictably yielding the expected functionality with a reasonable expectation of success. Reasonable expectation of success in wrapping the edge of the roof cover around the batten to secure it over the roof is further supported by the fact that it was well known to do so. <i>See, e.g.</i>, EX1005, 3:4-25, Fig.2A; EX1020, 50; EX1015, ¶8, ¶¶21-0022, ¶24, Figs. 7 & 9; EX1019, 26; EX1018, 1; EX1016; EX1017, 22. In addition, POSITA would have found it obvious, straightforward, and advantageous to implement the combination of Crook and Kelly using Inzeo’s advantageous teaching of using the fascia as the attachment point. Crook describes attaching the roof membrane adjacent to the portion of the roof including, <i>e.g.</i>, on the vertical wall (<i>e.g.</i>, EX1004 (Crook), ¶65). POSITA would have recognized that attaching the membrane on the fascia, as taught in Inzeo, to implement Crook’s teachings to attach adjacent to the portion of the roof (rather than on another surface such as the vertical house wall), would advantageously have required less membrane material while still protecting the entire roof surface, as well as the edge of the roof between the roof and fascia. Additionally, POSITA would have understood that the fascia material is frequently an easier surface to secure something to by nailing, as compared to the vertical surface of a house which may be made of, <i>e.g.</i>, brick, and would create more visible unsightly holes after removal of the material. Additionally, attachment to the fascia or to the underside of the eaves would have been an obvious choice for POSITA where, for example, there was damage to the roof and walls, making attachment to those locations more difficult. For POSITA, it would have been an obvious, routine implementation choice and clear it would work, predictably yielding the expected functionality with a reasonable expectation of success.

Claim 1	Prior Art
	<i>See also, e.g.,</i> EX1006, 2:38-43, Fig.3; EX1020, Fig.4:4; EX1018, 1; EX1016; EX1037), 4:12-14 (“nail under the e[a]ve”); <i>see also</i> EX1011 (’787 Application prosecution history), 286-287 (“It would have been obvious to one of ordinary skill in the art at the time of invention that the ‘suitable fasteners’ disclosed by Crook would include battens functioning in the claimed manner because Kelly teaches that battens were recognized in the prior art as being suitable for fastening waterproof membranes on roof structures...It would have been obvious to one of ordinary skill in the art at the time of invention that the strips of Crook could be attached to a fascia of a roof rather than the wall. Since it was known in the prior art to attach membranes to walls (as taught by Crook and Kelly) or to fascia (as taught by Inzeo), the substitution of one known attachment point for another would have been obvious. Furthermore, it would be a routine matter of design choice for one of ordinary skill to select an attachment point for a membrane. There is no advantage or new result achieved by attaching to eaves or fascia rather than a wall. As long as the point of attachment is structurally sound the result is the same and predictable. Therefore any attachment point, including a wall, eaves, fascia, soffit, rafters, nailers, or any other roof structure would have been obvious to one of ordinary skill in the art.”), 16-17 (same); EX1012 (prosecution history of ’136 Application), 11-12 (same). Crook in view of Lowe’s Video also renders obvious wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the built structure. (Grounds 5-6) Lowe’s Video discloses wrapping portions of an edge of a tarp around a batten (e.g., “rolling” the “end of the tarp around another 2x4”) and attaching the wrapped batten to an underside of a first eave or to a fascia of the built structure (e.g., “nail under the e[a]ve”; video showing man nailing tarp-wrapped batten to fascia of roof). <i>See, e.g.,</i> EX1037, 4:12-4:14 (“roll[ing]” the “end of the tarp around another two-by-four and nail[ing] under the e[a]ve”):

Claim 1	Prior Art
	 Tarp Your Roof  ajdanciu 96 subscribers Subscribe  Like   Share  Save  51,496 views Sep 28, 2006 Secure open roofs with the use of tarps. EX1016-5 (Lowe’s Video) at 0:28 (showing attachment of wrapped batten to the fascia). POSITA would have found it obvious, straightforward, and advantageous to implement Crook’s attachment using the teachings of the 2x4 (batten) wrapping and attachment techniques (to each of fascia and the underside of eaves) from Lowe’s Video for the reasons described in connection with Kelly and Inzeo above (but substituting Lowe’s Video’s teachings for Kelly’s and Inzeo’s). Wrapping the cover around a batten, as taught in Lowe’s Video, to implement Crook’s teachings to use an “appropriate fastening device” (rather than attaching the film directly to the structure using the examples of tape, nails, clips, or clamps identified in Crook (e.g., EX1004 (Crook), ¶49)), would have uniformly distributed the load on the film associated with the attachment over a larger area, thereby reducing stress and the risk of tearing of the film caused by tension on the heat shrinkable film, which would pull tight across the roof, as well as tension caused by wind and other forces. The batten wrapping would also help create a better seal between the edge of the cover and the surface to which the batten is attached. For POSITA it would have been an obvious, routine implementation choice and clear it would work, predictably

Claim 1	Prior Art
	yielding the expected functionality with a reasonable expectation of success. This is particularly so given that the technique of wrapping material around a batten and attaching it to the structure was a known method to attach tarpaulins for roof repair after storm damage. Further, POSITA would have recognized that attaching the batten to the fascia or under the eaves, as taught in Lowe’s Video, to implement Crook’s teachings to attach adjacent to the portion of the roof (rather than on another surface such as the vertical house wall), would advantageously have required less covering material while still protecting the entire roof surface, as well as the edge of the roof between the roof and fascia. Additionally, POSITA would have understood that the fascia material is frequently an easier surface to secure something to by nailing, as compared to the vertical surface of a house which may be made of, <i>e.g.</i>, brick, and would create more visible unsightly holes after removal of the material. Additionally, attachment to the fascia or to the underside of the eaves would have been an obvious choice for POSITA where, for example, there was damage to the roof and walls, making attachment to those locations more difficult. For POSITA, it would have been an obvious, routine implementation choice and clear it would work, predictably yielding (as confirmed by these references) the expected functionality with a reasonable expectation of success.
[1.c] wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the fascia of	Crook in view of Kelly and Inzeo renders this limitation obvious. (Grounds 1-4) Crook in view of Lowe’s Video also renders this limitation obvious. (Grounds 5-6) Crook discloses attaching portions of the trailing edge (<i>see</i> cl.1a(i), <i>e.g.</i>, “second end of the roof cover”) to the built structure adjacent to the roof edge (<i>see</i> cl.1b; “positioning the second end of the roof cover so that the second end of the roof cover extends adjacent (and preferably over) a second edge of the roof and so that the second end of the roof cover is held in place adjacent the second edge”) at a location different than the first batten (<i>e.g.</i>, “second edge of the roof”).

Claim 1	Prior Art
the built structure at a location different than the first batten; and	Crook in view of Kelly and Inzeo renders obvious wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the facia of the built structure at a location different than the first batten. (Grounds 1-4) Kelly discloses wrapping a roof covering's edge around a batten (see cl.1b) and attaching it to the built structure (see cl.1b). Inzeo discloses attaching a roof covering (see cl.1b) to a facia of a roof (see cl.1b). It would have been obvious, straightforward, and advantageous to POSITA to implement Crook using the teachings of Kelly and Inzeo to secure the trailing edge of the sheet to the <i>second</i> end of the roof (as disclosed in Crook) for the same reasons discussed above regarding securing the leading edge of the <i>first</i> end of the roof (see cl.1b). Crook in view of Lowe's Video also renders obvious wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the facia of the built structure at a location different than the first batten. (Grounds 5-6) Lowe's Video discloses wrapping portions of the edge of a tarp around a batten (see cl.1b) and attaching the wrapped batten to an underside of an eave or to a facia of the built structure (see cl.1b). It would have been obvious, straightforward, and advantageous to POSITA to implement Crook using Lowe's Video's teachings of batten-wrapping and attachment techniques to secure the trailing edge of the sheet to the <i>second</i> end of the roof (as disclosed in Crook), for the same reasons discussed above regarding securing the leading edge to the <i>first</i> end of the roof (see cl.1b).

Claim 1	Prior Art
[1.d] heating the sheet of heat shrinkable film to bring the film into conformity with the portion of the roof, wherein said heating step shrinks the sheet of film tight against the built structure to cover over the portion of the roof.	Crook discloses this limitation. (Grounds 1-6) Crook discloses heating (<i>e.g.</i>, “applying heat to the roof cover”) the sheet¹² of heat shrinkable film (<i>see</i> cl.1a(i)) to bring the film into conformity with the portion of the roof (<i>e.g.</i>, “roof cover shrinks and thereby attaches adjacent the roof”), wherein said heating step shrinks the sheet of film tight against the built structure to cover over the portion of the roof (<i>e.g.</i>, a “apply heat to the roof cover until the roof cover shrinks and thereby is secured adjacent the roof”). <i>See, e.g.</i>, EX1004, ¶8 (“<i>applying heat to the roof cover until the roof cover shrinks and thereby attaches adjacent the roof.</i> A heat gun or any other appropriate heat source may be used to apply heat to the roof cover”), ¶65 (“As noted above, in one embodiment of the invention, the roof cover comprises <i>shrink wrap material that is configured to shrink in response to being exposed to heat...</i> using a heat source to apply heat to the roof cover until the roof cover shrinks and thereby is secured adjacent the roof”). <i>See also, e.g.</i>, EX1002 (prosecution history of ’484 patent), 263 (Crook teaches “using a heat gun to apply heat to the sheet such that shrinking occurs and a tight fit between the sheet and the roof structure is achieved”), 214 (“Regarding the newly added limitations requiring heat application for shrinking the sheet and bringing it into tight conformity with a surface area of a built structure, the heating of the sheet of Crook causes the sheet to shrink and thereby conform tightly against the roof structure (See Figures; [0008]) which meets the claim.”), 177 (same), 128-129 (same); EX1011 (prosecution history of ’787 Application), 285 (same), 288 (same); EX1012 (prosecution history of ’136 Application), 9 (same).

¹² As discussed in cl.1a, “the sheet” is rendered obvious by Crook in view of Americover, Crook in view of Americover and Vanderzee, Crook in view of Best, and Crook in view of Vanderzee and Best.

Claim 1	Prior Art
	POSITA would have understood Crook’s disclosures regarding its heat shrinkable film that the “roof cover shrinks and thereby attaches adjacent the roof” and that “roof cover shrinks and thereby is secured adjacent the roof” (EX1004, ¶¶8, 65), to mean that the film is brought into conformity with the covered portion of the roof and that the heating step shrinks the sheet of film tight against the roof. POSITA would, <i>e.g.</i>, have understood that heat shrinkable film used to cover a roof provided a tight-fitting film forming a “skin-like protective covering” and would have “mold[ed]” itself to the structure. EX1021, 1.

Ground 7: Crook in view of Kelly and Inzeo renders obvious Claims 2 and 3.

Ground 8: Crook in view of Kelly, Inzeo, and Vanderzee renders obvious Claims 2 and 3.

Ground 9: Crook in view of Lowe’s Video renders obvious Claims 2 and 3.

Ground 10: Crook in view of Lowe’s Video and Vanderzee renders obvious Claims 2 and 3.

Claim 2	Prior Art
[2.pre] A method of covering at least a portion of a roof of a [built] structure comprising the steps of:	To the extent the preamble is limiting, Crook discloses it. (Grounds 7-10) Crook discloses a method of covering at least a portion of a roof of a built structure (<i>e.g.</i>, “method of applying... a roof cover” comprising, <i>e.g.</i>, “a plurality of membrane strips,” including “positioning a first end of at least a portion of a roof cover so that the first end extends adjacent (and preferably over) a first edge of a roof and so that the first end is held in place adjacent the first edge” and “positioning the second end of the roof cover so that the second end of the roof cover

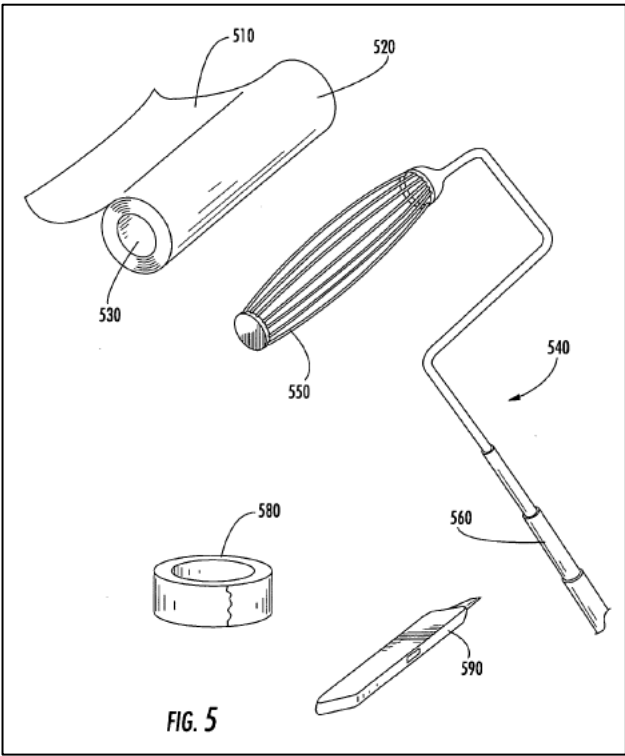
Claim 2	Prior Art
	extends adjacent (and preferably over) a second edge of the roof”; <i>see</i> cl.1.pre¹³). <i>See e.g., EX1004, Abstract (“The present invention is directed to an improved cover for securing the roof a residential home or other building structure from the weather conditions that are associated with severe storms such as hurricanes.... In a particular embodiment, the membrane is configured to cover substantially the entire roof surface.”), ¶1 (“Building structures are often severely damaged when exposed to high-wind conditions, such as those associated with hurricanes and tornados. For example, high winds often strip shingles from the roofs of residential homes to expose a roof understructure that is vulnerable to rain damage. Accordingly, there is a need for improved apparatuses and methods for protecting the roofs of building structures from storm conditions.”), ¶2 (“A protective roof cover according to one embodiment of the invention comprises a membrane that is adapted to cover at least a portion of the roof of a building structure”), ¶¶6-8 (“method of protecting a roof from high winds...comprises the steps of...covering substantially the entire upper surface of the roof with the roof cover.”), ¶60 (“roof cover is described as comprising one to three membranes”), ¶65 (discussion of exemplary installation method: “method of applying such a roof cover [‘roof cover compris[ing] shrink wrap material’]...positioning a first end of at least a portion of a roof cover so that the first end extends adjacent (and preferably over) a first edge of a roof and so that the first end is held in place adjacent the first edge...positioning the second end of the roof cover so that the second end of the roof cover extends adjacent (and preferably over) a second edge of the roof”), ¶67 (“Furthermore, although various embodiments of the invention in which individual membranes comprise a plurality of</i>

¹³ Citations to Claim 1 (e.g., cl.1.pre) incorporate the citations for the corresponding reference for that claim element (e.g., EX1004 (Crook) citations in cl.1.pre chart).

Claim 2	Prior Art
	membrane strips are described above as having overlapping membrane strips (e.g., the side edges of two or more of the membrane strips that form a particular membrane overlap), in an alternative embodiment of the invention, the side edges of the strips do not overlap substantially. In one such embodiment of the invention, <i>the strips are laid side by side and are attached together by lengths of tape.</i>”), ¶73 (“[r]oof covers according to other embodiments of the invention may be used for other purposes, such as for <i>securing roofs during roof repair</i>”) (emphases added).
[2.a] cutting a sheet¹⁴ of film from a roll of heat shrinkable film;	Crook renders this limitation obvious. (Grounds 7 and 9) Crook in view of Vanderzee also renders this limitation obvious. (Grounds 8 and 10) Crook discloses a sheet of heat shrinkable film (see Crook’s Off-The-Roof Method in cl.1a(i))¹⁵ and a consumer roof wrap kit including a knife and a roof membrane supply roll (e.g., an “improved protective roof wrap kit” including “at least one roof membrane supply roll 520, at least one roll of water-resistant tape 580, a roller 540 (e.g., an extendable roller), and optionally a knife or cutting blade 590.”; Fig. 5). <i>See also, e.g., EX1004 ¶70</i> (“Advantageously, the above-described preferred embodiments of the present invention may be sold to retail consumers as part of an improved protective roof wrap kit. A preferred kit in accordance with one embodiment of the present invention is illustrated in FIG. 5 and includes at least one roof membrane supply roll 520, at least one roll of water-resistant tape 580, a roller 540 (e.g., an extendable roller), and optionally a knife or cutting blade 590.”), Fig. 5:

¹⁴ The plain and ordinary meaning of “cutting a sheet” is that the action (cutting) is performed on the fully assembled “sheet,” and not individual, unassembled lengths/strips.

¹⁵ See n.3.

Claim 2	Prior Art
	 Crook renders obvious cutting a sheet from a roll before applying the sheet. Crook’s Off-The-Roof Method discloses a sheet, as discussed above (<i>see</i> cl.1a(i)). Crook’s Off-The-Roof Method also discloses (or, alternatively, at minimum, renders obvious in view of Vanderzee) applying a sheet having a leading and trailing edge over the roof (<i>see</i> cl.1a(i)). Crook additionally teaches a kit for a user to store at their home until needed, the kit including “at least one roof membrane supply roll 520, at least one roll of water-resistant tape 580, a roller 540 (e.g., an extendable roller), and optionally a knife or cutting blade 590.” EX1004, ¶¶70-72, Fig. 5.¹⁶ POSITA would have understood that, for those entities assembling such kits for distribution to consumers (as disclosed in Crook (EX1004, ¶70)), plastic sheeting purchased from an original

¹⁶ POSITA would have understood that distributors would have also beneficially created kits (as disclosed in Crook) for purchase and use by roof repair professionals.

Claim 2	Prior Art
	manufacturer is more available, affordable, manufacturable, transportable, and manipulable in widths of only several feet (and not likely wide enough to cover a roof from edge to edge). EX1035, 1:6-19 (“Due to the capital expense of the forming apparatus, the original width of plastic sheeting is relatively limited. Calender rolls or extrusion heads suitable to form for example 100 foot wide sheets of plastic materials are prohibitively expensive.”). POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook’s teachings of its Off-The-Roof Method and of a roll of membrane in a kit designed for consumers by including a membrane that is sufficiently wide to reduce the number of membranes a consumer would need to install to cover their roof, because taping together membranes to form a water-resistant seam (<i>see supra</i> claim 1(a)(i); <i>e.g.</i>, EX1004, ¶¶7-8, 35,65, 67, 70), either on or off the roof, would be difficult for consumers. This would have also allowed those assembling kits to create membranes of different widths for deployment—<i>e.g.</i>, double or triple the single width—but starting with a single width supply of plastic, which would be lighter, less bulky, and more available, affordable, manufacturable, and transportable, than rolls that are, <i>e.g.</i>, double or triple that width. Thus, POSITA would have been motivated and found it obvious, straightforward, and advantageous—including based on Crook’s explicit teachings of pre-taping such strips of membrane together to form a sheet (or a wider sheet) (EX1004, ¶67)—to implement Crook’s teachings of providing a consumer kit including rolls of membrane assembled of multiple, taped-together widths of narrower plastic sheeting available from original manufacturers. Additionally, this would beneficially facilitate users of the kit cutting complete, water-resistant sheets (which comprise at least two lengths previously taped together) from the rolls. For POSITA, particularly in light of these teachings, cutting a sheet from a roll prior to lifting the sheet to the roof surface for positioning would have been an obvious, routine implementation choice and clear this would work, predictably

Claim 2	Prior Art
	yielding the expected functionality with a reasonable expectation of success. Crook¹⁷ in view of Vanderzee also renders obvious this limitation based on the same Crook disclosures above, in addition to the Vanderzee disclosures below, including in particular performing the assembly of a sheet from strips off the roof surface (before placement on the roof) and rolling it up. (Grounds 8 and 10). Vanderzee discloses performing the assembly of parallel strips of plastic (see cl.1a(i)) for a roof (see cl.1a(i)) off the roof surface (see cl.1a(i)) and rolling them up (e.g., “[f]ormed sheets are rolled up”). <i>See, e.g., EX1035, 2:31-39 (“a roll of longitudinally spliced material... formed by bonding two sheets together along common edges...”), 2:61-64 (“formed sheets are rolled up with the seam perpendicular to the axis of the roll thus making this sheet construction practical for storage and transportation.”) (emphasis added).</i> POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook’s teachings (in its Off-The-Roof Method) of assembling the roof cover by taping non-overlapping strips together, using Vanderzee’s advantageous teachings of performing the assembly off the roof surface and then rolling up the formed sheeting for movement to where it will be used. See cl.1a(i); EX1035, 2:31-64. POSITA would have understood that using Vanderzee’s teachings of joining plastic sheeting (resulting from taping as described in Crook) off the roof would be more convenient than taping lengths of narrow sheeting together while <i>on</i> the angled roof, and that the wider sheeting prepared off the roof (including off site) would be of better quality, e.g., have better sealed seams. Moreover,

¹⁷ See n.3.

Claim 2	Prior Art
	POSITA would have been motivated to perform the assembling operations off the roof because it would be impractical to form a water-resistant membrane made up of strips taped together (and thus, <i>e.g.</i>, taped continuously along the entirety of their adjoining edges) while on a roof and because performing these operations off the roof significantly increases freedom of movement and positioning (<i>e.g.</i>, a person applying the tape (directly or by machine) would be able more easily to manipulate the strips, spread and align their corresponding edges, and apply tape without, <i>inter alia</i>, standing on one or both of the strips), decreases time and the number of operations taking place on the roof, and thus increases safety and ease of installation. <i>See</i> cl.1a(i). For example, POSITA would have understood that taping side-by-side non-overlapping strips together such that the seam was sealed against water and to withstand the wind, would not practically be accomplished on the roof and instead would be performed, <i>e.g.</i>, on the ground or indoors. Further, POSITA would have understood that a water-resistant seam created by strips of tape (as Crook describes (EX1004, ¶67)) would better be accomplished on a flat and stable surface (<i>e.g.</i>, rather than on an angled roof surface in need of “repair” (<i>e.g.</i>, EX1004, ¶73) and may have holes and concavities from storm damage, for example), and without the interference of as much wind. POSITA would have been motivated to decrease time and operations, including cutting and taping operations, performed on the roof, to increase the efficiency and safety of the installation, particularly in inclement weather. Further, POSITA would have been motivated to perform those operations off the roof if, <i>e.g.</i>, the roof had severe damage or the severity of the roof damage could not be ascertained. For example, if the damage to the roof was wider than the width of the membrane strip, POSITA would have been motivated and found it obvious, straightforward, and advantageous to perform the assembly of strips off the roof (as taught in Vanderzee) so that the width of the resulting roof cover is at least as wide as the damaged area. POSITA would have been motivated to apply this wider resulting roof cover to the roof, avoiding

Claim 2	Prior Art
	working and performing any cutting or any taping operations to assemble the cover on severely damaged or unstable portions of the roof. A POSITA would have been particularly motivated to use a pre-assembled roof cover for jobs involving large roofs, to reduce the time and operations performed on the roof. In addition, performing those operations off the roof facilitates performance of the same steps and leads to the same end result with added ease of installation benefits for those performing the method and therefore would have been obvious to try. Further, POSITA would have understood that forming a water-resistant membrane by taping strips (as Crook describes (EX1004, ¶67)) together off the roof would be beneficially facilitated using machinery to join the strips together, without requiring (as assembly on the roof would) that such machinery be moved to and operated on the rooftop or imposing limits on the parameters (<i>e.g.</i>, size, shape and weight) of such machinery that was practically and safely used for this purpose. For POSITA, particularly in light of these teachings (including the explicit disclosures in both references of longitudinally joining parallel strips into a wider sheet), assembling the sheet off the roof and rolling it into a roll would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with (as the references themselves reflect) a reasonable expectation of success. <i>See</i> cl.1a(i). Having rolled (as taught by Vanderzee) the sheet and having a knife to cut strips from a roll (as taught by Crook (EX1004, ¶70)), POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook's teachings by cutting a sheet (which comprises at least two lengths previously taped together) from the roll and then lifting the sheet (now having a leading and trailing edge) to the roof surface for positioning. <i>E.g.</i>, EX1004, ¶¶7-8, 65. For POSITA, particularly in light of these teachings, cutting a sheet from a roll and then lifting the sheet to the roof surface for positioning would have been an obvious, routine implementation choice and clear this would work, predictably

Claim 2	Prior Art
	yielding the expected functionality with a reasonable expectation of success. Additionally, to the extent the plain and ordinary meaning of this limitation is interpreted more broadly such that “cutting a sheet of film from a roll of heat shrinkable film” includes cutting strips of film and then joining the strips together to form a sheet, Crook’s On-The-Roof Method discloses such a method (Grounds 7 and 9). See cl.1a(i). For example, as discussed above, Crook’s On-The-Roof Method discloses cutting a required number of strips from a roll, wherein the strips are of sufficient length to extend from one end of roof structure to an opposite end thereof; positioning the strips over the roof structure by attaching a leading edge of a strip to a first edge of the roof structure and attaching a trailing edge of the strip to a second edge of the roof structure which is opposite the first edge; applying multiple strips to the roof structure with overlapping portions between adjacent strips; applying adhesive tape to the overlapping portions such that the strips are assembled into a sheet. See cl.1a(i). Additionally, to the extent Stormseal asserts that the above-discussed analysis does not cover a “sheet,” as I have been advised to interpret it, for the same reasons discussed above, Crook discloses cutting a “sheet” of film from a roll of heat shrinkable film (using this broader interpretation of “sheet”).
[2.b] after said cutting step, applying the sheet¹⁸ of film over the portion of the roof to extend from a first edge to a second	Crook renders this limitation obvious. (Grounds 7 and 9) Alternatively, Crook in view of Vanderzee renders this limitation obvious. (Grounds 8 and 10) Crook’s Off-The-Roof Method discloses applying (see cl.1a(i)) the sheet of film (see cl.1a(i)) over the portion of the roof to extend from a first edge to a second edge of the

¹⁸ See footnote 2.

Claim 2	Prior Art
edge of the [built] structure, wherein the film includes a leading edge and a trailing edge;	[built] structure (<i>see</i> cl.1a(i)), wherein the film includes a leading edge (<i>see</i> cl.1a(i)) and a trailing edge (<i>see</i> cl.1a(i)). Crook renders obvious cutting the sheet before applying it. (Grounds 7 and 9) As discussed above, POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook’s teachings to cut the sheet before applying it. <i>See</i> cl.2a. For POSITA, cutting the sheet from a roll before lifting the sheet to the roof surface for positioning would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with a reasonable expectation of success. <i>See</i> cl.2a. Crook in view of Vanderzee also renders obvious this limitation based on the same Crook disclosures above, in addition to the Vanderzee disclosures below, including in particular rolling a sheet (cut by the knife of Crook). (Grounds 8 and 10). Vanderzee discloses performing the assembly of parallel strips of plastic (<i>see</i> cl.1a(i)) for a roof (<i>see</i> cl.1a(i)) off the roof surface (<i>see</i> cl.1a(i)) and rolling them up (<i>see</i> cl.2a). As discussed above, POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook by rolling up (as taught by Vanderzee) the sheet and cutting a sheet from the roll before applying it. <i>See</i> cl.2a. For the reasons provided above, POSITA would have been motivated to perform the cutting off the roof. <i>See</i> cl.2a. For POSITA, cutting the sheet from a roll before lifting the sheet to the roof surface for positioning would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with a reasonable expectation of success. <i>See</i> cl.2a.

Claim 2	Prior Art
	Additionally, to the extent the plain and ordinary meaning of this limitation is interpreted more broadly such that “applying the sheet of film over the portion of the roof to extend from a first edge to a second edge of the built structure” includes cutting strips of film from a roll to extend from a first edge to a second edge of the built structure and then joining the strips together to form a sheet on the roof (as opposed to assembling a sheet to extend from a first edge to a second edge of the built structure, prior to applying the sheet over the roof), Crook’s On-The-Roof Method discloses such a method (Grounds 7 and 9). For example, Crook’s On-The-Roof Method discloses cutting a required number of strips from a roll, wherein the strips are of sufficient length to extend from one end of roof structure to an opposite end thereof; positioning the strips over the roof structure by attaching a leading edge of a strip to a first edge of the roof structure and attaching a trailing edge of the strip to a second edge of the roof structure which is opposite the first edge; applying multiple strips to the roof structure with overlapping portions between adjacent strips; applying adhesive tape to the overlapping portions such that the strips are assembled into a sheet. <i>See</i> cl.1a(i). Crook’s On-The-Roof Method renders obvious applying the sheet after the cutting step. Further, POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook’s teachings to perform the cutting operations off the roof before applying strips to the roof. <i>See</i> cl.2a. Cutting off the roof increases the safety and efficiency of the installation, as discussed above. <i>See</i> cl.2a. For POSITA, cutting before lifting the strips to the roof surface would have been an obvious, routine implementation choice and clear this would work, predictably yielding (as confirmed by the cited disclosures of, <i>e.g.</i>, Crook and Vanderzee) the expected functionality with a reasonable expectation of success. <i>See</i> cl.2a; <i>see also</i> EX1011, 285.

Claim 2	Prior Art
	Further, whether the strips are cut and then applied or whether the film is first applied via a roll and then cut, the same predictable result of having a film of the desired size applied to a roof of a built structure is achieved. Moreover, to the extent Stormseal asserts that the above-discussed analysis does not cover a “sheet,” as I have been advised to interpret it, for the same reasons as discussed above, Crook renders obvious applying a “sheet” of film after cutting the “sheet” from a roll of heat shrinkable film (using this broader interpretation of sheet) (Grounds 7 and 9).
[2.c] wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the [built] structure;	Crook in view of Kelly and Inzeo renders this limitation obvious. (Grounds 7-8) Crook in view of Lowe’s Video also renders this limitation obvious. (Grounds 9-10) Crook discloses attaching portions of the leading edge (<i>see</i> cl.1b) to the built structure adjacent to the roof edge (<i>see</i> cl.1b). Crook in view of Kelly and Inzeo renders obvious wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the built structure. <i>See</i> cl.1b. (Grounds 7-8) Kelly discloses wrapping a roof covering’s edge around a batten (<i>see</i> cl.1b) and attaching it to a built structure (<i>see</i> cl.1b). Inzeo discloses attaching a roof covering (<i>see</i> cl.1b) to a fascia of a roof (<i>see</i> cl.1b). POSITA would have found it obvious, straightforward, and advantageous to implement Crook’s disclosure of securing the leading edge of the sheet using Kelly’s advantageous teachings of wrapping an edge of material around a batten to fasten waterproof membranes on roof

Claim 2	Prior Art
	structures. <i>See</i> cl.1b. Reasonable expectation of success in wrapping the edge of the roof cover around the batten to secure it over the roof is further supported by the fact that it was well known to do so. <i>See</i> cl.1b. In addition, POSITA would have found it obvious, straightforward, and advantageous to implement the combination of Crook and Kelly using Inzeo's advantageous teaching of using the fascia as the attachment point. <i>See</i> cl.1b. Reasonable expectation of success in attaching the roof cover at the fascia or under the eaves is further supported by the fact that it was well known to do so. <i>See</i> cl.1b. Crook in view of Lowe's Video also renders obvious wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the built structure. <i>See</i> cl.1b. (Grounds 9-10) Lowe's Video discloses wrapping portions of an edge of a tarp around a batten (<i>see</i> cl.1b) and attaching the wrapped batten to an underside of a first eave or to a fascia of the built structure (<i>see</i> cl.1b). POSITA would have found it obvious, straightforward, and advantageous to implement Crook's attachment using the teachings of the 2x4 (batten) wrapping and attachment techniques (to each of fascia and the underside of eaves) from Lowe's Video for the reasons described in connection with Kelly and Inzeo above (but substituting Lowe's Video's teachings for Kelly's and Inzeo's). <i>See</i> cl.1b. For POSITA it would have been an obvious, routine implementation choice and clear it would work, predictably yielding the expected functionality with a reasonable expectation of success. <i>See</i> cl.1b.

Claim 2	Prior Art
[2.d] wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the fascia of the built structure at a location different than the first batten; and	Crook in view of Kelly and Inzeo renders this limitation obvious. (Grounds 7-8) Alternatively, Crook in view of Lowe’s Video renders this limitation obvious. (Grounds 9-10) Crook discloses attaching portions of the trailing edge (<i>see</i> cl.1c) to the built structure adjacent to the roof edge (<i>see</i> cl.1c) at a location different than the first batten (<i>see</i> cl.1c). Crook in view of Kelly and Inzeo renders obvious wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the fascia of the built structure at a location different than the first batten. <i>See</i> cl.1c. (Grounds 7-8) Kelly discloses wrapping a roof covering’s edge around a batten (<i>see</i> cl.1c) and attaching it to the built structure (<i>see</i> cl.1c). Inzeo discloses attaching a roof covering (<i>see</i> cl.1c) to a fascia of a roof (<i>see</i> cl.1c). As discussed, it would have been obvious, straightforward, and advantageous to POSITA to implement Crook using the teachings of Kelly and Inzeo to secure the trailing edge of the sheet to the <i>second</i> end of the roof (as disclosed in Crook) for the same reasons discussed above regarding securing the leading edge of the <i>first</i> end of the roof (<i>see</i> cl.1b and cl.2c). Crook in view of Lowe’s Video also renders obvious wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the fascia of the built structure at a location different than the first batten. <i>See</i> cl.1c. (Grounds 9-10)

Claim 2	Prior Art
	Lowe’s Video discloses wrapping portions of the edge of a tarp around a batten (<i>see</i> cl.1c) and attaching the wrapped batten to an underside of an eave or to a fascia of the built structure (<i>see</i> cl.1c). As discussed above, it would have been obvious, straightforward, and advantageous to POSITA to implement Crook using Lowe’s Video’s teachings of batten-wrapping and attachment techniques to secure the trailing edge of the sheet to the <i>second</i> end of the roof (as disclosed in Crook), for the same reasons discussed above regarding securing the leading edge to the <i>first</i> end of the roof (<i>see</i> cl.1b and cl.2c).
[2.e] heating the film to cause the film to conform to the portion of the roof.	Crook discloses this limitation. (Grounds 7-10) Crook discloses heating the film (<i>see</i> cl.1d) to cause the film to conform to the portion of the roof (<i>see</i> cl.1d).

Claim 3	Prior Art
[3.pre] A method of covering at least a portion of a roof of a [built] structure comprising the steps of:	To the extent the preamble is limiting, Crook discloses it. (Grounds 7-10) Crook discloses a method of covering at least a portion of a roof of a built structure (<i>see</i> cl.2.pre).
[3.a] applying a pre-cut	Crook renders this limitation obvious. (Grounds 7 and 9) Crook in view of Vanderzee also renders this limitation obvious. (Grounds 8 and 10)

Claim 3	Prior Art
sheet¹⁹ of heat shrinkable film over the portion of the roof to extend from a first edge to a second edge of the [built] structure, wherein the film includes a leading edge and a trailing edge;	Crook’s Off-The-Roof Method discloses applying (<i>see</i> cl.1a(i)) a sheet of heat shrinkable film (<i>e.g.</i>, “roof cover compris[ing] shrink wrap material that is configured to shrink in response to being exposed to heat,” where the cover comprises “strips” that have already been “attached together by lengths of tape”; <i>see</i> cl.1a(i))²⁰ over the portion of the roof to extend from a first edge to a second edge of the built structure (<i>see</i> cl.1a(i)), wherein the film includes a leading edge (<i>see</i> cl.1a(i)) and a trailing edge (<i>see</i> cl.1a(i)). Additionally, Crook renders obvious pre-cutting the sheet. POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook’s Off-The-Roof Method by cutting strips to extend from a first edge to a second edge prior to assembling them into a sheet. <i>See</i> cl.2a and c2.b. POSITA would have understood that they could have advantageously cut strips of film from supply rolls, as taught by Crook, prior to assembling the strips into a pre-cut sheet. EX1004, ¶70, Fig. 5. For POSITA, particularly in light of these teachings, this would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with a reasonable expectation of success. Crook²¹ in view of Vanderzee also renders obvious this limitation based on the same Crook disclosures above, in addition to the Vanderzee disclosures below, including in particular performing the assembly of a sheet from strips off the roof surface (before placement on the roof), rolling it up (to be pre-cut by the knife of Crook). (Grounds 8 and 10).

¹⁹ The plain and ordinary meaning of “applying a pre-cut sheet” is that the action (applying) is performed on the fully assembled “pre-cut sheet,” and not individual, unassembled lengths/strips.

²⁰ *See* n.3.

²¹ *See* n.3.

Claim 3	Prior Art
	Vanderzee discloses performing the assembly of parallel strips of plastic (see cl.1a(i)) for a roof (see cl.1a(i)) off the roof surface (see cl.1a(i)) and rolling them up (see cl.2a). As discussed above, POSITA would have been motivated and found it obvious, straightforward, and advantageous to implement Crook by rolling up (as taught by Vanderzee) the sheet and pre-cutting a sheet from the roll before applying it. <i>See</i> cl.2a and cl.2b. For POSITA, cutting the sheet before lifting the sheet to the roof surface for positioning would have been an obvious, routine implementation choice and clear this would work, predictably yielding the expected functionality with a reasonable expectation of success. <i>See</i> cl.2a and cl.2b. Additionally, to the extent the plain and ordinary meaning of this limitation is interpreted more broadly such that “applying a pre-cut sheet of a heat shrinkable film over the portion of the roof to extend from a first edge to a second edge of the [built] structure, wherein the film includes a leading edge and a trailing edge” includes cutting strips of film to have leading and trailing edges and then joining the strips together to form a pre-cut sheet on the roof (as opposed to assembling a pre-cut sheet (having a leading and trailing edge) prior to applying the sheet over the roof), Crook’s On-The-Roof Method also renders obvious such a method (Grounds 7 and 9). <i>See</i> cl.2b. Moreover, to the extent the plain and ordinary meaning of “sheet” is interpreted to include a single strip of film and does not require that the two strips of film be connected, for the same reasons discussed above, Crook renders obvious applying a pre-cut “sheet” (using this broader interpretation of sheet) (Grounds 7 and 9).
[3.b] wrapping portions of the leading edge around a first	Crook in view of Kelly and Inzeo renders this limitation obvious. (Grounds 7-8) Crook in view of Lowe’s Video also renders this limitation obvious. (Grounds 9-10)

Claim 3	Prior Art
batten and attaching the first batten to an underside of a first eave or to a fascia of the [built] structure;	Crook discloses attaching portions of the leading edge (<i>see</i> cl.1b) to the built structure adjacent to the roof edge (<i>see</i> cl.1b). Crook in view of Kelly and Inzeo renders obvious wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the built structure. <i>See</i> cl.1b. (Grounds 7-8) Kelly discloses wrapping a roof covering's edge around a batten (<i>see</i> cl.1b) and attaching it to a built structure (<i>see</i> cl.1b). Inzeo discloses attaching a roof covering (<i>see</i> cl.1b) to a fascia of a roof (<i>see</i> cl.1b). POSITA would have found it obvious, straightforward, and advantageous to implement Crook's disclosure of securing the leading edge of the sheet using Kelly's advantageous teachings of wrapping an edge of material around a batten to fasten waterproof membranes on roof structures. <i>See</i> cl.1b. Reasonable expectation of success in wrapping the edge of the roof cover around the batten to secure it over the roof is further supported by the fact that it was well known to do so. <i>See</i> cl.1b. POSITA would have found it obvious, straightforward, and advantageous to implement the combination of Crook and Kelly using Inzeo's advantageous teaching of using the fascia as the attachment point. <i>See</i> cl.1b. Reasonable expectation of success in attaching the roof cover at the fascia or under the eaves is further supported by the fact that it was well known to do so. <i>See</i> cl.1b. Crook in view of Lowe's Video also renders obvious wrapping portions of the leading edge around a first batten and attaching the first batten to an underside of a first eave or to a fascia of the built structure. <i>See</i> cl.1b. (Grounds 9-10) Lowe's Video discloses wrapping portions of an edge of a tarp around a batten (<i>see</i> cl.1b) and attaching the wrapped batten to

Claim 3	Prior Art
	an underside of a first eave or to a facia of the built structure (<i>see</i> cl.1b). POSITA would have found it obvious, straightforward, and advantageous to implement Crook’s attachment using the teachings of the 2x4 (batten) wrapping and attachment techniques (to each of facia and the underside of eaves) from Lowe’s Video for the reasons described in connection with Kelly and Inzeo above (but substituting Lowe’s Video’s teachings for Kelly’s and Inzeo’s). <i>See</i> cl.1b. For POSITA it would have been an obvious, routine implementation choice and clear it would work, predictably yielding the expected functionality with a reasonable expectation of success. <i>See</i> cl.1b.
[3.c] wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the facia of the built structure at a location different than the first batten; and	Crook in view of Kelly and Inzeo renders this limitation obvious. (Grounds 7-8) Alternatively, Crook in view of Lowe’s Video renders this limitation obvious. (Grounds 9-10) Crook discloses attaching portions of the trailing edge (<i>see</i> cl.1c) to the built structure adjacent to the roof edge (<i>see</i> cl.1c) at a location different than the first batten (<i>see</i> cl.1c). Crook in view of Kelly and Inzeo renders obvious wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the facia of the built structure at a location different than the first batten. <i>See</i> cl.1c. (Grounds 7-8). Kelly discloses wrapping a roof covering’s edge around a batten (<i>see</i> cl.1c) and attaching it to the built structure (<i>see</i> cl.1c). Inzeo discloses attaching a roof covering (<i>see</i> cl.1c) to a facia of a roof (<i>see</i> cl.1c).

Claim 3	Prior Art
	As discussed, it would have been obvious, straightforward, and advantageous to POSITA to implement Crook using the teachings of Kelly and Inzeo to secure the trailing edge of the sheet to the <i>second</i> end of the roof (as disclosed in Crook) for the same reasons discussed above regarding securing the leading edge of the <i>first</i> end of the roof (<i>see</i> cl.1b and cl.3b). Crook in view of Lowe’s Video also renders obvious wrapping portions of the trailing edge around a second batten and attaching the second batten to an underside of a second eave or to the fascia of the built structure at a location different than the first batten. <i>See</i> cl.1c. (Grounds 9-10) Lowe’s Video discloses wrapping portions of the edge of a tarp around a batten (<i>see</i> cl.1c) and attaching the wrapped batten to an underside of an eave or to a fascia of the built structure (<i>see</i> cl.1c). As discussed above, it would have been obvious, straightforward, and advantageous to POSITA to implement Crook using Lowe’s Video’s teachings of batten-wrapping and attachment techniques to secure the trailing edge of the sheet to the <i>second</i> end of the roof (as disclosed in Crook), for the same reasons discussed above regarding securing the leading edge to the <i>first</i> end of the roof (<i>see</i> cl.1b and cl.3b).
[3.d] heating the film to cause the film to conform to the portion of the roof.	Crook discloses this limitation. (Grounds 7-10) Crook discloses heating the film (<i>see</i> cl.1d) to conform to the portion of the roof (<i>see</i> cl.1d).