

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
AUSTIN DIVISION**

CERTAINTEED LLC,

Plaintiff,

v.

GAF ENERGY LLC,

Defendant.

Civil Action No. 1:25-cv-00191

JURY TRIAL DEMANDED

**COMPLAINT FOR PATENT INFRINGEMENT
AND DEMAND FOR JURY TRIAL**

INTRODUCTION

1. Plaintiff CertainTeed LLC (“CertainTeed”), by and through its undersigned counsel, hereby brings this Complaint to protect CertainTeed’s patented technologies from infringement by Defendant GAF Energy LLC (“GAF” or “Defendant”).

2. CertainTeed has helped shape the building products industry since the early 1900s and has evolved into a leading brand of exterior and interior building products, including through its commitment to the responsible development of sustainable building solutions.

3. CertainTeed’s innovative work on exterior building products has included work on roofing materials, such as solar shingles and other solar roofing systems. And, CertainTeed has solved challenging problems associated with such products. For example, as the United States Patent and Trademark Office (the “USPTO”) recognized, CertainTeed addressed a need for long-lasting physical connections between components of solar roofing systems, including through tie layer systems creating “extraordinary” and “unexpected” enhanced adhesion.

4. Without CertainTeed's authorization, GAF has been making, using, and selling solar roofing systems covered by CertainTeed's patents, including GAF's Timberline Solar Energy Shingles and roofing systems comprising same, forcing CertainTeed to compete against its own technological breakthroughs. GAF's conduct in this regard is unjust and illegal because it violates the United States patent laws. CertainTeed thus brings this Complaint to address GAF's infringement of CertainTeed's patents.

NATURE OF THE ACTION

5. This is a civil action for patent infringement, brought under the patent laws of the United States, 35 U.S.C. § 1 *et seq.*

THE PARTIES

6. CertainTeed is a Delaware limited liability company with a principal place of business at 20 Moore Road, Malvern, Pennsylvania 19355.

7. On information and belief, GAF is a limited liability company organized and existing under the laws of the State of Delaware.

8. On information and belief, GAF is registered to do business in Texas, has a regular and established place of business in this District, at 110 S.E. Inner Loop, Georgetown, Texas 78626, and can be served with process in this District through its registered agent for service of process, Corporation Service Company, at 211 E. 7th Street, Suite 620, Austin, Texas 78701.¹

¹ See, e.g., GAF Energy Celebrates New Timberline Solar Manufacturing Facility in Georgetown, Texas (May 1, 2024), available at <https://www.gaf.energy/press/gaf-energy-celebrates-new-timberline-solar-manufacturing-facility-in-georgetown-texas/> (last accessed Feb. 11, 2025) (attached as Exhibit D); GAF Energy, LLC, available at <https://business.georgetownchamber.org/list/member/gaf-energy-llc-5170> (last accessed Feb. 11, 2025) (attached as Exhibit E).

JURISDICTION AND VENUE

9. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338 because this action arises under the patent laws of the United States, including 35 U.S.C. § 271 *et seq.*

10. This Court has personal jurisdiction over GAF by virtue of the continuous and systematic activities that GAF conducts within the State of Texas and this District, and by virtue of the specific activities that GAF conducts in the State of Texas and this District that give rise to this action. Specifically, on information and belief, GAF has a principal place of business in this District (at 110 S.E. Inner Loop, Georgetown, Texas), transacts and conducts business in and with residents of the State of Texas, including in this District, and has infringed and continues to infringe the Asserted Patents (defined in ¶ 15 below) in the State of Texas and this District, for example, through its manufacture, use, and sale of, and/or offers to sell, Timberline Solar Energy Shingles and roofing systems comprising same, including from its Georgetown, Texas facility.

11. Additionally, this Court's exercise of personal jurisdiction over GAF comports with Texas Civil Practice & Remedies Code §§ 17.041 *et seq.* GAF regularly conducts business within the State of Texas and this District, including, on information and belief, through the infringing manufacture, use, and sale of, and/or offers to sell, Timberline Solar Energy Shingles and roofing systems comprising same from GAF's Georgetown, Texas facility. GAF recruits Texas residents, including residents of this District, for employment, including in roles that facilitate and contribute to its infringement, e.g., at its Georgetown, Texas facility. *See* footnote 1, Exs. D-E. And, GAF places infringing products into the stream of commerce in the State of Texas and this District, for example, through its activities at its Georgetown, Texas facility and while working with roofing

companies and contractors who do business in the State of Texas and this District.² Accordingly, this Court’s exercise of jurisdiction over GAF comports with constitutional standards of fair play and substantial justice and arises directly from GAF’s purposeful minimum contacts with the State of Texas and this District.

12. Venue is proper in this District pursuant to 28 U.S.C. § 1400(b).

13. GAF has a regular and established place of business within this District—the 450,000-square-foot Georgetown, Texas facility from which GAF transacts business, including office, research, and manufacturing activities, and recruits and hires employees. *See* footnote 1, Exs. D-E. And, on information and belief, GAF has committed acts of infringement in this District, including at and from its Georgetown, Texas facility, for example, through the manufacture, use, and sale of, and/or offers to sell, Timberline Solar Energy Shingles and roofing systems comprising same. *Id.* On information and belief, GAF’s Georgetown, Texas facility employs over 75 employees, and it is designed to employ more than 240 employees, including employees connected with at least the manufacture of the infringing Timberline Solar roofing systems. *Id.* Indeed, GAF is or has been actively seeking additional employees for such work.³

14. Additionally, members of GAF’s leadership team, including individuals relevant to this action, are here—in the State of Texas and this District. For example, GAF’s website identifies Ralph Robinett as GAF’s Chief Operating Officer and states that the “Timberline Solar™ Energy Shingle” was created “[u]nder Ralph’s leadership.”⁴ GAF’s website further states

² *See, e.g.*, Solar Roofs that Work for Texas, *available at* <https://www.gaf.energy/texas/> (last accessed Feb. 11, 2025) (GAF’s “solar shingles are manufactured right here in Texas at our new Georgetown factory”) (attached as Exhibit F).

³ *See, e.g.*, GAF Energy Careers, *available at* https://gafsgi.wd5.myworkdayjobs.com/en-US/GAFEnergy_Career?locations=40f92274e32810019fd0a2d8a00a0000 (last accessed Feb. 11, 2025) (attached as Exhibit G).

⁴ *See* Ralph Robinett, Chief Operating Officer, *available at* <https://www.gaf.energy/team/ralph->

that Mr. Robinett is “[b]ased at [GAF’s] 450,000-square-foot manufacturing facility in Georgetown, Texas,” and lives in Austin, Texas, “where the solar panels he made are delivering clean energy every day.” *See* footnote 4, Ex. H. As another example, GAF is or has been seeking a new senior manager for “Solar Cell Strategic Sourcing,” to work out of its Georgetown, Texas facility.⁵

CERTAINTEED’S ASSERTED PATENTS

15. CertainTeed asserts against GAF United States Patent Nos. 8,438,796 (the “’796 patent”), 8,375,653 (the “’653 patent”), and 9,178,465 (the “’465 patent”) (collectively, the “Asserted Patents”).

16. On May 14, 2013, the USPTO, after full and fair examination, duly and legally issued the ’796 patent, which is titled “Photovoltaic Roofing Elements Including Tie Layer Systems, and Roofs Using Them, and Methods for Making Them.” A true and correct copy of the ’796 patent is attached as Exhibit A.

17. The ’796 patent claims patent-eligible subject matter and is valid and enforceable.

18. CertainTeed holds all right, title, and interest in the ’796 patent, with full rights to enforce the same.

19. GAF does not have a license to the ’796 patent, either expressly or implicitly, and does not enjoy or benefit from any rights in or to the ’796 patent.

[robinett/](#) (last accessed February 11, 2025) (attached as Exhibit H).

⁵ Senior Manager, Solar Cell Strategic Sourcing, *available at* https://gafsgi.wd5.myworkdayjobs.com/en-US/GAFEnergy_Career/job/Georgetown-TX/Senior-Manager--Solar-Cell-Strategic-Sourcing_22837-1?locations=40f92274e32810019fd0a2d8a00a0000 (last accessed February 11, 2025) (attached as Exhibit I).

20. On February 19, 2013, the USPTO, after full and fair examination, duly and legally issued the '653 patent, which is titled "Photovoltaic Roofing Elements Including Tie Layer Systems." A true and correct copy of the '653 patent is attached as Exhibit B.

21. The '653 patent claims patent-eligible subject matter and is valid and enforceable.

22. CertainTeed holds all right, title, and interest in the '653 patent, with full rights to enforce the same.

23. GAF does not have a license to the '653 patent, either expressly or implicitly, and does not enjoy or benefit from any rights in or to the '653 patent.

24. On November 15, 2015, the USPTO, after full and fair examination, duly and legally issued the '465 patent, which is titled "Photovoltaic Roofing Elements Including Tie Layer Systems and Roof Using Them." A true and correct copy of the '465 patent is attached as Exhibit C.

25. The '465 patent claims patent-eligible subject matter and is valid and enforceable.

26. CertainTeed holds all right, title, and interest in the '465 patent, with full rights to enforce the same.

27. GAF does not have a license to the '465 patent, either expressly or implicitly, and does not enjoy or benefit from any rights in or to the '465 patent.

28. The Asserted Patents describe and claim innovative and unconventional photovoltaic roofing elements, including photovoltaic roofing elements comprising encapsulated photovoltaic elements, roofing substrates, and tie layer systems joining such encapsulated photovoltaic elements and roofing substrates, methods of making such photovoltaic roofing element, and roofs comprising such photovoltaic roofing elements. *See generally* '796 patent (Ex. A); '653 patent (Ex. B); '465 patent (Ex. C). The described and claimed inventions solve

problems and address difficulties that can arise with, among other things, the formation of long-lived physical connections between materials of encapsulated photovoltaic elements and roofing substrates, for example, when photovoltaic elements have low surface tension and/or are partially incompatible with roofing substrates, and they can withstand severe outdoor weathering, including for extended periods of time, and eliminate the need for additional grounding to prevent electric shock or meet electrical code requirements. *See, e.g.*, '796 patent at 1:47-62, 6:22-30, 6:36-39, 7:24-27; '653 patent at 1:47-62, 6:22-30, 6:36-39, 7:24-27; '465 patent at 1:47-62, 6:22-30, 6:36-39, 7:24-27.

29. In allowing the issuance of the '653 patent, the USPTO recognized that CertainTeed's inventions "address[] the problem of long-lived physical connection between the encapsulated photovoltaic element material with low surface tension and the tie layer." Ex. J, Oct. 16, 2012, Notice of Allowance of the '653 patent, at 2. Similarly, in allowing the issuance of the '465 patent, the USPTO recognized that CertainTeed's inventions were "critical" to "creating an extraordinary unexpected enhanced adhesion." Ex. K, April 27, 2015, Notice of Allowance of the '465 patent, at 3.

GAF'S TIMBERLINE SOLAR ROOFING SYSTEMS

30. GAF manufactures, markets, and sells solar roofing systems, including Timberline Solar roofing systems comprising Timberline Solar Energy Shingles that, on information and belief, GAF has been continuously manufacturing, marketing, and selling since January 2022.⁶

⁶ *See* Timberline Solar™ Boasts World's First Nailable Solar Shingle and Installs Like a Traditional Roof (Jan. 4, 2022), *available at* <https://www.gaf.com/en-us/about-us/news-press-releases/2022/gaf-energy-launches-game-changing-solar-roof-to-power-mass-adoption-of-clean-energy> (last accessed Feb. 11, 2025) (attached as Exhibit L); Solar Roofing for Your Home, *available at* <https://www.gaf.energy/timberline-solar/> (last accessed Feb. 11, 2025) (attached as Exhibit M).

31. As explained in more detail below, GAF’s Timberline Solar Energy Shingles, as well as roofing systems and roofs comprising such shingles (as well as other components, such as Deck-Armor and other underlayments, WeatherWatch and other leak barriers, and other GAF shingles, e.g., Timberline Solar HDZ shingles), infringe the Asserted Patents either literally or under the doctrine of equivalents. And GAF’s manufacture, use, sale, and/or offer for sale of such products is damaging and will continue to damage CertainTeed, causing irreparable harm, for which there is no adequate remedy at law, unless GAF’s wrongful acts are enjoined by this Court.

32. Hereafter, the term “Accused Products” refers to all products manufactured, used, sold, or offered for sale by or on behalf of GAF that practice the Asserted Patents, and all processes employed by GAF that practice the Asserted Patents, consisting of at least GAF’s Timberline Solar Energy Shingles and roofing systems comprising same.

FACTUAL ALLEGATIONS RELATING TO WILLFULNESS

33. On information and belief, GAF had knowledge of the Asserted Patents and its infringement at least as early as April 2022, and no later than the filing of this Complaint.

34. Ming-Liang Shiao, a named inventor on the Asserted Patents, began working for GAF in March 2014. Before that, he worked for CertainTeed or a CertainTeed affiliate for over two decades.⁷

35. On information and belief, Mr. Shiao, was a key contributor to GAF’s development of the Timberline Solar Energy Shingle. Before the Timberline Solar Energy Shingle was launched in early 2022, Mr. Shiao worked as a GAF Principal Scientist for eight years. And, in the period following the launch of the Timberline Solar production, between 2022 and 2024, Mr. Shiao was a R&D Manager for Shingle Innovations at GAF. *See* footnote 7, Ex. N. By virtue

⁷ *See* Ming-Liang Shiao, LINKEDIN, <https://www.linkedin.com/in/ming-liang-shiao-562223b/> (last accessed Feb. 11, 2025) (attached as Exhibit N).

of being a named inventor on the Asserted Patents, Mr. Shiao had knowledge of those patents, and GAF thus knew or should have known of the Asserted Patents and its infringement.

36. Further, Mr. Shiao is listed as an inventor on patent applications in at least two patent families assigned to GAF that relate to solar roofing products. For example, Mr. Shiao is an inventor on patent applications assigned to GAF that disclose and claim structures sitting between photovoltaic cells and other roofing elements. *See, e.g.*, U.S. Pat. App. Pub. No. 2024/0088318 (the “’318 publication”). As another example, Mr. Shiao is a named inventor on GAF’s U.S. Patent No. 11,454,027 (the “’027 patent”), which GAF lists in marking disclosures relating to its Timberline Solar Energy Shingles.⁸ And, all three Asserted Patents were disclosed by GAF to the USPTO as prior art during prosecution of the application that published as the ’318 publication and the application that issued as the ’027 patent. *See* Ex. O, September 14, 2023 Invention Disclosure Statement, ’318 publication File History (citing the ’465 patent at line 66, the ’796 patent at line 89, and the ’653 patent at line 92); Ex. P, April 27, 2022 Invention Disclosure Statement, ’027 patent File History (same).

37. Additionally, on information and belief, GAF monitors CertainTeed’s patent portfolio. CertainTeed and GAF are two of the largest suppliers of residential solar roofing systems in the United States and compete in that space. And, on information and belief, GAF’s monitoring of CertainTeed’s patent portfolio gave GAF knowledge of the Asserted Patents by no later than the dates on which each Asserted Patent issued.

38. At a minimum, GAF had knowledge of the Asserted Patents and its infringement of the Asserted Patents as of the date on which this Complaint was filed.

⁸ *See* Patent Information – GAF, <https://www.gaf.com/en-us/about-us/privacy-legal/patent-information> (last accessed Feb. 11, 2025) (attached as Exhibit Q).

39. Furthermore, in view of at least Mr. Shiao's assignment of his rights in the Asserted Patents to CertainTeed and, on information and belief, Mr. Shiao's relationship with GAF and contributions to the development of the Timberline Solar Energy Shingle, GAF is estopped from challenging the validity of the Asserted Patents under the doctrine of assignor estoppel.

CLAIMS FOR RELIEF

40. The allegations in the following Claims For Relief have evidentiary support or will likely have evidentiary support after a reasonable opportunity for further investigation or discovery. CertainTeed does not yet have the benefit of any discovery from GAF.

41. The Court has not construed the meaning of any claims or terms in the Asserted Patents. In providing the detailed allegations set out in the Counts below, CertainTeed does not intend to convey or imply any particular claim constructions or the precise scope of the claims. CertainTeed's claim construction contentions regarding the full meaning and scope of the claim terms will be provided in compliance with the case schedule and any applicable orders.

42. CertainTeed contends that GAF directly infringes the asserted claims.

43. CertainTeed further contends that each element of each asserted claim of the Asserted Patents is literally present in the accused Timberline Solar Energy Shingles. If the Court's constructions or other determinations indicate that an element of an asserted claim is not literally present, CertainTeed contends that each such element is present under the doctrine of equivalents. If necessary, CertainTeed will provide more detailed doctrine of equivalents contentions after discovery from GAF or a claim construction order by the Court.

COUNT ONE – INFRINGEMENT OF THE '796 PATENT

44. CertainTeed repeats and realleges the allegations of Paragraphs 1 through 43 above as if set forth herein.

45. GAF has directly infringed and continues to directly infringe at least claims 1, 3, 5, 7, 8, and 25 of the '796 patent.

46. Claim 1 of the '796 patent recites:

A photovoltaic roofing element comprising:

an encapsulated photovoltaic element having a top surface and a bottom surface, a top layer material at its top surface and a bottom layer material at its bottom surface, the bottom layer material at the bottom surface of the encapsulated photovoltaic element having a surface tension no greater than 35 dyne/cm;

a roofing substrate having a top surface; and

a tie layer system comprising a blend of functionalized EVA and polyolefin disposed between the encapsulated photovoltaic element and the roofing substrate and joining the bottom surface of the encapsulated photovoltaic element to the top surface of the roofing substrate.

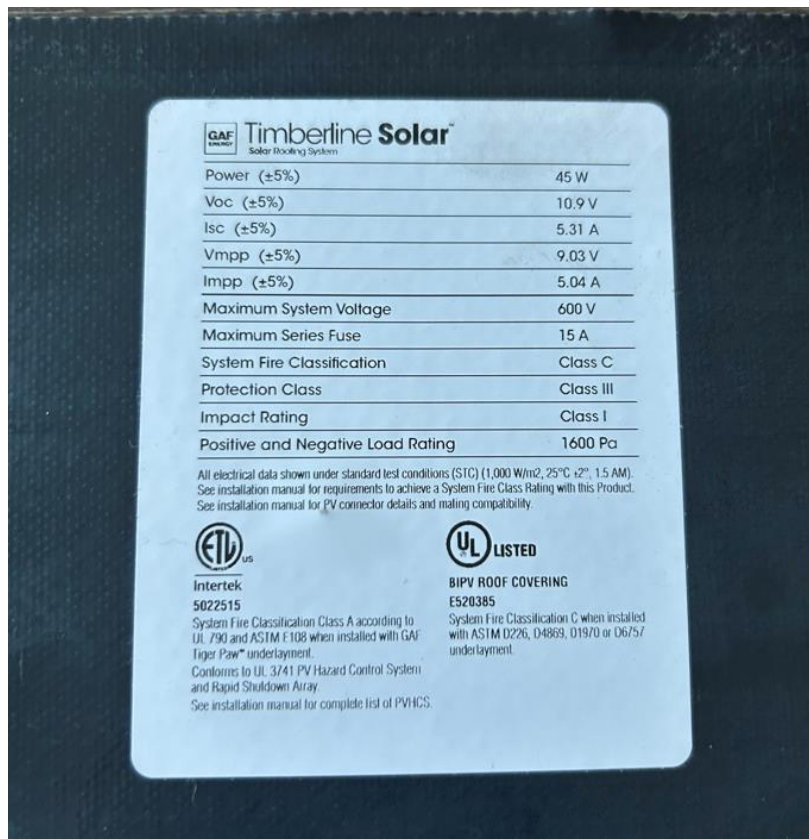
47. On information and belief, GAF's Timberline Solar Energy Shingles and roofing systems comprising same satisfy all the limitations of claim 1 of the '796 patent.

48. The preamble of claim 1 of the '796 patent recites: "A photovoltaic roofing element comprising: ..."

49. To the extent the preamble is limiting, it is satisfied by GAF's Timberline Solar Energy Shingles and roofing systems comprising same. Roofing systems with GAF's Timberline Solar Energy Shingles comprise "shingles that shield your home from the elements and generate clean electricity. It's a roof with energy. It's that simple."⁹

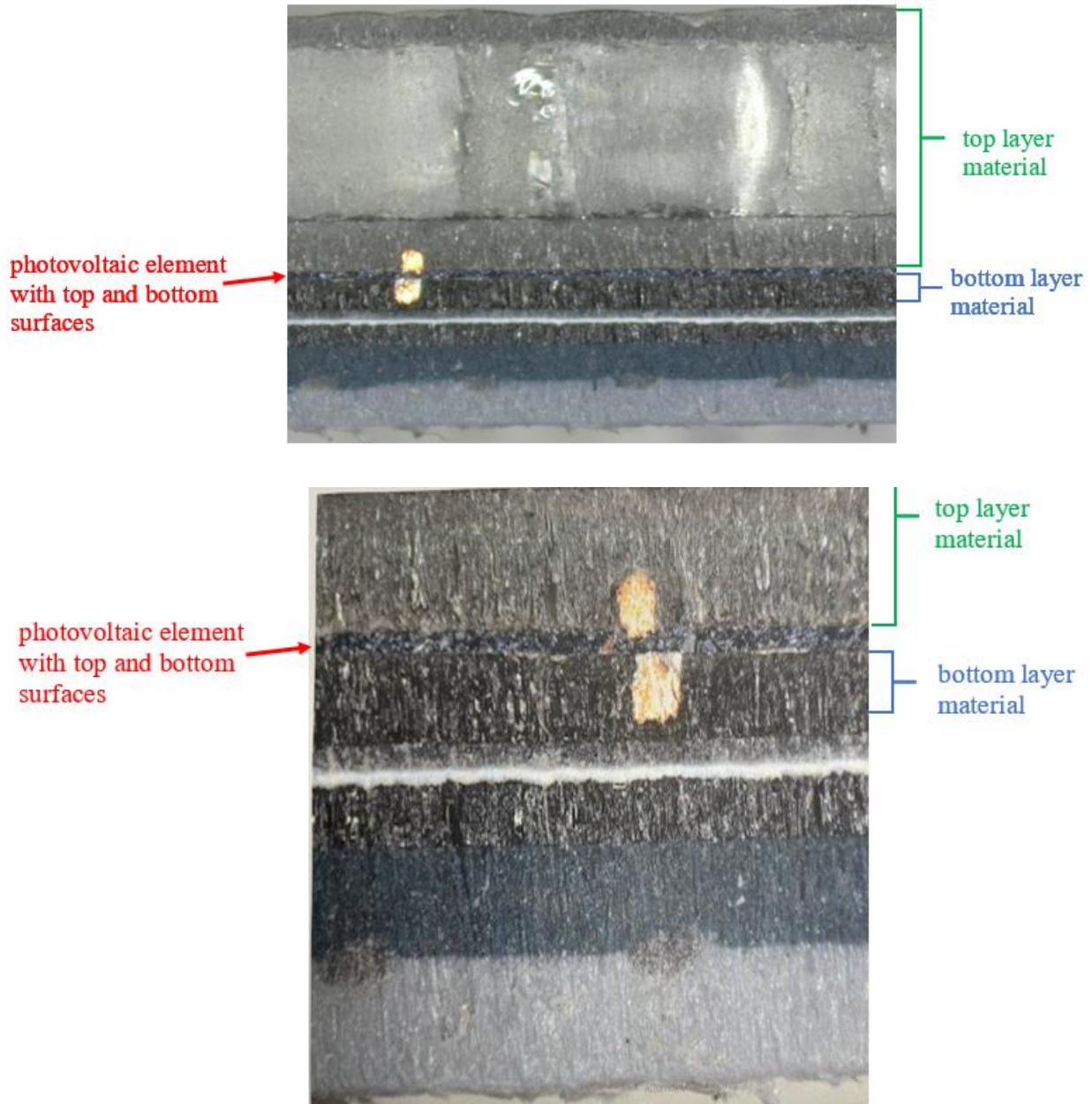
⁹ See *Introducing Timberline Solar*, available at <https://www.gaf.energy/> (last accessed Feb. 11, 2025) (attached as Exhibit R); see also *Timberline Solar: Solar Roofing On The Rise*, at 21 ("Timberline Solar ES Tech Specs": "Cell Type: Monocrystalline PERC," i.e., Passivated Emitter & Rear Cell) (attached as Exhibit S).

50. The following images of a GAF Timberline Solar Energy Shingle further demonstrate that a GAF Timberline Solar Energy Shingle is a “photovoltaic roofing element”:



51. Claim 1 of the '796 patent further recites: “an encapsulated photovoltaic element having a top surface and a bottom surface, a top layer material at its top surface and a bottom layer material at its bottom surface ...”

52. GAF's Timberline Solar Energy Shingles and roofing systems comprising same satisfy this limitation, as the following cross-sectional optical microscope images of a GAF Timberline Solar Energy Shingle demonstrate:



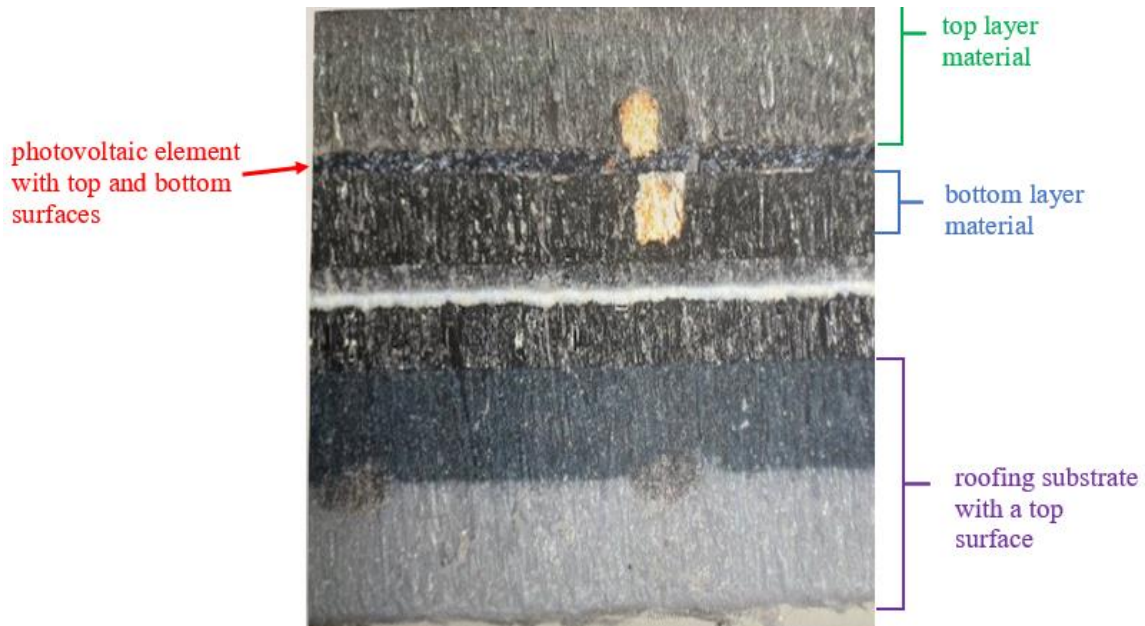
As shown above, a GAF Timberline Solar Energy Shingle comprises a photovoltaic element with top and bottom surfaces (red annotations) and top layer and bottom layer materials at the top and bottom surfaces of that photovoltaic element (green and blue annotations, respectively).

53. Claim 1 of the '796 patent further recites: “the bottom layer material at the bottom surface of the encapsulated photovoltaic element having a surface tension no greater than 35 dyne/cm; ...”

54. GAF’s Timberline Solar Energy Shingles and roofing systems comprising same satisfy this limitation because, on information and belief, the surface tension of the bottom layer material shown in the images of a GAF Timberline Solar Energy Shingle set out in Paragraph 52 above is less than 35 dyne/cm.

55. Claim 1 of the '796 patent further recites: “a roofing substrate having a top surface; ...”

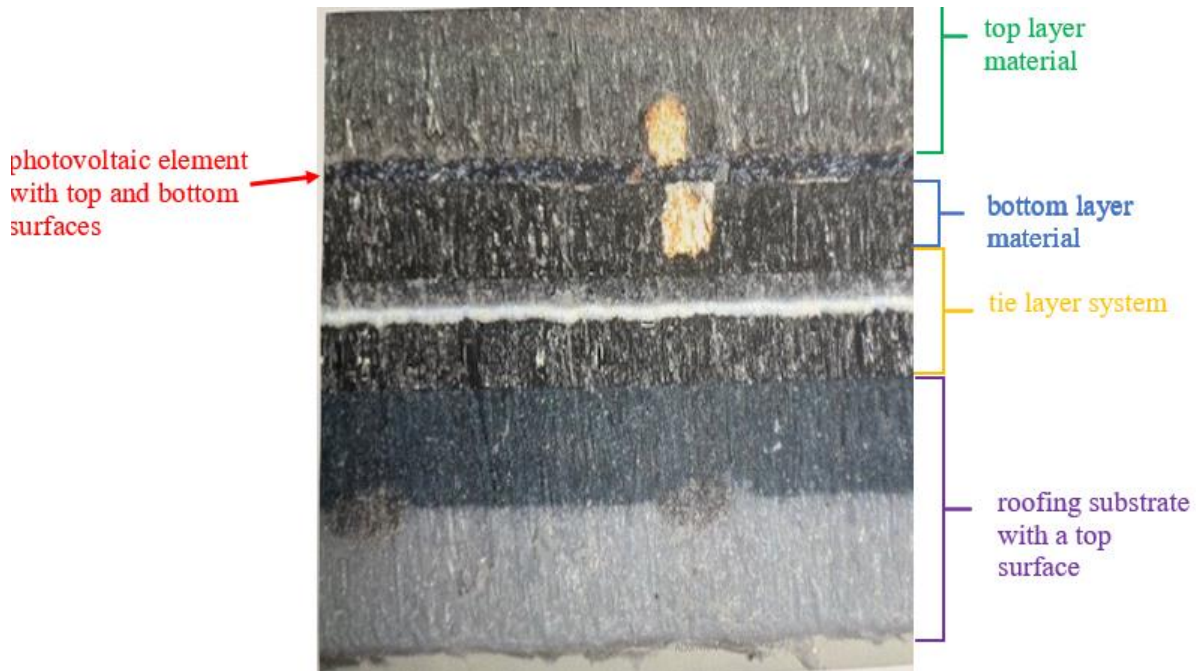
56. GAF’s Timberline Solar Energy Shingles and roofing systems comprising same satisfy this limitation, as the following cross-sectional optical microscope image of a GAF Timberline Solar Energy Shingle demonstrates:



As shown above, a GAF Timberline Solar Energy Shingle comprises a roofing substrate with a top surface (purple annotations).

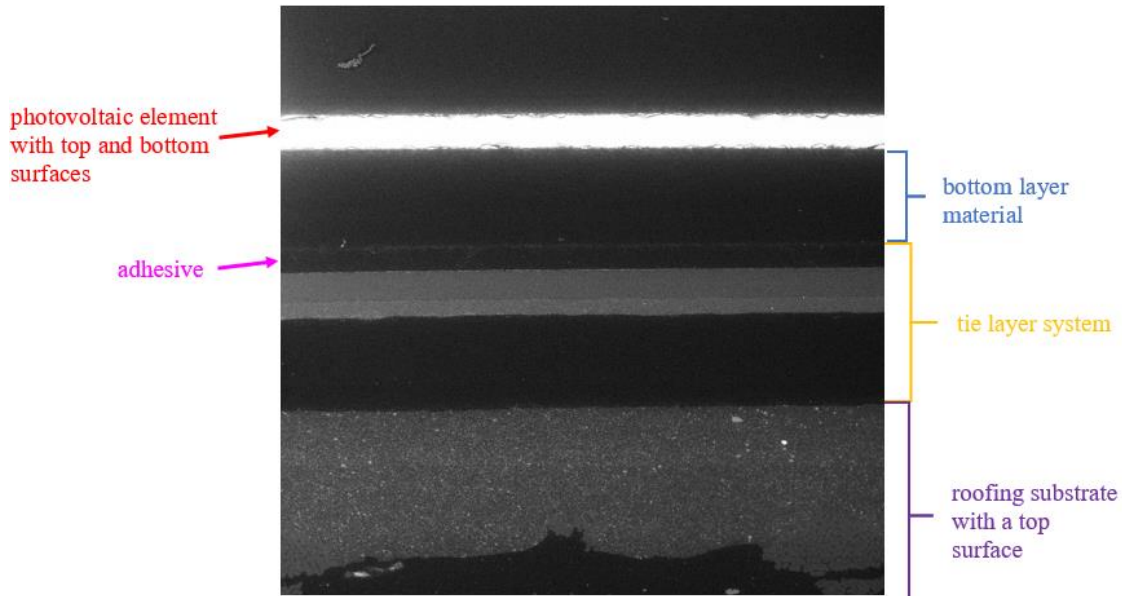
57. Claim 1 of the '796 patent further recites: “a tie layer system comprising a blend of functionalized EVA and polyolefin disposed between the encapsulated photovoltaic element and the roofing substrate and joining the bottom surface of the encapsulated photovoltaic element to the top surface of the roofing substrate.”

58. GAF’s Timberline Solar Energy Shingles and roofing systems comprising same satisfy this limitation, as the following cross-sectional optical microscope image demonstrates:



As shown above, a GAF Timberline Solar Energy Shingle comprises a tie layer system (yellow annotations) disposed between an encapsulated photovoltaic element (green, red, and blue annotations) and a roofing substrate (purple annotations) and joining the bottom surface of the encapsulated photovoltaic element to the top surface of the roofing substrate.

59. Additionally, as shown below, scanning electron microscopy of a GAF Timberline Solar Energy Shingle shows that the tie layer system comprises an adhesive (pink annotations):



And, on information and belief, the adhesive in the tie layer system of a GAF Timberline Solar Energy Shingle is a blend of functionalized EVA and polyolefin.

60. Claim 3 of the '796 patent recites: “The photovoltaic roofing element of claim 1, wherein the top surface of the roofing substrate is polymeric.”

61. GAF’s Timberline Solar Energy Shingles and roofing systems comprising same satisfy the additional limitation of claim 3 of the '796 patent because, on information and belief, the top surface of the roofing substrate shown in images set out above, e.g., in Paragraphs 58 and 59, is a polymeric layer, such as a polypropylene layer.

62. Claim 5 of the '796 patent recites: “The photovoltaic roofing element of claim 1, wherein the tie layer system comprises one or more polymer layers.”

63. GAF’s Timberline Solar Energy Shingles and roofing systems comprising same satisfy the additional limitation of claim 5 of the '796 patent because, on information and belief, the tie layer system shown in images set out above, e.g., in Paragraphs 58 and 59, comprises, in addition to the adhesive layer discussed in Paragraph 59, which is a polymer layer, one or more other polymer layers, such as polyethylene or polyethylene-based layers.

64. Claim 7 of the '796 patent recites: "The photovoltaic roofing element of claim 1, wherein the tie layer system includes a polymeric material having a Chang viscoelastic window exhibiting at least one set of coordinates ($\log(G'')$, $\log(G')$) lying within the window bound by the coordinates (4.5, 6), (4.5, 8), (8, 8), (8, 3.7), (6, 3.7)."

65. GAF's Timberline Solar Energy Shingles and roofing systems comprising same satisfy the additional limitation of claim 7 of the '796 patent because, on information and belief, the polymeric adhesive layer used in the tie layer system of GAF's Timberline Solar Energy Shingle has a Chang viscoelastic window exhibiting coordinates lying within the window bound by the coordinates recited in claim 7.

66. Claim 8 of the '796 patent recites:

The photovoltaic roofing element of claim 1, wherein the tie layer system comprises one or more materials selected from the group consisting of a polyolefin functionalized with carboxylate and/or anhydride; ethylene vinyl acetate; acid modified polyolefins; a combination of an acid-modified polyolefin with an amine-functional polymer; maleic anhydride-grafted EPDM; a hot melt containing a thermoplastic or elastomeric fluoropolymer; and a curable resin.

67. GAF's Timberline Solar Energy Shingles and roofing systems comprising same satisfy the additional limitation of claim 8 of the '796 patent because, on information and belief, the tie layer system of GAF's Timberline Solar Energy Shingle comprises ethylene vinyl acetate.

68. Claim 25 of the '796 patent recites:

A method of making a photovoltaic element according to claim 1, comprising: arranging the tie layer system between the top surface of the roofing substrate and the bottom surface of the encapsulated photovoltaic element; then joining the top surface of the roofing substrate to the bottom surface of the encapsulated photovoltaic element with the tie layer system.

69. On information and belief, GAF's Timberline Solar Energy Shingles and roofing systems comprising same satisfy the additional limitation of claim 25 of the '796 patent. As evidenced by the image set out in Paragraph 58 above, GAF makes a Timberline Solar Energy

Shingle by arranging a tie layer system between the top surface of the roofing substrate and the bottom surface of the encapsulated photovoltaic element, and that tie layer system joins the top surface of the roofing substrate to the bottom surface of the encapsulated photovoltaic element.

70. As described in the preceding paragraphs, each limitation of at least claims 1, 3, 5, 7, 8, and 25 of the '796 patent is met by the accused Timberline Solar Energy Shingles, or GAF's method of making same, either literally or under the doctrine of equivalents.

71. GAF thus has infringed and continues to infringe the '796 patent by making, using, selling, and offering for sale the accused Timberline Solar Energy Shingles and roofing systems comprising same, and GAF is liable to CertainTeed for infringement pursuant to 35 U.S.C. § 271(a).

72. GAF has been aware of the '796 patent since at least as early as April 2022, and since no later than the filing of this Complaint. GAF's infringement thus has been willful and deliberate, entitling CertainTeed to enhanced damages pursuant to 35 U.S.C. § 284 and recovery of attorneys' fees and costs pursuant to 35 U.S.C. § 285.

73. GAF's infringement of the '796 patent will continue to damage CertainTeed's business, causing irreparable harm, for which there is no adequate remedy at law, unless GAF's wrongful acts are enjoined by this Court pursuant to 35 U.S.C. § 283.

74. GAF's infringement has caused and continues to cause damage to CertainTeed, and CertainTeed is entitled to recover damages in an amount subject to proof at trial pursuant to 35 U.S.C. § 284, including but not limited to damages for conveyed sales relating to the Accused Products.

COUNT TWO – INFRINGEMENT OF THE '653 PATENT

75. CertainTeed repeats and realleges the allegations of Paragraphs 1 through 74 above as if set forth herein.

76. GAF has directly infringed and continues to directly infringe at least claims 1, 2, 4, 5, 12, and 15 of the '653 patent.

77. Claim 1 of the '653 patent recites:

A photovoltaic roofing element comprising:

an encapsulated photovoltaic element having a top surface and a bottom surface, a top layer material at its top surface and a bottom layer material at its bottom surface, the bottom layer material at the bottom surface of the encapsulated photovoltaic element having a surface tension no greater than 35 dyne/cm;

a roofing substrate having a top surface; and

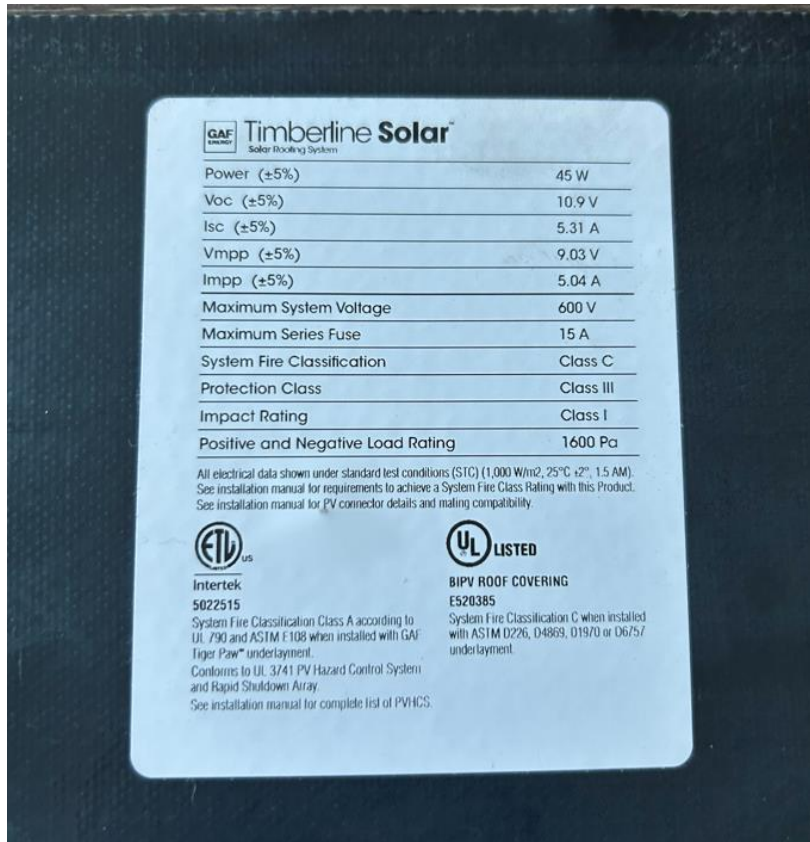
a tie layer system disposed between the encapsulated photovoltaic element and the roofing substrate and joining the bottom surface of the encapsulated photovoltaic element to the top surface of the roofing substrate.

78. On information and belief, GAF's Timberline Solar Energy Shingles and roofing systems comprising same satisfy all the limitations of claim 1 of the '653 patent.

79. The preamble of claim 1 of the '653 patent recites: "A photovoltaic roofing element comprising: ..."

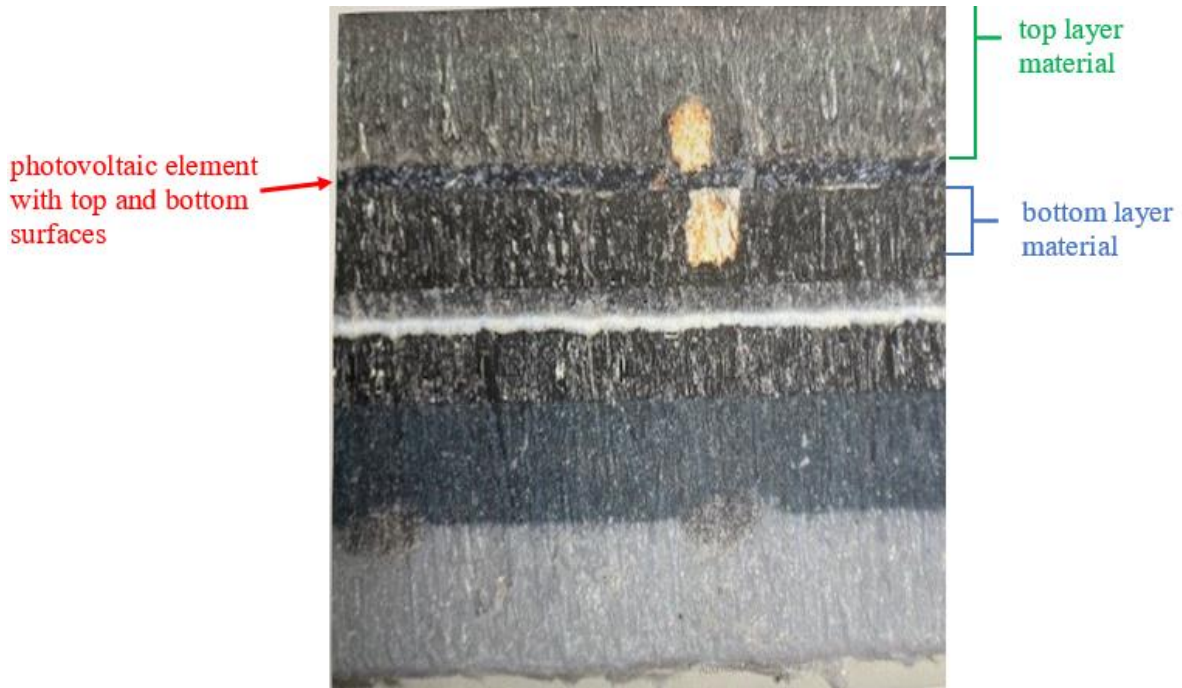
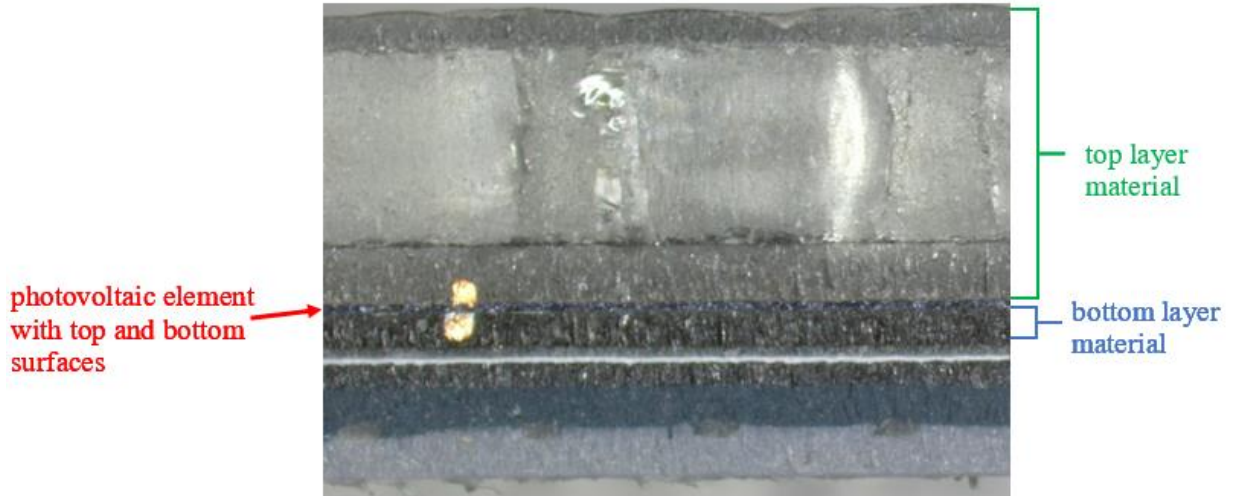
80. To the extent the preamble is limiting, it is satisfied by GAF's Timberline Solar Energy Shingles and roofing systems comprising same. Roofing systems with GAF's Timberline Solar Energy Shingles comprise "shingles that shield your home from the elements and generate clean electricity. It's a roof with energy. It's that simple." *See* footnote 9, Exs. R-S.

81. The following images of a GAF Timberline Solar Energy Shingles further demonstrate that a GAF Timberline Solar Energy Shingle is a "photovoltaic roofing element":



82. Claim 1 of the '653 patent further recites: “an encapsulated photovoltaic element having a top surface and a bottom surface, a top layer material at its top surface and a bottom layer material at its bottom surface ...”

83. GAF’s Timberline Solar Energy Shingles and roofing systems comprising same satisfy this limitation, as the following cross-sectional optical microscope images of a GAF Timberline Solar Energy Shingle demonstrate:



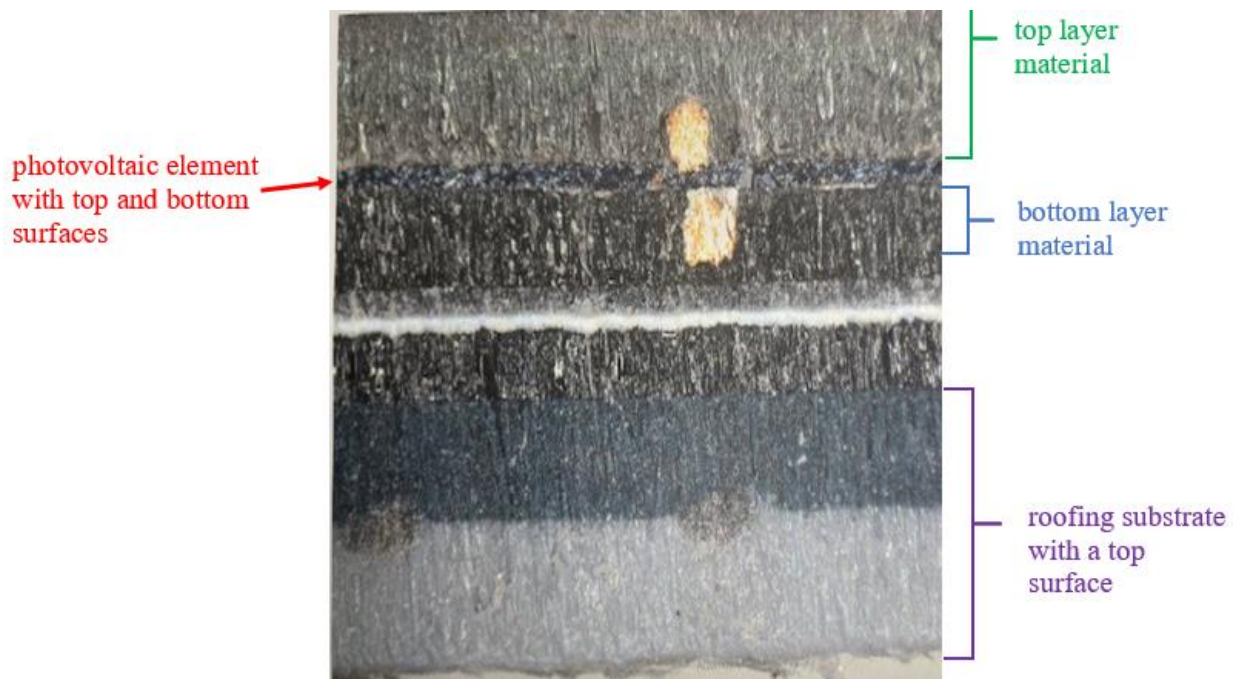
As shown above, a GAF Timberline Solar Energy Shingle comprises a photovoltaic element with top and bottom surfaces (red annotations) and top layer and bottom layer materials at the top and bottom surfaces of that photovoltaic element (green and blue annotations, respectively).

84. Claim 1 of the '653 patent further recites: "the bottom layer material at the bottom surface of the encapsulated photovoltaic element having a surface tension no greater than 35 dyne/cm; ..."

85. GAF’s Timberline Solar Energy Shingles and roofing systems comprising same satisfy this limitation because, on information and belief, the surface tension of the bottom layer material shown and identified in the above images of a GAF Timberline Solar Energy Shingle is less than 35 dyne/cm.

86. Claim 1 of the ’653 patent further recites: “a roofing substrate having a top surface; ...”

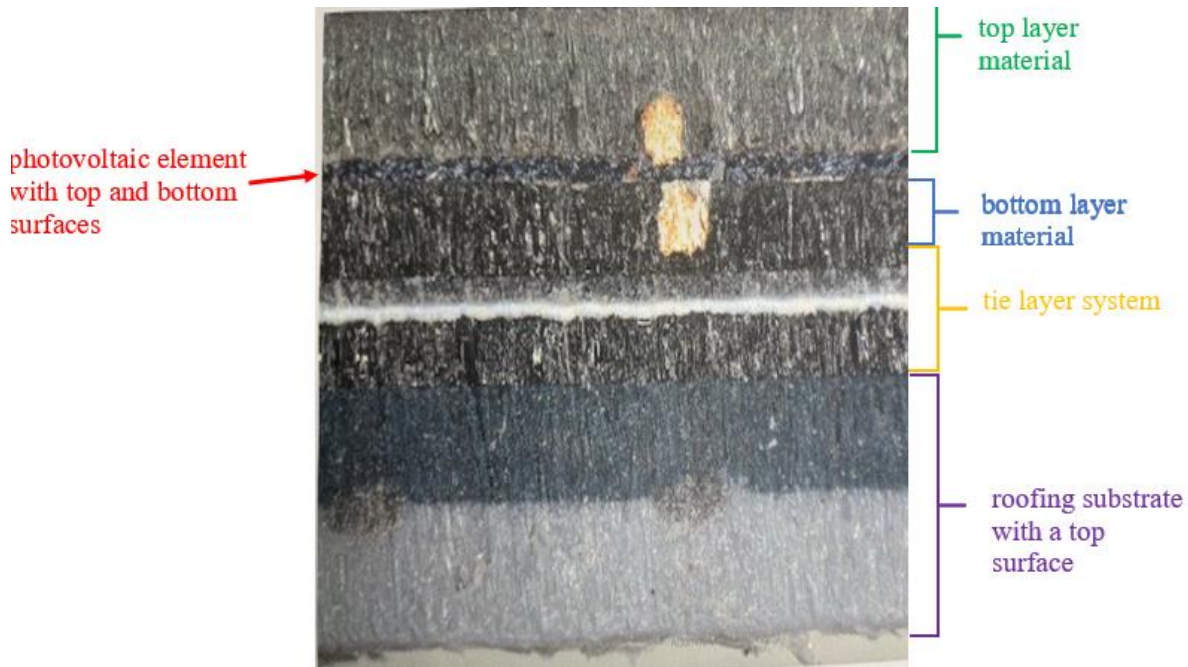
87. GAF’s Timberline Solar Energy Shingles and roofing systems comprising same satisfy this limitation, as the following cross-sectional optical microscope image of a GAF Timberline Solar Energy Shingle demonstrates:



As shown above, a GAF Timberline Solar Energy Shingles comprises a roofing substrate with a top surface (purple annotations).

88. Claim 1 of the ’653 patent further recites: “a tie layer system disposed between the encapsulated photovoltaic element and the roofing substrate and joining the bottom surface of the encapsulated photovoltaic element to the top surface of the roofing substrate.”

89. GAF's Timberline Solar Energy Shingles and roofing systems comprising same satisfy this limitation, as the following cross-sectional optical microscope image demonstrates:



As shown above, a GAF Timberline Solar Energy Shingle comprises a tie layer system (yellow annotations) disposed between an encapsulated photovoltaic element (green, red, and blue annotations) and a roofing substrate (purple annotations) and joining the bottom surface of the encapsulated photovoltaic element to the top surface of the roofing substrate.

90. Claim 2 of the '653 patent recites: "The photovoltaic roofing element of claim 1, wherein the tie layer system comprises one or more polymer layers."

91. GAF's Timberline Solar Energy Shingles and roofing systems comprising same satisfy the additional limitation of claim 2 of the '653 patent because, on information and belief, the tie layer system shown in images set out above, e.g., in Paragraphs 58, 59, and 89, comprises, in addition to the adhesive layer discussed in Paragraph 59, which is a polymer layer, one or more other polymer layers, such as polyethylene or polyethylene-based layers.

92. Claim 4 of the '653 patent recites: "The photovoltaic roofing element of claim 1, wherein the tie layer system includes a polymeric material having a Chang viscoelastic window exhibiting at least one set of coordinates ($\log(G'')$, $\log(G')$) lying within the window bound by the coordinates (4.5, 6), (4.5, 8), (8, 8), (8, 3.7), (6, 3.7)."

93. GAF's Timberline Solar Energy Shingles and roofing systems comprising same satisfy the additional limitation of claim 4 of the '653 Patent because, on information and belief, the polymeric adhesive layer used in the tie layer system of GAF's Timberline Solar Energy Shingle has a Chang viscoelastic window exhibiting coordinates lying within the window bound by the coordinates recited in claims 4.

94. Claim 5 of the '653 patent recites:

The photovoltaic roofing element of claim 1, wherein the tie layer system comprises one or more materials selected from the group consisting of a polyolefin functionalized with carboxylate and/or anhydride; ethylene vinyl acetate; acid modified polyolefins; a combination of an acid-modified polyolefin with an amine-functional polymer; maleic anhydride-grafted EPDM; a hot melt containing a thermoplastic or elastomeric fluoropolymer; and a curable resin.

95. GAF's Timberline Solar Energy Shingles and roofing systems comprising same satisfy the additional limitation of claim 5 of the '653 patent because, on information and belief, the tie layer system of GAF's Timberline Solar Energy Shingle comprises ethylene vinyl acetate.

96. Claim 12 of the '653 patent recites:

A method of making a photovoltaic element according to claim 1, comprising:
arranging the tie layer system between the top surface of the roofing substrate and the bottom surface of the encapsulated photovoltaic element; then
joining the top surface of the roofing substrate to the bottom surface of the encapsulated photovoltaic element with the tie layer system.

97. On information and belief, GAF's Timberline Solar Energy Shingles and roofing systems comprising same satisfy the additional limitation of claim 12 of the '653 patent. As shown in Paragraphs 58 and 89 above, GAF makes a Timberline Solar Energy Shingle by arranging a tie

layer system between the top surface of the roofing substrate and the bottom surface of the encapsulated photovoltaic element, and that tie layer system joins the top surface of the roofing substrate to the bottom surface of the encapsulated photovoltaic element.

98. Claim 15 of the '653 patent recites: "The photovoltaic roofing element according to claim 1, wherein the tie layer system includes EVA."

99. GAF's Timberline Solar Energy Shingles and roofing systems comprising same satisfy the additional limitation of claim 15 of the '653 patent because, on information and belief, the adhesive layer in the tie layer system of a GAF Timberline Solar Energy Shingle comprises EVA.

100. As described in the preceding paragraphs, each limitation of at least claims 1, 2, 4, 5, 12, and 15 of the '653 patent is met by the accused Timberline Solar Energy Shingles, or GAF's method of making same, either literally or under the doctrine of equivalents.

101. GAF thus has infringed and continues to infringe the '653 patent by making, using, selling, and offering for sale the accused Timberline Solar Energy Shingles and roofing systems comprising same, and GAF is liable to CertainTeed for infringement pursuant to 35 U.S.C. § 271(a).

102. GAF has been aware of the '653 patent since at least as early as April 2022, and since no later than the filing of this Complaint. GAF's infringement thus has been willful and deliberate, entitling CertainTeed to enhanced damages pursuant to 35 U.S.C. § 284 and recovery of attorneys' fees and costs pursuant to 35 U.S.C. § 285.

103. GAF's infringement of the '653 patent will continue to damage CertainTeed's business, causing irreparable harm, for which there is no adequate remedy at law, unless GAF's wrongful acts are enjoined by this Court pursuant to 35 U.S.C. § 283.

104. GAF's infringement has caused and continues to cause damage to CertainTeed, and CertainTeed is entitled to recover damages in an amount subject to proof at trial pursuant to 35 U.S.C. § 284, including but not limited to damages for conveyed sales relating to the Accused Products.

COUNT THREE – INFRINGEMENT OF THE '465 PATENT

105. CertainTeed repeats and realleges the allegations of Paragraphs 1 through 104 above as if set forth herein.

106. GAF has directly infringed and continues to directly infringe at least claims 1, 3, 5, 7, and 8 of the '465 patent.

107. Claim 1 of the '465 patent recites:

A photovoltaic roofing element comprising:

an encapsulated photovoltaic element having a top surface and a bottom surface, a top layer material at its top surface and a bottom layer material at its bottom surface; a roofing substrate having a top surface; and

a tie layer system disposed between the encapsulated photovoltaic element and the roofing substrate and joining the bottom surface of the encapsulated photovoltaic element to the top surface of the roofing substrate

wherein the tie layer system includes a polymeric material having a Chang viscoelastic window exhibiting at least one set of coordinates ($\log(G'')$, $\log(G')$) lying within the window bound by the coordinates (4.5, 3), (4.5, 6), (6, 6), (6, 3), or within the window bound by the coordinates (4.5, 6), (4.5, 8), (8, 8), (8, 3.7), (6, 3.7).

108. On information and belief, GAF's Timberline Solar Energy Shingles and roofing systems comprising same satisfy all the limitations of claim 1 of the '465 patent.

109. The preamble of claim 1 of the '465 patent recites: "A photovoltaic roofing element comprising: ..."

110. To the extent the preamble is limiting, it is satisfied by GAF's Timberline Solar Energy Shingles and roofing systems comprising same. Roofing systems with GAF's Timberline

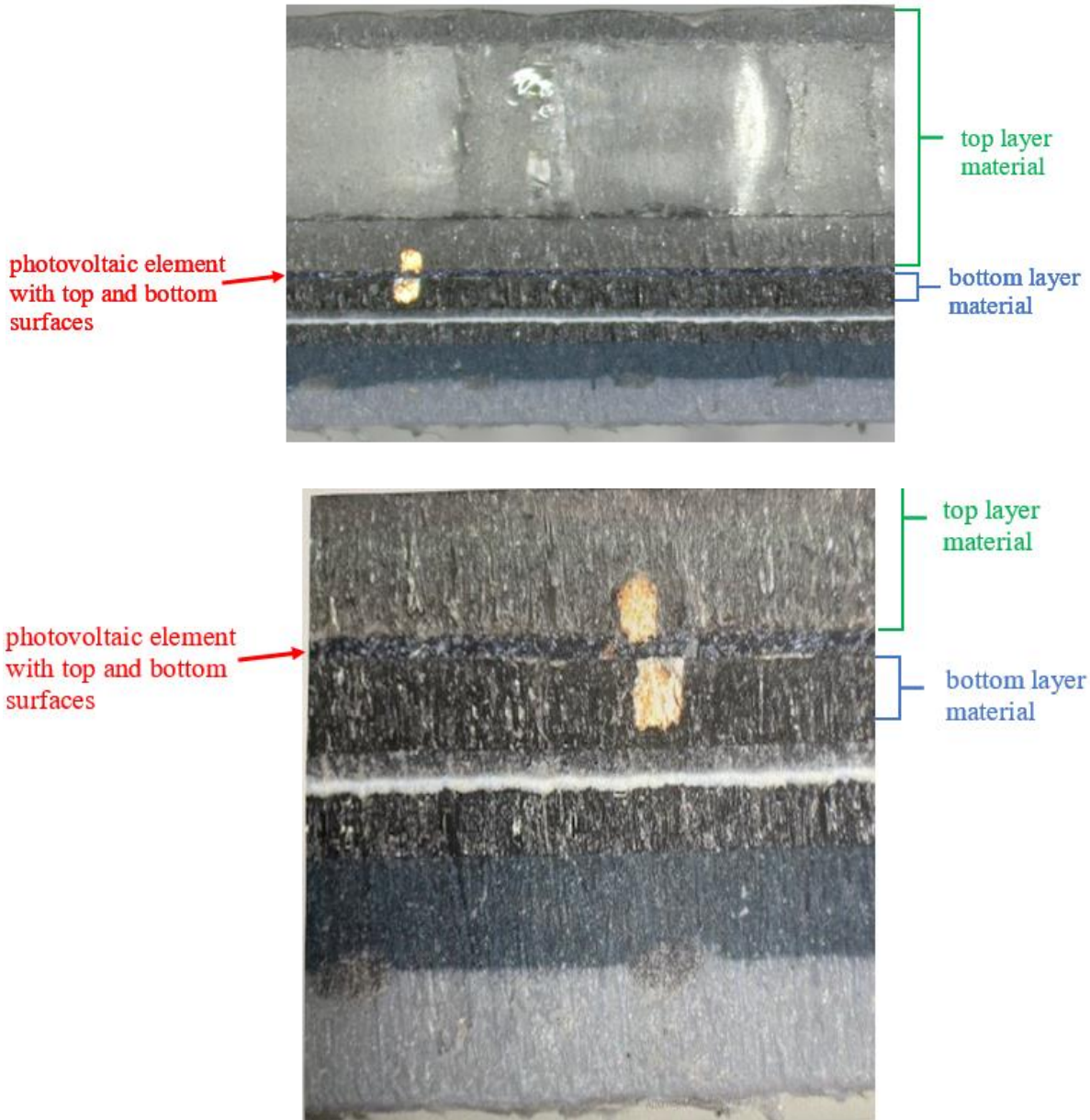
Solar Energy Shingles comprise “shingles that shield your home from the elements and generate clean electricity. It’s a roof with energy. It’s that simple.” See footnote 9, Exs. R-S.

111. The following images of a GAF Timberline Solar Energy Shingles further demonstrate that a GAF Timberline Solar Energy Shingle is a “photovoltaic roofing element”:



112. Claim 1 of the '465 patent further recites: “an encapsulated photovoltaic element having a top surface and a bottom surface, a top layer material at its top surface and a bottom layer material at its bottom surface ...”

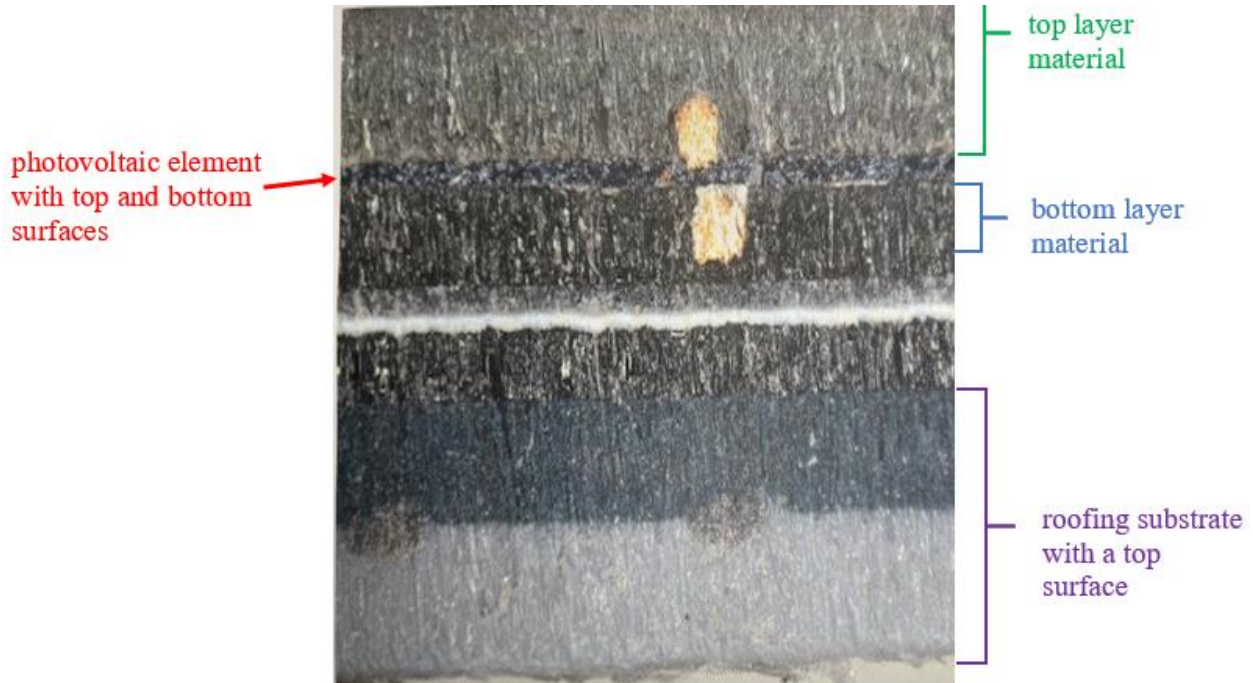
113. GAF's Timberline Solar Energy Shingles and roofing systems comprising same satisfy this limitation, as the following cross-sectional optical microscope images of a GAF Timberline Solar Energy Shingle demonstrate:



As shown above, a GAF Timberline Solar Energy Shingle comprises a photovoltaic element with top and bottom surfaces (red annotations) and top layer and bottom layer materials at the top and bottom surfaces of that photovoltaic element (green and blue annotations, respectively).

114. Claim 1 of the '465 Patent further recites: “a roofing substrate having a top surface; ...”

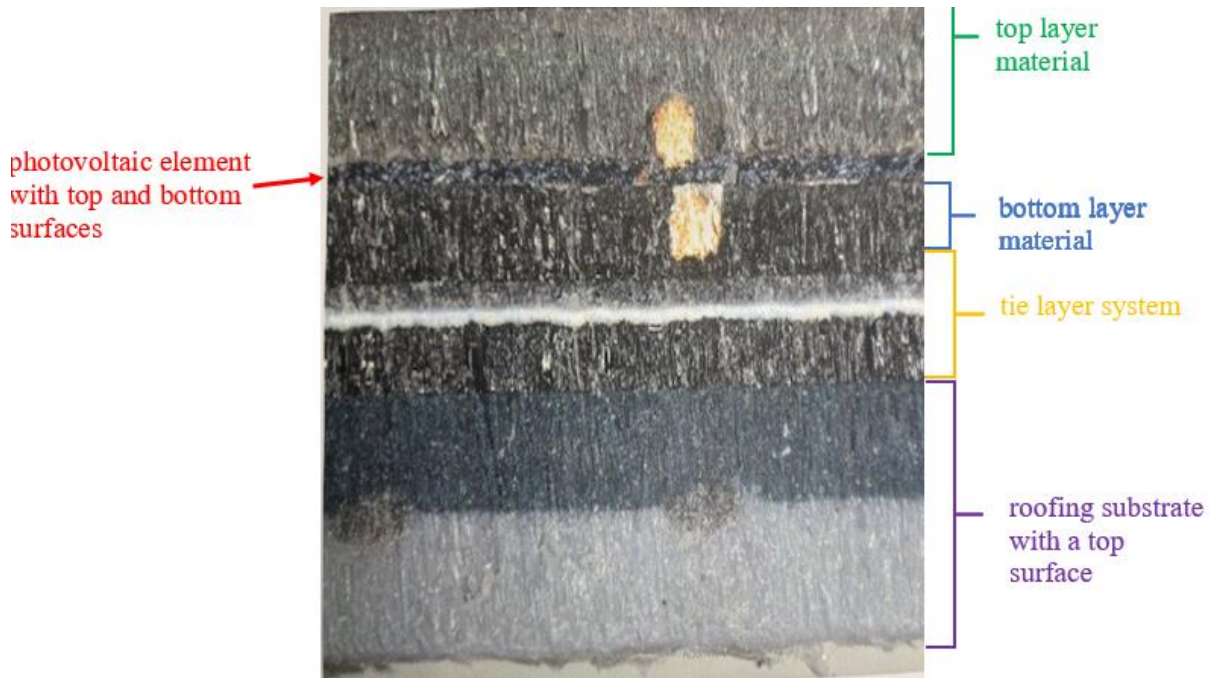
115. GAF’s Timberline Solar Energy Shingles and roofing systems comprising same satisfy this limitation, as the following cross-sectional optical microscope image of a GAF Timberline Solar Energy Shingle demonstrates:



As shown above, a GAF Timberline Solar Energy Shingle comprises a roofing substrate with a top surface (purple annotations).

116. Claim 1 of the '465 patent further recites: “a tie layer system disposed between the encapsulated photovoltaic element and the roofing substrate and joining the bottom surface of the encapsulated photovoltaic element to the top surface of the roofing substrate.”

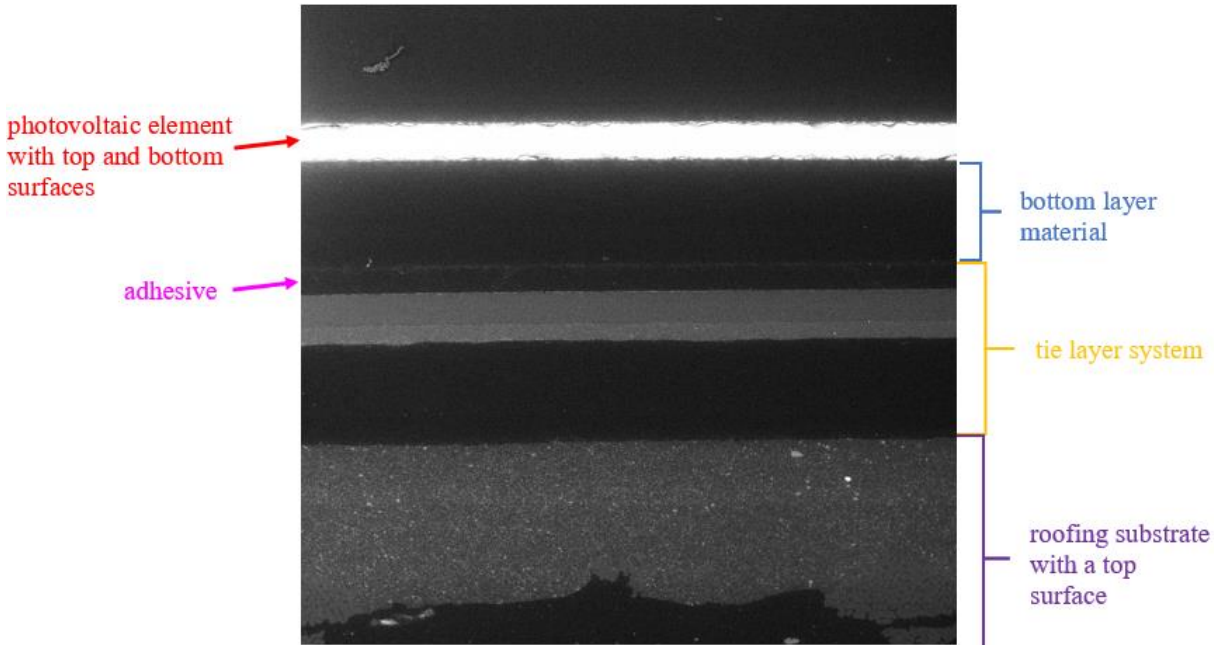
117. GAF’s Timberline Solar Energy Shingles and roofing systems comprising same satisfy this limitation, as the following cross-sectional optical microscope image demonstrates:



As shown above, a GAF Timberline Solar Energy Shingle comprises a tie layer system (yellow annotations) disposed between an encapsulated photovoltaic element (green, red, and blue annotations) and a roofing substrate (purple annotations) and joining the bottom surface of the encapsulated photovoltaic element to the top surface of the roofing substrate.

118. Claim 1 of the '465 patent further recites: “wherein the tie layer system includes a polymeric material having a Chang viscoelastic window exhibiting at least one set of coordinates ($\log(G'')$, $\log(G')$) lying within the window bound by the coordinates (4.5, 3), (4.5, 6), (6, 6), (6, 3), or within the window bound by the coordinates (4.5, 6), (4.5, 8), (8, 8), (8, 3.7), (6, 3.7).”

119. GAF’s Timberline Solar Energy Shingles and roofing systems comprising same satisfy this limitation, as the following scanning electron microscopy image of a GAF Timberline Solar Energy Shingle demonstrates:



As the above figure shows, the tie layer system in a GAF Timberline Solar Energy Shingle comprises an adhesive (pink annotations). And, as discussed in Paragraphs 59 and 65, on information and belief, the adhesive in the tie layer system of a GAF Timberline Solar Energy Shingle is polymeric and has a Chang viscoelastic window exhibiting coordinates lying within the window bound by the coordinates (4.5, 6), (4.5, 8), (8, 8), (8, 3.7), (6, 3.7).

120. Claim 3 of the '465 patent recites: “The photovoltaic roofing element of claim 1, wherein the roofing substrate is formed from polyolefin, polyethylene, polypropylene, ABS, PVC, polycarbonate, nylon, EPDM, fluoropolymer, silicone, rubber, thermoplastic elastomer, polyester, PBT, poly(meth)acrylate or epoxy.”

121. GAF’s Timberline Solar Energy Shingles and roofing systems comprising same satisfy the additional limitation of claim 3 of the '465 patent because, on information and belief, the top surface of the roofing substrate of a GAF Timberline Solar Energy Shingle is formed from polypropylene.

122. Claim 5 of the '465 patent recites: "The photovoltaic roofing element of claim 1, wherein the tie layer system comprises one or more polymer layers."

123. GAF's Timberline Solar Energy Shingles and roofing systems comprising same satisfy the additional limitation of claim 5 of the '465 patent because, on information and belief, the tie layer system shown in images set out above, e.g., in Paragraphs 58, 59, and 117, comprises, in addition to the adhesive layer discussed in Paragraphs 59 and 119, which is a polymer layer, one or more other polymer layers, such as polyethylene or polyethylene-based layers.

124. Claim 7 of the '465 patent recites: "The photovoltaic roofing element of claim 1, wherein the tie layer system includes a polymeric material having a Chang viscoelastic windows exhibiting at least one set of coordinates ($\log(G')$, $\log(G'')$) lying within the window bound by the coordinates (4.5, 6), (4.5, 8), (8, 8), (8, 3.7), (6, 3.7)."

125. On information and belief, GAF's Timberline Solar Energy Shingles and roofing systems comprising same satisfy the additional limitation of claim 7 of the '465 patent for the same reasons they satisfy the final limitation of claim 1 of the '465 patent. *See* Paragraph 119.

126. Claim 8 of the '465 patent recites: "The photovoltaic roofing element of claim 1, wherein the tie layer system comprises one or more materials selected from the group consisting of a polyolefin functionalized with carboxylate and/or anhydride; ethylene vinyl acetate; acid-modified polyolefins; a combination of an acid-modified polyolefin with an amine-functional polymer; maleic anhydride-grafted EPDM, a hot melt containing a thermoplastic or elastomeric fluoropolymer; and a curable resin."

127. GAF's Timberline Solar Energy Shingles and roofing systems comprising same satisfy the additional limitation of claim 8 of the '465 patent because, on information and belief, the tie layer system of GAF's Timberline Solar Energy Shingle comprises ethylene vinyl acetate.

128. As described in the preceding paragraphs, each limitation of at least claims 1, 3, 5, 7 and 8 of the '465 patent is met by the accused Timberline Solar Energy Shingles, either literally or under the doctrine of equivalents.

129. GAF thus has infringed and continues to infringe the '465 patent by making, using, selling, and offering for sale the accused Timberline Solar Energy Shingles and roofing systems comprising same, and GAF is liable to CertainTeed for infringement pursuant to 35 U.S.C. § 271(a).

130. GAF has been aware of the '465 patent since at least as early as April 2022, and since no later than the filing of this Complaint. GAF's infringement thus has been willful and deliberate, entitling CertainTeed to enhanced damages pursuant to 35 U.S.C. § 284 and recovery of attorneys' fees and costs pursuant to 35 U.S.C. § 285.

131. GAF's infringement of the '465 patent will continue to damage CertainTeed's business, causing irreparable harm, for which there is no adequate remedy at law, unless GAF's wrongful acts are enjoined by this Court pursuant to 35 U.S.C. § 283.

132. GAF's infringement has caused and continues to cause damage to CertainTeed, and CertainTeed is entitled to recover damages in an amount subject to proof at trial pursuant to 35 U.S.C. § 284, including but not limited to damages for conveyed sales relating to the Accused Products.

PRAYER FOR RELIEF

WHEREFORE, CertainTeed respectfully requests that this Court enter judgment that:

- A. GAF infringes the '796 patent.
- B. GAF infringes the '653 patent.
- C. GAF infringes the '465 patent.
- D. GAF, its officers, agents, servants, employees and attorneys, and all persons acting in concert or participation with them, be preliminarily and permanently enjoined from further acts of infringement;
- E. CertainTeed be awarded damages adequate to compensate for GAF's infringement, pursuant to 35 U.S.C. § 284, including pre-judgment and post-judgment interest;
- F. CertainTeed be awarded treble damages for GAF's willful infringement, pursuant to 35 U.S.C. § 284;
- G. An accounting and/or supplemental damages for all damages occurring after any discovery cutoff and through the Court's decision regarding the imposition of a permanent injunction and/or entry of final judgment;
- H. An award of attorneys' fees based on this being an exceptional case pursuant to 35 U.S.C. § 285, including prejudgment interest on such fees;
- I. Costs and expenses in this action; and
- J. An award of such other and further relief as the Court deems just and/or proper.

DEMAND FOR JURY TRIAL

CertainTeed respectfully demands a trial by jury on all issues triable to a jury.

Date: February 12, 2025

Respectfully submitted,

/s/ Paige Arnette Amstutz
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