CLAIMS

What is claimed is:

1. A fenestration assembly, comprising:

a layer of film;

a frame having a first surface and a second surface, which is opposite to said first surface, said first surface substantially surrounding and having secured thereon said film and said frame having a thickness such that when said second surface is fitted onto a window or a window frame, said thickness of said frame defines a space between said film and said window; and

wherein said film is a low-emittance film having an emissivity equal to or less than 0.35.

2. The fenestration assembly of claim 1, wherein said frame is made from at least one member selected from a group consisting of wood, vinyl and metal.

3. The fenestration assembly of claim 1, wherein said frame is insulated with a material such that a thermal resistivity measurement of said frame is substantially similar to a thermal resistivity measurement of said film.

4. The fenestration assembly of claim 1, wherein said film is made from at least one material selected from a group consisting of polyester, metal and a UV inhibitor.

5. The fenestration assembly of claim 1, wherein said film has a thickness that is between about 1.5 mils and about 15 mils.

6. The fenestration assembly of claim 5, wherein said thickness is between about 2 mils and about 12 mils.

7. The fenestration assembly of claim 1, wherein said emissivity is between about 0.08 and about 0.01.

8. The fenestration assembly of claim 7, wherein said emissivity is about 0.05.

9. The fenestration assembly of claim 1, wherein said thickness of said frame is between about 1/16 inch and about 6 inches.

10. The fenestration assembly of claim 9, wherein said thickness is between about 1/2 inch and about 1 inch.

11. A fenestration assembly, comprising:

a layer of film;

a frame having a first surface and a second surface, which is opposite to said first surface, said first surface substantially surrounding and having secured thereon said film;

a spacer attached to said first surface or said second surface and when said spacer is fitted onto a window or window frame, said spacer defines a space between said film and said window; and

wherein said film is a low-emittance film having an emissivity equal to or less than 0.35.

12. The fenestration assembly of claim 11, wherein said spacer is made from at least one material selected from a group consisting of plastic, magnet and a fluid sealant material.

13. The fenestration assembly of claim 11, wherein said spacer defines said space that is between about 1/16 inch and about 6 inches.

14. The fenestration assembly of claim 13, wherein said space is between about 1/2 inch and about 1 inch.

15. The fenestration assembly of claim 11, wherein said frame is made from at least one member selected from a group consisting of wood, vinyl and metal.

16. The fenestration assembly of claim 11, wherein said frame is insulated with a material such that a thermal resistivity measurement of said frame is substantially similar to a thermal resistivity measurement of said film.

17. The fenestration assembly of claim 11, wherein said low-emittance film is made from at least one material selected from a group consisting of polyester, metal and a UV inhibitor.

18. The fenestration assembly of claim 11, wherein said low-emittance film has a thickness that is between about 1.5 mils and about 15 mils.

19. The fenestration assembly of claim 18, wherein said thickness is between about 2 mils and about 12 mils.

20. The fenestration assembly of claim 11, wherein said emissivity is between about 0.08 and about 0.01.

21. The fenestration assembly of claim 20, wherein said emissivity is about 0.05.

22. A fenestration assembly, comprising:

a frame having a first surface and a second surface, which is opposite to said first surface, said frame having a thickness;

a protective layer attached to said first surface and said first surface surrounding said protective layer;

a low-emittance film having an emissivity equal to or less than 0.35, and said low-emittance film attached to and surrounded by said second surface of said frame, such that said thickness of said frame defines a space between said protective layer and said low-emittance film; and

wherein said low-emittance film is positioned adjacent to said window when said fenestration assembly is installed to cover a window and said low-emittance film in that configuration is designed to reduce energy loss through said window.

23. The fenestration assembly of claim 22, wherein said frame is made from at least one member selected from a group consisting of wood, vinyl and metal.

24. The fenestration assembly of claim 22, wherein said frame is insulated with a material such that a thermal resistivity measurement of said frame is substantially similar to a thermal resistivity measurement of said film.

25. The fenestration assembly of claim 22, wherein said frame is a hollow structure.

26. The fenestration assembly of claim 25, wherein said hollow frame includes a desiccant.

27. The fenestration assembly of claim 26, wherein said desiccant includes at least one material selected from a group consisting of silica gel, activated charcoal, calcium sulfate, calcium chloride, montmorillonite clay, and molecular sieves.

28. The fenestration assembly of claim 22, wherein said thickness of said frame is between about 1/16 inch and about 6 inches.

29. The fenestration assembly of claim 28, wherein said thickness is between about 1/2 inch and about 1 inch.

30. The fenestration assembly of claim 22, wherein said low-emittance film is made from at least one material selected from a group consisting of polyester, metal and a UV inhibitor.

31. The fenestration assembly of claim 22, wherein said low-emittance film has a thickness that is between about 1.5 mils and about 15 mils.

32. The fenestration assembly of claim 31, wherein said thickness is between about 2 mils and about 12 mils.

33. The fenestration assembly of claim 22, wherein said emissivity is between about 0.08 and about 0.01.

34. The fenestration assembly of claim 33, wherein said emissivity is about 0.05.

35. The fenestration assembly of claim 22, wherein said protective layer includes at least one material selected from a group consisting of glass, plastic or polyester.

36. The fenestration assembly of claim 35, wherein said protective layer has a thickness that is between about 2 mils and about 1/4 inch.

37. The fenestration assembly of claim 22, further comprising a foam material disposed around an outer boundary of said frame such that by fitting said foam material inside a cavity created by a window frame, which surround said window, said fenestration assembly covers said window.

38. The fenestration assembly of claim 22, further comprising a connecting member disposed on said second surface or on said low-emittance film near said second surface, and said connecting member includes at least one material selected from a group consisting of foam, magnet, plastic, screw, tape and glue, and said connecting member being designed to maintain a distance between said low-emittance film and said window.

39. The fenestration assembly of claim 38, wherein said connecting member has a length that is between about 1/16 inch and about 6 inches.

40. The fenestration assembly of claim 22, further comprising a support layer disposed between said protective layer and said low-emittance film such that said support layer supports said low-emittance film and said protective layer.

41. The fenestration assembly of claim 40, wherein said support layer includes at least one material selected from a group consisting of glass, plastic and polyester.

42. The fenestration assembly of claim 40, wherein said support layer includes a polyester film that includes one or more vertical support beams and one or more horizontal support beams that intersect each other at approximately 90 ° and form a grid, and said one or more vertical support beams and said one or more horizontal support beams have a thickness that is substantially equal to the thickness of said frame.

43. The fenestration assembly of claim 42, further comprising a plurality of mounts, each of which are positioned on said low-emittance film at a location that corresponds to the point of intersection of said one or more vertical support beams and said one or more horizontal support beams of said support film, wherein said mounts maintain a distance between said low-emittance film and said window when said fenestration assembly is installed on a window or a window frame.

44. The fenestration assembly of claim 43, wherein said distance between said low-emittance film and said window is between about 1/6 inch and about 6 inches.

45. A fenestration assembly, comprising:

a first frame having a first surface and a second surface;

a second frame having a first surface and a second surface;

a low-emittance film having an emissivity equal to or less than 0.35 and said low-emittance film sandwiched between said first and said second frames such that said low-emittance film adheres to said second surface of said first frame on one side and adheres to said first surface of said second frame on the other side;

a relatively thin protective film adhering to a first surface of said first frame, said relatively thin protective film is disposed adjacent to and faces a window when said fenestration assembly is installed on said window or a window frame, which surrounds said window; and

a relatively thick protective film adhering to a second surface of said second frame, said relatively thick protective film faces opposite to said window when said fenestration assembly is installed on said window or said window frame.

46. The fenestration assembly of claim 45, wherein said relatively thin protective film has a thickness that is between about 0.5 mils and about 6 mils.

47. The fenestration assembly of claim 46, wherein said relatively thick protective film has a thickness that is between about 2 mils and about 1/4 inch.

48. The fenestration assembly of claim 45, wherein said low-emittance film is made from at least one material selected from a group consisting of polyester, metal and a UV inhibitor.

49. The fenestration assembly of claim 45, wherein said low-emittance film has a thickness that is between about 1.5 mils and about 12 mils.

50. The fenestration assembly of claim 49, wherein said thickness is between about 2 mils and about 4 mils.

51. The fenestration assembly of claim 45, further comprising a first foam material and a second foam material, wherein said first foam material is disposed around an outer boundary of said first frame and said second foam material is disposed around an outer boundary of said second frame, such that by fitting said first foam material and said second foam material inside a cavity created by said window frame, said fenestration assembly is installed on said window or said window frame.

52. The fenestration assembly of claim 45, further comprising a connecting member disposed on said first surface of said first frame or on said relatively thin protective film near said first surface of said first frame, and said connecting member includes at least one material selected from a group consisting of foam, magnet, plastic, screw, tape and glue, and said connecting member being designed to maintain a distance between said relatively thin protective film and said window when said connecting member connects to said window or said window frame.

CLAIMS

1. A fenestration assembly, comprising:

a film;

a frame having a first surface and a second surface, which is opposite to said first surface, said first surface contacting and having adhered thereto said film and when said second surface is fitted onto a window or a window frame, a distance between said first surface and said second surface defines a space between said film and said window.

2. The fenestration assembly of claim 1, wherein said frame is made from at least one member selected from a group consisting of wood, vinyl and metal.

3. The fenestration assembly of claim 1, wherein said frame is insulated with a material such that a thermal resistivity measurement of said frame is substantially similar to a thermal resistivity measurement of said film.

4. The fenestration assembly of claim 1, wherein said film is made from at least one material selected from a group consisting of polyester, metal and a UV inhibitor.

5. The fenestration assembly of claim 1, wherein said film has a thickness that is between about 1.5 mils and about 15 mils.

6. The fenestration assembly of claim 5, wherein said thickness is between about 2 mils and about 12 mils.

7. The fenestration assembly of claim 1, wherein said film is a low-emittance film having an emissivity equal to or less than 0.35.

8. The fenestration assembly of claim 7, wherein said emissivity is between about 0.01 and about 0.08.

9. The fenestration assembly of claim 1, wherein said thickness of said frame is between about 1/16 inch and about 6 inches.

10. The fenestration assembly of claim 9, wherein said thickness is between about 1/2 inch and about 1 inch.

11. A fenestration assembly, comprising:

a film;

a frame having a first surface and a second surface, which is opposite to said first surface, said first surface contacting and having adhered thereto said film;

a spacer attached to any one of said first surface, ~~or~~ said second surface and said film, and when said spacer is fitted onto a window or window frame, said spacer defines a space between said film and said window.

12. The fenestration assembly of claim 11, wherein said spacer is made from at least one material selected from a group consisting of plastic, magnet and a fluid sealant material.

13. The fenestration assembly of claim 11, wherein said spacer defines said space that is between about 1/16 inch and about 6 inches.

14. The fenestration assembly of claim 13, wherein said space is between about 1/2 inch and about 1 inch.

15. The fenestration assembly of claim 11, wherein said frame is made from at least one member selected from a group consisting of wood, vinyl and metal.

16. The fenestration assembly of claim 11, wherein said frame is insulated with a material such that a thermal resistivity measurement of said frame is substantially similar to a thermal resistivity measurement of said film.

17. The fenestration assembly of claim 11, wherein said film is made from at least one material selected from a group consisting of polyester, metal and a UV inhibitor.

18. The fenestration assembly of claim 11, wherein said film has a thickness that is between about 1.5 mils and about 15 mils.

19. The fenestration assembly of claim 18, wherein said thickness is between about 2 mils and about 12 mils.

20. The fenestration assembly of claim 11, wherein said film is a low-emittance film having an emissivity equal to or less than 0.35.

21. The fenestration assembly of claim 20, wherein said emissivity is between about 0.01 and about 0.08.

22. A fenestration assembly, comprising:

a frame having a first surface and a second surface, which is opposite to said first surface, said frame having a thickness;

a protective layer attached to said first surface;

a film contacting and adhered to said second surface of said frame, such that a distance between said first surface and said second surface defines a space between said protective layer and said film; and

wherein said film is positioned adjacent to a window when said fenestration assembly is installed to cover said window and said film in that configuration is designed to reduce energy loss through said window.

23. The fenestration assembly of claim 22, wherein said frame is made from at least one member selected from a group consisting of wood, vinyl and metal.

24. The fenestration assembly of claim 22, wherein a said frame is insulated with a material such that a thermal resistivity measurement of said frame is substantially similar to a thermal resistivity measurement of said film.

25. The fenestration assembly of claim 22, wherein said frame is a hollow structure.

26. The fenestration assembly of claim 25, wherein said hollow frame includes a desiccant.

27. The fenestration assembly of claim 26, wherein said desiccant includes at least one material selected from a group consisting of silica gel, activated charcoal, calcium sulfate, calcium chloride, montmorillonite clay, and molecular sieves.

28. The fenestration assembly of claim 22, wherein said thickness of said frame is between about 1/16 inch and about 6 inches.

29. The fenestration assembly of claim 28, wherein said thickness is between about 1/2 inch and about 1 inch.

30. The fenestration assembly of claim 22, wherein said film is made from at least one material selected from a group consisting of polyester, metal and a UV inhibitor.

31. The fenestration assembly of claim 22, wherein said film has a thickness that is between about 1.5 mils and about 15 mils.

32. The fenestration assembly of claim 31, wherein said thickness is between about 2 mils and about 12 mils.

33. The fenestration assembly of claim 22, wherein said film is a low-emittance film having an emissivity equal to or less than 0.35.

34. The fenestration assembly of claim 33, wherein said emissivity is between about 0.08 and about 0.01.

35. The fenestration assembly of claim 22, wherein said protective layer includes at least one material selected from a group consisting of glass, plastic or polyester.

36. The fenestration assembly of claim 35, wherein said protective layer has a thickness that is between about 2 mils and about 1/4 inch.

37. The fenestration assembly of claim 22, further comprising a foam material disposed around an outer boundary of said frame such that by fitting said foam material inside a cavity created by a window frame, which surround said window, said fenestration assembly covers said window.

38. The fenestration assembly of claim 22, further comprising a connecting member disposed on said second surface or on said film near said second surface, and said connecting member includes at least one material selected from a group consisting of foam, magnet, plastic, screw, tape and glue, and said connecting member being designed to maintain a distance between said film and said window.

39. The fenestration assembly of claim 38, wherein said connecting member has a length that is between about 1/16 inch and about 6 inches.

40. The fenestration assembly of claim 22, further comprising a support layer disposed between said protective layer and said film such that said support layer supports said film and said protective layer.

41. The fenestration assembly of claim 40, wherein said support layer includes at least one material selected from a group consisting of glass, plastic and polyester.

42. The fenestration assembly of claim 40, wherein-said support layer includes a polyester film that includes one or more vertical support beams and one or more horizontal support beams that intersect each other at approximately 90° and form a grid, and said one or more vertical support beams and said one or more horizontal support beams have a thickness that is substantially equal to the thickness of said frame.

43. The fenestration assembly of claim 42, further comprising a plurality of mounts, each of which are positioned on said film at a location that corresponds to the point of intersection of said one or more vertical support beams and said one or more horizontal support beams of said support film, wherein said mounts maintain a distance between said film and said window when said fenestration assembly is installed on a window or a window frame.

44. The fenestration assembly of claim 43, wherein said distance between said film and said window is between about 1/6 inch and about 6 inches.

45. A fenestration assembly, comprising:

a first frame having a first surface and a second surface;

a second frame having a first surface and a second surface;

a film sandwiched between said first and said second frames such that said film contacts and adheres to said second surface of said first frame on one side and contacts and adheres to said first surface of said second frame on the other side;

a relatively thin protective film adhering to a first surface of said first frame, said relatively thin protective film is disposed adjacent to and faces a window when said fenestration assembly is installed on said window or a window frame, which surrounds said window; and

a relatively thick protective film adhering to a second surface of said second frame, said relatively thick protective film faces opposite to said window when said fenestration assembly is installed on said window or said window frame.

46. The fenestration assembly of claim 45, wherein said relatively thin protective film has a thickness that is between about 0.5 mils and about 6 mils.

47. The fenestration assembly of claim 46, wherein said relatively thick protective film has a thickness that is between about 2 mils and about 114 inch.

48. The fenestration assembly of claim 45, wherein said film is made from at least one material selected from a group consisting of polyester, metal and a UV inhibitor.

49. The fenestration assembly of claim 45, wherein said film has a thickness that is between about 1.5 mils and about 12 mils.

50. The fenestration assembly of claim 49, wherein said thickness is between about 2 mils and about 4 mils.

51. The fenestration assembly of claim 45, further comprising a first foam material and a second foam material, wherein said first foam material is disposed around an outer boundary of said first frame and said second foam material is disposed around an outer boundary of said second frame, such that by fitting said first foam material and said second foam material inside a cavity created by said window frame said fenestration assembly is installed on said window or said window frame.

52. The fenestration assembly of claim 45, further comprising a connecting member disposed on said first surface of said first frame or on said relatively thin protective film near said first surface of said first frame, and said connecting member includes at least one material selected from a group consisting of foam, magnet, plastic, screw, tape and glue, and said connecting member being designed to maintain a distance between said relatively thin protective film and said window when said connecting member connects to said window or said window frame.

53. The fenestration assembly of claim 8, wherein said emissivity has a value that is about 0.05.

54. The fenestration assembly of claim 45, wherein said film is a low-emittance film having an emissivity equal to or less than about 0.35.

55. The fenestration assembly of claim 1, wherein said film does not contact a glass body or an insulating surface.

56. The fenestration assembly of claim 1, wherein said space has defined therein an air gap.

57. The fenestration assembly of claim 11, wherein said film does not contact a glass body or an insulating surface.

58. The fenestration assembly of claim 11, wherein said space has defined therein an air gap.

59. The fenestration assembly of claim 22, wherein said film does not contact a glass body or an insulating surface.

60. The fenestration assembly of claim 22, wherein said space has defined therein an air gap.

61. The fenestration assembly of claim 45, wherein said film does not contact a glass body or an insulating surface.