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(54) **MOISTURE BARRIERS FOR BUILDING CONSTRUCTION**

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(57) **ABSTRACT**

Moisture and condensation barriers for protecting wood from damage in building structures, particularly wood that is or may be exposed to moisture from internal or external sources, wherein such barriers comprise a non-vulcanized liquid rubberized coating material coated on to one or more portions of wood members of building structures.

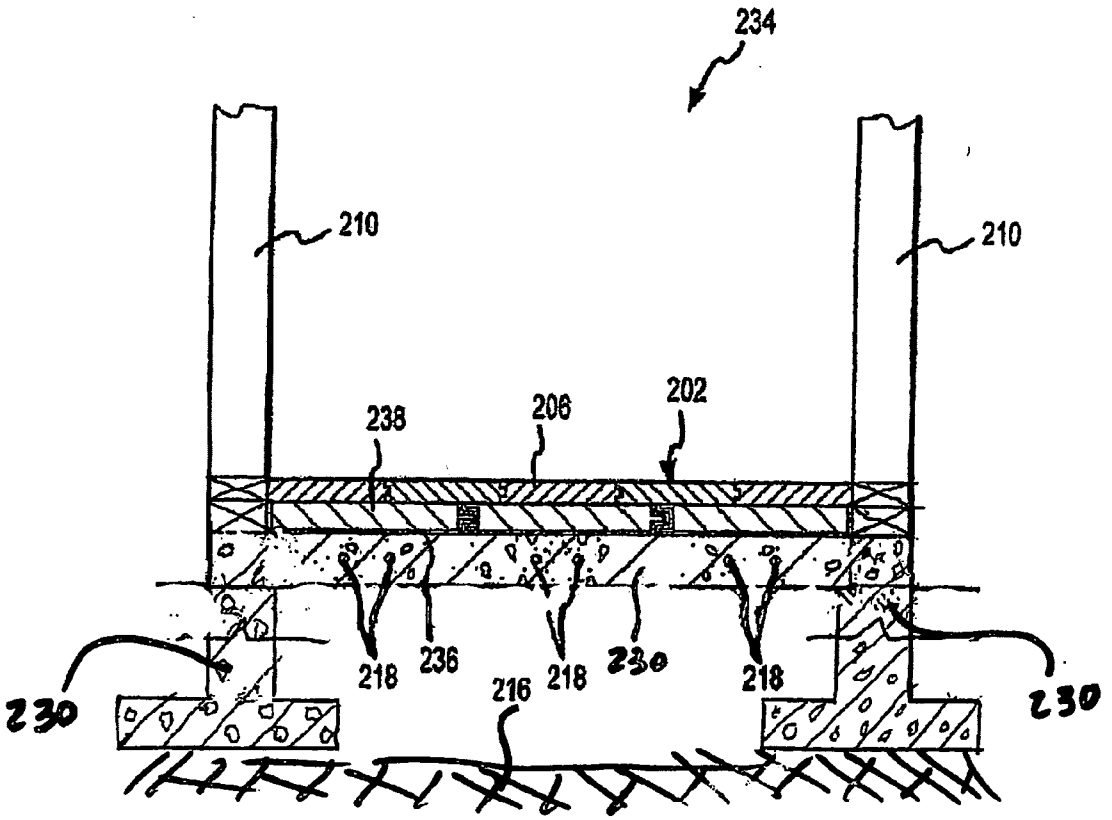

FIG. 1

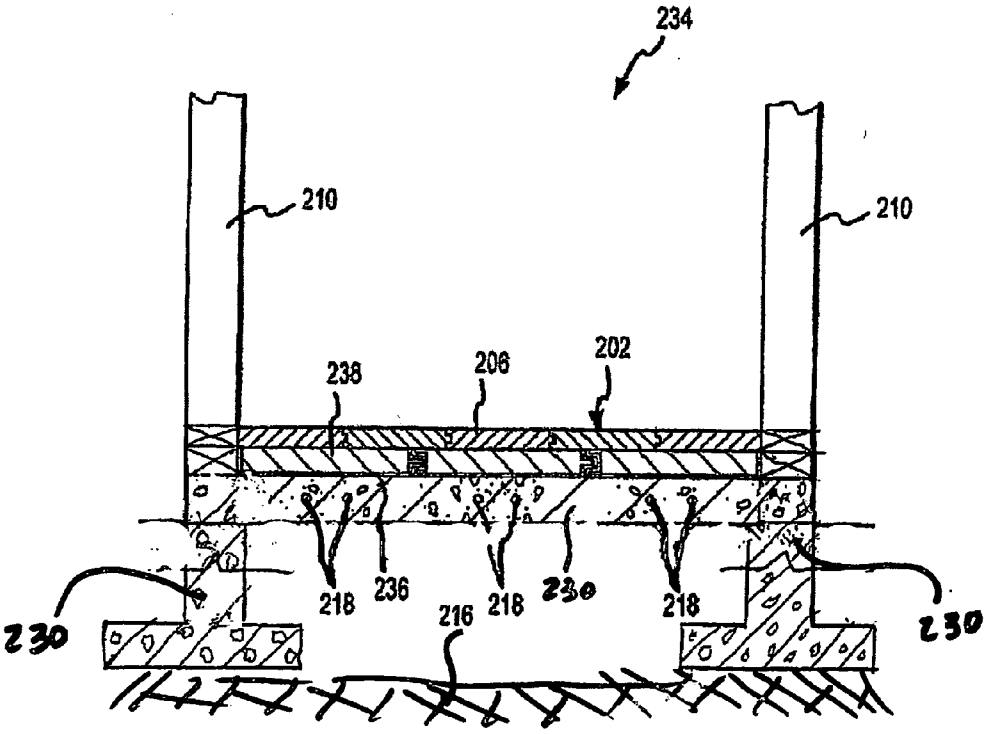

FIG. 2

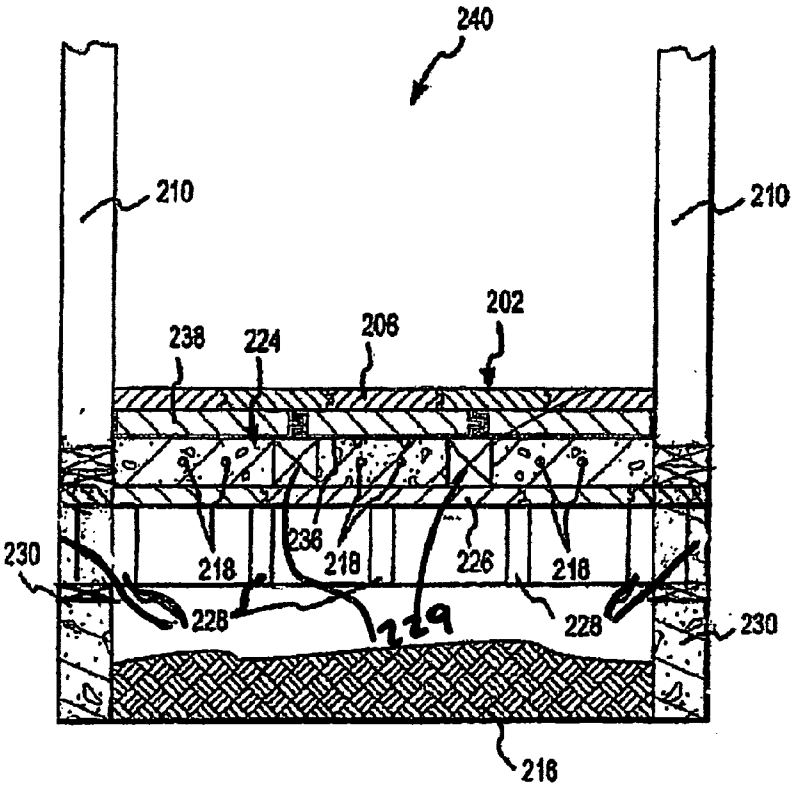
240
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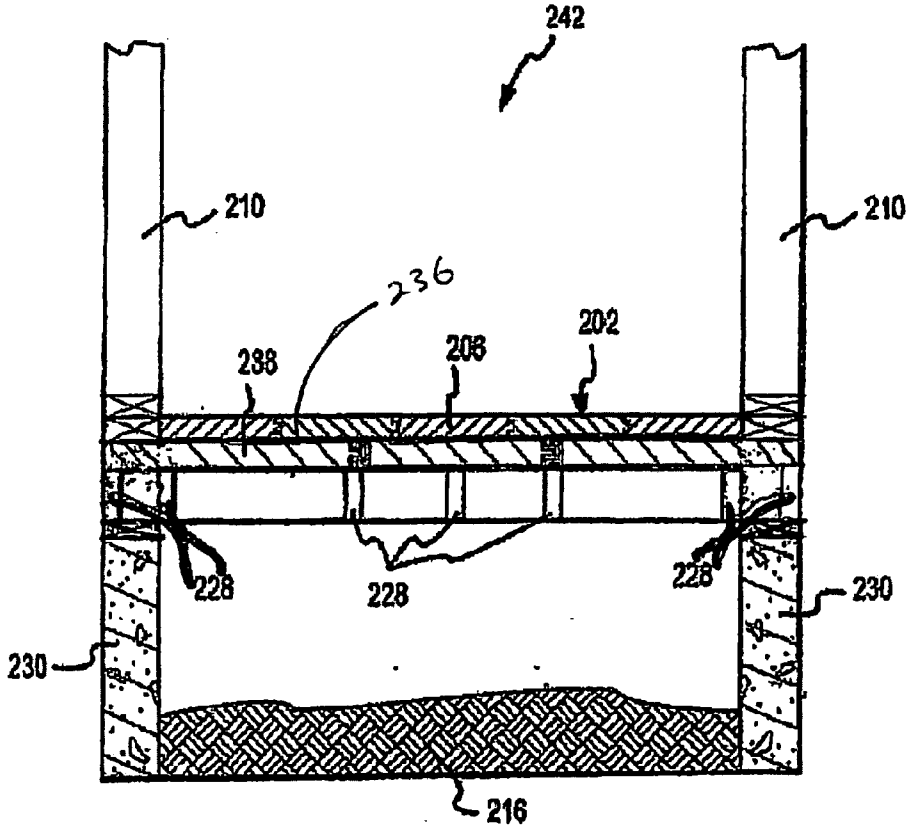
FIG. 3



MOISTURE BARRIERS FOR BUILDING CONSTRUCTION

PRIORITY CLAIM

[0001] This application claims priority to U.S. patent application Ser. No. 09/874,801, filed Jun. 5, 2001, and U.S. Provisional Patent Application 60/486,542, filed Jul. 11, 2003, each of which is incorporated by reference herein in its entirety.

FIELD

[0002] The subject matter herein relates to building construction materials having moisture barriers for use in building structures.

BACKGROUND

[0003] Moisture is known to cause warping, cracking, buckling, rotting and other damage to wood building materials in building structures and can create an environment for the growth of mold, mildew and termites in or on the wood. Moisture in the form of precipitation or condensation may enter a building structure by penetrating the sides (walls) or the roof; moisture and moisture vapor from ground water and other sources may enter a building structure by penetrating the floor of the structure through concrete slabs or unfinished crawl spaces. Newly fabricated building structures are particularly vulnerable to the entry of moisture since it is not usually possible or practical to install complete roofing or exterior wall protection systems immediately after the basic building structure is erected. The potentially damaging effects of moisture is a particular impediment to the progress of building, since interior building work cannot proceed prior to the installation of appropriate moisture barriers on the roof and other portions of a framed building structure. Moisture and condensation are also a problem in building structures having radiant heating systems. Condensation that forms as a result of frequent cycling of the systems and moisture released through leaks or ruptures in the systems can cause serious damage to the floor and other portions of a building structure.

[0004] Various types of moisture barriers have been developed to prevent damage to building structures. However, conventional moisture barriers suffer from lack of durability in that they degrade upon exposure to moisture, heat, and other conditions that are present in the environment or are created by systems such as radiant heating systems. Additionally, conventional moisture barriers have proven unsatisfactory for use in new construction in that they do not provide adequate protection to enable accelerated building of structural and other systems inside a newly framed building structure. Accordingly, an non-conventional moisture barrier is required that does not degrade over time or with repeated heating and cooling or with exposure to moisture, heat or other environmental factors.

SUMMARY

[0005] In accordance with the present disclosure, building construction materials are provided that comprise a moisture barrier comprising non-vulcanized, modified rubber. The moisture barrier does not degrade over time, especially when exposed to moisture or heating/cooling or freeze/thaw cycles. The building construction materials comprise a board to which is permanently adhered a non-vulcanized cured, modified rubber comprising a non-tacky surface.

[0006] Also provided are building structures which comprise several discrete structural portions, including a roof portion, a floor portion and a wall portion, in which one or more of each of the said portions comprise the building construction materials comprising a moisture barrier as described above.

[0007] Also provided are methods for constructing building structures wherein one or more portions of the structures are constructed with a building construction material that comprises a moisture barrier as described above.

[0008] Additional features and advantages of the invention will be set forth in part in the description which follows, and in part will be obvious from the description, or may be learned by practice of the invention. The features and advantages of the invention will be realized and attained by means of the elements and combinations particularly pointed out in the appended claims.

[0009] It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory only and are not restrictive of the invention, as claimed.

[0010] The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate several embodiments of the invention, and together with the description, serve to explain the principles of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] **FIG. 1** is a cross sectional view of a floor portion of a building structure comprising a moisture barrier coated onto the bottom side and at least two edge sides of subfloor boards. The boards are installed directly over a concrete slab having installed a radiant heating system, and the moisture barrier is oriented towards the concrete slab.

[0012] **FIG. 2** is a cross sectional view of a floor portion of a building structure comprising a moisture barrier coated onto the bottom side and at least two edge sides of subfloor boards. The boards are installed directly over an in floor radiant heating system and the moisture barrier is oriented towards the radiant heating system. The radiant heating system is installed over lower subfloor which is installed over a crawl space.

[0013] **FIG. 3** is a cross sectional view of a floor portion of a building structure comprising a moisture barrier coated onto the bottom side and at least two edge sides of subfloor boards. The boards are installed directly over a crawl space and the moisture barrier is oriented towards the crawl space.

DETAILED DESCRIPTION

[0014] Moisture Barriers made with Liquid Rubberized Coating Materials

[0015] The moisture barrier is made of a rubberized material that is initially in a liquid formulation. Generically, such formulations have rubber polymers in solution along with solvents such as methylene chloride and petroleum distillates, and other additive. These materials include polymeric rubber, adhesion promoters (agents that enhance binding to the substrate surface), and diluents and thinners (agents that

enhance miscibility and reduce viscosity of the liquid solution). Preferably, liquid rubberized coating material formulations include surface acting agents that stabilize the mixture, inert reinforcement powders, and UV (ultraviolet light) protection agents. Examples of polymeric rubber include: poly-butadiene, poly-isoprene, poly-ethylene-butylene, and polystyrene ethylene-butylene. Examples of surface acting agents include: suspending agents, deaerating agents, fume silica, clays, castor oil-based materials, surfactants. Examples of adhesion promoters include: silane coupling agents, modified polymeric coupling agents, titinates. Examples of inert reinforcement powders include: talc powder, clays, calcium carbonates. Examples of plasticizers include: DOP and DIBP. Examples of diluents and thinners include: organic solvents (aromatic or aliphatic); xylene; kerosene. An example of a UV protection additive is tinuvin, made by Ciba Geigy.

[0016] Examples of commercially available liquid rubberized coatings include "Dynatron Dyna-Pro Rubberized Undercoat" and "Mar-Hyde Paintable Rubber Undercoating," which are commonly used as undercoatings in the automotive and marine industries.

[0017] The liquid rubberized coating material is cured to form a non-tacky surface when it is applied to the wood board. For curing, the liquid rubberized coating material does not require additional treatment, pressurizing, heating, vulcanizing or other processing steps. The moisture barriers are described as having thicknesses that are described in units of "mil." A mil refers to a unit of length equal to one thousandth of an inch or 0.0254 millimeter. The non-vulcanized, cured liquid rubberized materials have been used effectively to prepare moisture barriers having thicknesses from 2 to 22 mil. For use in floors lacking radiant heating systems, thickness of 6 to 8 mil is acceptable. For use with in-floor radiant heating systems, application of these rubberized materials to thicknesses of about 10 to 12 mils provided optimal results. For roofing systems exposed to normal conditions (wind speed from 10 to 60 mph, sun exposure, moisture, temperature from about −10° F. to 110° F.), thicknesses ranging from 8 to 12 mil are acceptable. For extreme weather conditions (wind speed at or above 60 mph, sun exposure, moisture, temperature from about −40° F. to 180° F.), or for extended exposure to normal conditions (i.e., up to about 90 days), thicknesses from 15 to 20 mil is desirable.

[0018] Preparing Construction Materials having Rubberized Moisture Barriers

[0019] Rubberized coating materials are applied to boards to provide building construction materials, building structures, and roofing, wall, flooring and deck systems with moisture barriers. The materials may be applied in liquid form, by coating dipping or by using brushes, sprayers, squeegees and other means for applying liquids and allowed to dry or cure in ambient environment into a flexible non-tacky solid state permanently attached to the wood board. The rubberized materials may also be applied in the form of pre-cured membranes that are permanently affixed to the boards using heat, glue or other bonding methods or agents. In either case, the moisture barriers are contacted permanently with the surface of the board substrate; optionally, the moisture barriers may be contacted with the surface of the board at least in part through covalent chemical bonds between components of the moisture barrier and components of the board.

[0020] The term "wood board" as used herein refers to boards used as construction materials that are made of or comprise wood; wood boards may also comprise other materials. Boards have six sides; typically, two sides of a board comprise a large percentage of the overall surface area of the board, and are most alternately referred to as sides or faces; the remaining four sides of a board each comprise a small percentage of the overall surface area of the board, and are alternately referred to as the edges.

[0021] Wood boards that may be used according to the present disclosure include solid wood board, plywood board, CDX plywood, oriented strand board, tongue and groove board, composite board, chipboard and particle board, and the like. The wood boards may optionally have a tongue and groove construction or other similar inter-fitting construction for fitting one or more wood boards tightly together. The wood boards may be provided in any length or width, and likewise have any of a variety of thickness dimensions. For example, wood boards may have thicknesses of ½", ⅜", ⅝", ¾" or 1⅛".

[0022] The moisture barrier is permanently attached to and entirely covers at least one side of a wood board. Optionally, the moisture barrier entirely covers from one to five sides of the wood board and does not cover any part of one or more of the remaining six sides of the wood board. Optionally, the moisture barrier entirely covers from one to five sides of the wood board, and partially covers one or more of the remaining six sides of the wood board. Preferably, the moisture barrier entirely covers five sides of the wood board and covers only part of the surface of the remaining side of the wood board.

[0023] The terms "partially covers" and "partially covered," as used herein to describe the extent of coverage of the surfaces of a wood board with a moisture barrier, means that only part of the total surface area of a wood board, or only part of a discrete side of a wood board, is covered with the moisture barrier.

[0024] The term "entirely covers," as used herein to describe the extent of coverage of a discrete side of a wood board with a moisture barrier, means that substantially 100% of the surface area of a discrete side of a wood board is covered with the moisture barrier.

[0025] The term "only part of the surfaces," as used herein to describe the extent of coverage of the surfaces of a wood board with a moisture barrier, means that less than substantially 100% of the total surface of the board is covered with the moisture barrier, however, 100% of any one side may be covered (i.e., entirely covered) so long as at least one side is only partially covered.

[0026] Installation of Building Construction Materials having Rubberized Moisture Barriers Roofing Installation

[0027] Roofing systems may be constructed with the moisture barrier facing the exterior of the building structure so as to limit the entry of moisture into the structure. The gaps between the construction materials may be sealed with tape, such as flashing membrane, or other appropriate sealing materials. The roofing systems may also comprise other

layers such as styrofoam insulation or thermal blanket materials. The final, surface layer of the roofing system may comprise wood, asphalt shingles, slate, tile, metal, or other finishing materials.

[0028] Walls and Siding Installation

[0029] Wall systems may be constructed with the moisture barrier facing the exterior of the building structure. The gaps between the construction materials may be sealed with tape, such as flashing membrane, or other appropriate sealing materials. The wall system may also comprise other layers such as styrofoam or blown insulation. The final, surface layer of the wall system may comprise wood, metal, or vinyl siding, shakes or shingles, stone, or brick veneer, lathe and stucco siding, or other finishing materials.

[0030] Flooring Installation

[0031] Flooring systems may be supported by structural joists, or floor trusses, which in turn may be installed over either a concrete slab or a crawl space, and supported by some type of concrete slab so as to elevate the structural joists and flooring system above the ground. A flooring system may further include a "finished" hardwood stone, carpet, tile, vinyl, or cork floor above a first wood subfloor. The finished floor may overlay an optional radiant heating system above a second wood subfloor, which is supported by the structural joists. There are many types of radiant heating systems for flooring; one example is a radiant heating system that includes lightweight concrete or Gypcrete sections having heat pipes displaced throughout the length of the lightweight concrete or Gypcrete sections. The radiant heating system keeps the flooring system, and consequently the building structure, warm during cold temperature seasons.

[0032] Flooring systems may be installed with the moisture barrier facing either towards or away from the source of moisture. The construction material with the moisture barrier is installed below a hardwood floor, either directly over a slab, crawl space or in a floor heating system. In some cases, the moisture barrier is installed in two layers. In such flooring systems, a lower sub floor is installed over a concrete or Gypcrete slab or crawl pace with the moisture barrier facing away from the slab or crawl space. An in floor radiant heating system is then installed over this lower sub floor using lightweight concrete to encase the heating system. Above the encased heating system an upper sub floor is installed, with the moisture barrier facing toward the heating system. The hardwood flooring is installed above this upper sub floor.

[0033] Foundation Installation

[0034] Foundation (below grade): Plywood foundations may be installed with the moisture barrier facing the exterior of the building structure. Seams between the wood boards must be sealed with tape or a flashing membrane, and the wood boards are nailed to studs, such as 2×6 studs, which are anchored to the structure footing using anchor bolts.

[0035] Waterproof Deck Installation

[0036] Deck systems may be constructed with ¾" or 1⅛" tongue and groove plywood or OSB boards with moisture barriers and installed to form the deck subfloor, with the moisture barrier facing the elements. Seams between the edges of the boards are sealed with tape or flashing membrane. Preferably, membrane is applied along all vertical surfaces and extending from 12" to 18" on to the deck surface. After coated plywood is installed and taped to prevent leaking an additional layer (membrane) is optionally applied to overlap all seams by at least 6". A ¼" thick protection mat is installed over optional second membrane. Sleeper system, 1½"×1½", is installed on top of protection mat. Wood decking is attached to sleeper system using attachment means to avoid penetrating the moisture barriers below. If stone or other material is used for the finished deck surface, the sleeper system is replaced with a setting bed (made, for example, with mortar mix) to set the stone or other material.

[0037] Interior Water Exposed Spaces

[0038] Interior water exposed spaces such as showers, whirlpools, tubs and the like may be constructed using building construction materials with moisture barriers. The materials are installed with the moisture barriers facing toward the moisture conditions.

[0039] Constructing Dried-In, Intermediate Building Structures

[0040] The building construction materials comprising moisture barriers as provided herein can be used to effectively "dry-in" framed structures so as to shorten the time from framing to roughing-in. Traditionally, building structures are constructed by first building a frame ("framing") then by further build up of the various portions of the structure, such as the floors, roof, walls, facia and soffets. After framing, the next layer of the structure, which usually comprises wood boards that are unfinished and are not intended for exposure to the environmental elements for extended periods of time, as well as other components such as, for example, the exterior windows and doors and brick, stone or concrete, are installed. Thereafter, weatherproofed roofing and siding materials are installed. After installation of weatherproofed roofing materials (and optionally, siding materials), the interior work is begun with installation of plumbing, electrical and HVAC systems ("roughing-in").

[0041] The period of time that elapses from framing to roughing-in ranges from about 2 weeks to about 6 weeks for a two-story, wood-based building structure of 4,000 to 10,000 square feet or more. The long delay between framing and interior work is almost exclusively due to the need to avoid the damaging effects of the environmental elements, including wind, precipitation and sunlight, on interior systems, such as electrical wiring. A dried-in structure may be achieved much earlier in the construction process by use of construction materials protected with moisture barriers, as described herein. These construction materials may be installed immediately during framing of the structure. When used in conjunction with appropriate flashing and tape materials (for example, Ultra-Shield EPDM flashing membrane or similar products), the installed construction materials will effectively bar the penetration of the elements, particularly moisture, into the structure, thus permitting roughing-in to occur much sooner after framing, or approximately 2-4 weeks earlier than usual.

[0042] A suitably dried-in structure will have the construction materials with the moisture barrier installed to form at least the roof portion. Either or both the wall and floor portions may also have the construction materials installed.

These dried-in structures are "intermediate building structures" in that additional layers such as siding, roofing materials, and flooring components remain to be installed. Dried-in structures, and the methods for making them, permit acceleration of the building schedule by permitting rough-in to commence early.

EXAMPLES

Example 1

Installation of a Moisture Barrier above an In-Floor Radiant Heating System Installed on Grade in a Concrete Slab

[0043] A building structure **234** having a flooring system **202** including an adequate moisture barrier is shown in **FIG. 1**. In this embodiment, the moisture and condensation barrier **236** is coated onto the undersides and the edges of a plurality of wood boards (such as plywood, chipboard, particle board, etc.) that form a wood subfloor **238** under the hardwood floor **206**. The moisture and condensation barrier **236** generally comprises a rubberized material that can be sprayed, painted or otherwise coated onto the wood board for the subfloor **238**, with application occurring either in the field before or after installation, or elsewhere before installation. The moisture and condensation barrier **236** can then be allowed to dry or cure to form a flexible non-tacky solid that is permanently attached to the wood board, is resistant to penetration by water, is durable and not subject to degradation when exposed to water and/or to heating/cooling cycles (e.g. freeze/thaw cycles) and can allow nails and staples to pass through in order to affix the wood board for the subfloor **238** to other components of the building structure **234**, if needed. That product commonly referenced by the trade name "Dynatron (.TM.) Dyna-Pro Rubberized Undercoat" (.TM.) available from Bondo Corporation of Atlanta, Ga., is an acceptable example of such a rubberized material. Additionally, that product commonly referenced by the trade name "Mar-Hyde Paintable Rubber Undercoating" (.TM.) available from Bondo/Mar-Hyde Corporation of Atlanta, Ga. is also an acceptable example of such a rubberized material. Additionally, the product Bondo formulation 9706 can be used. The flooring system **202** is shown placed between the walls **210** above the concrete slab **230** supported above the ground **216**. The concrete slab **230** also serves as an optional radiant heating system having the heat pipes **218** displaced throughout the concrete slab **213**. In the embodiment shown in **FIG. 1**, the moisture and condensation barrier **236** is installed in the flooring system **202** oriented away from the interior of the building structure **234**. In alternate embodiments (not shown), the moisture and condensation barrier **236** may be installed in the flooring system **202** oriented toward the interior of the building structure **234**. In further embodiments (not shown), the moisture and condensation barrier **236** may be installed on two levels of wood subfloor **238** with one level being oriented toward and one level being oriented away from the interior of the building structure **234**. The same flooring system **202** with the moisture and condensation barrier **236** coated onto the wood boards of the wood subfloor **238** may also be incorporated into a building structure (not shown) not having the radiant heating system. Likewise, the flooring system **202** may be installed into a building structure (not shown) having a concrete slab on grade that is positioned directly on the ground **216**.

[0044] Commercially available Bondo formulation 9706 was used to form the moisture barrier **236**. Bondo formulation 9706 is only one example of a non-vulcanized rubber material that may be used according to this invention. This liquid rubberized coating material was coated onto solid wood boards to a thickness of approximately 6-8 mil. The coating was applied using a roller and approximately 3 coats were applied. The moisture barrier was then allowed to dry under ambient conditions to form a flexible non-tacky solid that was permanently attached to the wood board, was resistant to penetration by water, was durable and not subject to degradation when exposed to water and/or to heating/cooling cycles (e.g. freeze/thaw cycles). The coated boards were installed to form a wood subfloor **238** under the hardwood floor **206**.

Example 2

Installation of a Moisture Barrier above an In-Floor Radiant Heating System Installed over a Crawl Space

[0045] In another embodiment, a building structure **240** having a flooring system **202** including an adequate moisture barrier **236** is shown in **FIG. 2**. In this flooring system **202** the moisture and condensation barrier **236** is coated onto the wood boards that form the wood subfloor **238** under the hardwood floor **206**. The flooring system **202** is shown placed between the walls **210** and the flooring system **202** is elevated above the ground **216** by the concrete or Gypcrete slab **230** and the structural joists **228**. The embodiment also includes the radiant heating system **224** (having the heat pipes **218** and sleeper system **229**) supported on the second wood subfloor **226** in the flooring system **202**.

[0046] Bondo formulation 9706 was used to form the moisture barrier, and was coated onto the wood boards that form the wood subfloor under the hardwood floor. This liquid rubberized coating material was coated onto solid wood boards to a thickness of approximately 6-8 mil. The coating was applied using a roller and approx 3 coats were applied. The moisture barrier was then allowed to dry under ambient conditions to form a flexible non-tacky solid that was permanently attached to the wood board, was resistant to penetration by water, was durable and not subject to degradation when exposed to water and/or to heating/cooling cycles (e.g. freeze/thaw cycles). The coated boards were installed to form a wood subfloor under the hardwood floor, with the moisture barrier facing towards the heating system.

Example 3

Retro-Installation of a Moisture Barrier over a Crawl Space

[0047] A building structure **242** flooring system **202** including an adequate moisture barrier **236** is shown in **FIG. 3**. In this flooring system **202** the moisture and condensation barrier **236** is coated onto the plurality of wood boards that form the wood subfloor **238** under the hardwood floor **206**. The flooring system **202** is shown placed between the walls **210** and the flooring system **202** is elevated above the ground **216** by the concrete slab **230** and the structural joists **228**. The embodiment does not include a radiant heating system, so the wood subfloor **238** having the coated-on moisture and condensation barrier **236** is supported directly on the structural joists **228**.

[0048] Previously-installed hardwood flooring was removed to reveal the sub-floor **238**, which was installed on structural joists **228** over an earthen crawl space (ground **216**). Bondo formulation 9706 was used to form the moisture barrier, and was coated directly on to the upper surface of the wood boards of the installed sub floor. The liquid rubberized coating material was coated onto to a thickness of approximately 6-8 mil using a roller and approximately 3 coats were applied. The moisture barrier was then allowed to dry under ambient conditions to form a flexible non-tacky solid. A hard wood floor **206** was installed over the coated sub floor **238** boards.

[0049] It should be understood that every maximum numerical limitation given throughout this specification will include every lower numerical limitation, as if such lower numerical limitations were expressly written herein. Every minimum numerical limitation given throughout this specification will include every higher numerical limitation, as if such higher numerical limitations were expressly written herein. Every numerical range given throughout this specification will include every narrower numerical range that falls within such broader numerical range, as if such narrower numerical ranges were all expressly written herein.

[0050] While particular embodiments of the subject invention have been described, it will be obvious to those skilled in the art that various changes and modifications of the subject invention can be made without departing from the spirit and scope of the invention. In addition, while the present invention has been described in connection with certain specific embodiments thereof, it is to be understood that this is by way of illustration and not by way of limitation and the scope of the invention is defined by the appended claims which should be construed as broadly as the prior art will permit.

We claim:

1. A building construction material comprising: a wood board; and a moisture barrier having a non-tacky surface and comprising a non-vulcanized, modified rubber, permanently attached to the board and covering only part of the surfaces of the board.

2. A building construction material as recited in claim 1 wherein the moisture barrier has a thickness in a range selected from the group consisting of at least 6 to 8 mil, at least 8 to 12 mil, at least 12 to 14 mil, at least 14 to 18 mil, and at least 18 to 20 mil

3. A building construction material as recited in claim 2 wherein the moisture barrier entirely covers the surface of only one side of the wood board.

4. A building construction material as recited in claim 2 wherein the moisture barrier entirely covers the surfaces at least one but not more than five sides of the wood board.

5. A building construction material as recited in any one of claims **1-4** wherein said wood board is selected from the group consisting of solid wood board, plywood board, CDX plywood, oriented strand board, tongue and groove board, composite board, chipboard and particle board.

6. A building structure having a floor portion, a wall portion, and a roof portion, wherein said roof portion comprises a building construction material as recited in claim 1, said building construction material having a moisture barrier that is at least 6 to 20 mil thick.

7. A building structure as recited in claim 6 wherein said floor portion comprises a building construction material as recited in claim 1, said building construction material having a moisture barrier that is at least 6 to 12 mil thick.

8. A building structure as recited in claim 6 wherein said wall portion comprises a building construction material as recited in claim 1, said building construction material having a moisture barrier that is at least 6 to 12 mil thick.

9. A building structure having a floor portion, a wall portion, and a roof portion, wherein at least one portion of said building structure comprises a plurality of wood boards which have a moisture barrier permanently attached to only part of the surfaces, and wherein said moisture barrier has a non-tacky surface and comprises a non-vulcanized, modified rubber.

10. A building structure as recited in claim 9 wherein the roof portion comprises a plurality of wood boards having a moisture barrier that is at least 18 to 20 mil thick, and wherein the floor portion comprises a plurality of boards having a moisture barrier that is at least 8 to 10 mil thick, and wherein the wall portion comprises a plurality of wood boards having a moisture barrier that is at least 6 to 12 mil thick.

11. A building structure as recited in any one of claims **6-10**, wherein the moisture barrier is permanently attached to the wood board prior to its installation in the building structure.

12. A building structure as recited in any one of claims **6-10** wherein said wood boards are selected from the group consisting of solid wood board, plywood board, CDX plywood, oriented strand board, tongue and groove board, composite board, chipboard and particle board.

13. A method of protecting a framed building structure from the damaging effects of moisture, comprising:

providing a building structure frame comprising a floor portion, a wall portion, and a roof portion, and having an interior space defined by the floor, wall and roof portions;

providing a building construction material comprising a board, and a moisture barrier having a non-tacky surface and comprising a non-vulcanized, cured liquid rubberized material, wherein said material is permanently attached to the board and covers only part of the surfaces of the board; and

combining said building construction material with said building structure frame to form an intermediate building structure, wherein the building construction material is installed on the building structure frame to form part of one or more of the roof, floor or wall portions of the building structure.

14. A method as recited in claim 13 wherein the building construction material is installed to form part of the roof portion, with the moisture barrier facing away from the interior space.

15. A method as recited in claim 13 wherein the building construction material is installed to form part of the wall portion with the moisture barrier facing away from the interior space.

16. A method as recited in claim 13 wherein the building construction material is installed to form part of the floor portion, with the moisture barrier facing toward the interior space.

17. A method as recited in claim 13 wherein the building construction material is installed to form part of the wall portion, with the moisture barrier facing toward the interior space.

18. A method as recited in claim 13 wherein the building construction material is installed to form part of the floor portion, with the moisture barrier facing away from the interior space.

19. A building structure having an interior portion which is exposed to moisture conditions, wherein at said interior portion of said building structure comprises a plurality of wood boards which have a moisture barrier permanently attached to only part of the surfaces, and wherein said moisture barrier has a non-tacky surface and comprises a non-vulcanized, modified rubber.

20. A building structure according to claim 19, wherein the plurality of wood boards are installed to form part of one or more of the roof, floor, or wall portions of the building structure.

21. A building structure according to claim 20, wherein the plurality of wood boards are installed to form part of the floor portion of the building structure.

22. A building structure according to claim 20, wherein the plurality of wood boards are installed to facing away from the interior space.

23. A building structure according to claim 20, wherein the plurality of wood boards are installed to facing toward the interior space.

24. A building structure according to claim 20, wherein the moisture barrier attached to the plurality of wood boards is at least 8 to 10 mil thick.

25. A building structure according to claim 20, wherein the plurality of wood boards are selected from the group consisting of solid wood board, plywood board, CDX plywood, oriented strand board, tongue and groove board, composite board, chipboard and particle board.

26. A building structure according to claim 20, wherein the moisture barrier is attached to the plurality of wood boards either before or after installation in the building structure.

27. A building structure according to claim 20, wherein the moisture barrier is attached to the plurality of wood boards after installation in the building structure.

* * * * *