Reusables Conformable Waterproof Wrap

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Abstract
A reusable, conformable, waterproof wrap protects stacks of boxes or other items from damage by ground level liquids. The wrap can be made of one or more sheets of one or more materials that together provide durability, abrasion resistance and waterproofing for the bottom portion of the item, extending up the sides a desired distance from the ground. Items are placed on the wrap, and a margin of unused material around the periphery can be folded up and securely wrapped around the item. Heavy weight Velcro® can allow folds of extra material at the corners to be secured flat along the vertical sides of item. Velcro® or other strips can be provided for extra reinforcement, tautness, and security. Riser strips and/or riser points on the bottom of the wrap can help reduce friction when the wrap is secured on the bottom of a stack of boxes being pushed or dragged, such as along a warehouse floor.
FIG. 3
REUSABLE CONFORMABLE WATERPROOF WRAP

PRIORITY CLAIM

[0001] This application is a continuation of U.S. application Ser. No. 11/844,758, filed on Aug. 24, 2007 and entitled REUSABLE CONFORMABLE WATERPROOF WRAP, which claims the benefit of priority under 35 U.S.C. §119(e) to both U.S. Provisional Application No. 60/840,479, filed on Aug. 24, 2006 and U.S. Provisional Application No. 60/914,693, filed on Apr. 27, 2007, both entitled REUSABLE WATERPROOF WRAPPING, the entirety of all of which are incorporated herein by reference.

FIELD OF THE INVENTIONS

[0002] The inventions relate to protective coverings, and more particularly, to waterproof protective coverings.

BACKGROUND

[0003] Large quantities of boxes and various types of products are frequently stored in warehouses for safekeeping, where they can hopefully be kept in a dry and protected state. Cardboard boxes, which are commonly used as containers for a wide variety of products, readily absorb moisture to which they are exposed. Cardboard boxes that have absorbed water or other liquid can allow that liquid to pass in to the contents of the box, possibly damaging the contents. Furthermore, the structural integrity of cardboard boxes exposed to liquid can be compromised. When such boxes are stacked, as is common in warehouse settings, the wet boxes may no longer be able to support the weight of the boxes above them. Other types of containers and products can also suffer damage when exposed to excessive amounts of moisture. Thus, allowing boxes and other stored items to become wet potentially exposes the contents to damage and the owners to financial loss.

[0004] Stored items are frequently most susceptible to damage from exposure to water at the ground level that can result from flooding, water main leaks, other leaks, and the like. One way to protect boxes and other warehouse items from ground level moisture is to store the boxes on pallets made from wood or other rigid, weight-bearing materials, which raise the boxes off the warehouse floor. The weight of the pallets frequently precludes the possibility of stacking one full pallet on top of another loaded pallet. Thus, to take some advantage of the ceiling height available in most warehouses, racks can be installed along the walls and into the floor of the warehouse onto which one pallet loaded with boxes can be placed per rack.

[0005] However, these solutions suffer from several disadvantages. Both pallets and racks take up a great amount of extra space in a warehouse beyond the space used by the boxes/product they support. Horizontally, an unused clearance space around the outer margin of the top surface of each pallet is frequently left clear of any boxes. Thus, stacks of boxes that are positioned on pallets cannot be stored as compactly as can stacks of boxes that are simply placed side-by-side on a warehouse floor. Vertically, racking systems also create unused space between the racks, which is used to allow for a fork lift to add and remove pallets from the racks. Pallets and racks also greatly limit the flexibility of possible storage configurations, since they must be configured to allow for the maneuvering of fork lifts, which insert long fork extensions into openings in the pallets for lifting and moving of the pallets and any load the pallets are supporting. Furthermore, pallets are heavy, adding "dead weight" to each load of boxes being moved and thereby limiting the number of boxes that can be moved by the fork lift at one time when a pallet is included. The smaller number of boxes per load, in turn, greatly increases the number of trips and amount of time taken to transport the boxes from location to location for shipping or within the warehouse. Furthermore, even when not in use, pallets take up a significant amount of space, are expensive, and call for frequent refurbishing and replacement.

[0006] A move away from the use of pallets is occurring in many commercial warehouse settings in order to avoid the above-mentioned deficiencies, as well as the monetary and environmental costs of the purchase and use of the pallets themselves. Slip sheets, which are basically thin sheets of fiberboard or plastic, sized to fit under one or more stacks of boxes, sometimes having a thin lip that projects out from under one or two sides of the stack for gripping, provide a low-cost, low-profile response to some of the above-listed problems. However, converting standard fork lifts to accommodate the use of slip sheets by the addition of specialized hardware is very costly, and the associated worker training needed to operate the new machinery typically take several months to be completed. More significantly, although slip sheets are designed for use where boxes are stored on a warehouse floor, slip sheets do not address the issue of protection from ground level water damage whatsoever.

SUMMARY

[0007] Embodiments of a reusable, conformable, waterproof wrap are disclosed that protect boxes from damage by liquids on the floor of a warehouse or other location. Embodiments of the wrap are made of one or more sheets of materials that can be securely wrapped around the base of a box or other item needing protection. At least one sheet provides a waterproofing inner layer for the wrap, and at least one sheet provides an abrasion-resistant outer layer. In various embodiments, the wrap covers the bottom and securely wraps around the sides of the box up to a desired height from the floor, such as, for example, a height of 6" up from the floor of the warehouse, in order to protect the box from a flood of up to an anticipated depth of water or other liquid. A box protected with the wrap can be kept safe from ground-level water and moisture and can be stored on a warehouse floor without use of a pallet. Embodiments of the wrap can use Velcro® or other hook and loop material for quick and easy securing and releasing of the wrap in order to conform to the shape of one or more boxes or other items being protected by the wrap. Other types of securing systems can additionally or alternatively be used.

[0008] Some embodiments of the wrap can also include one or more riser strips, such as, for example, but without limitation, riser strips of a webbed, seatbelt-like material, attached to a bottom side of the wrap. The riser strips help reinforce the bottom of the wrap and keep it slightly or partially up off the floor, thereby reducing friction on the bottom of the wrap when the stack of boxes is dragged or pushed while moving the stack from one location to another and accordingly prolonging the usable life of the wrap. In some embodiments, the wrap includes four riser strips, attached to the bottom of the wrap in a "tic-tac-toe" configuration, that create four double-thick intersections which provide additional lift up from the ground level and a further reduction in friction when the loaded wrap is dragged or pushed along a floor.

[0009] In accordance with at least one embodiment disclosed herein, a wrap for protecting at least a bottom portion of at least one article from exposure to moisture can comprise an outer sheet of at least one flexible material that has an
exterior side and an interior side. The wrap can further comprise an inner sheet of flexible, highly waterproof material that has an interior side and an exterior side. The interior side of the inner sheet can be joined to the interior side of the outer sheet, such that the joined combination of the inner sheet and the outer sheet has a perimeter portion and can be sized and configured to extend under a bottom portion of at least one article. The perimeter portion of the joined combination of the inner sheet and the outer sheet can be further configured to extend outwardly beyond the bottom portion of the at least one article and to fold up along sides of the at least one article. The wrap can further comprise a releasable securing system that can be configured to hold the perimeter portion of the joined combination of the inner sheet and the outer sheet flat against the sides of the at least one article, until the securing system is released.

In accordance with a further embodiment, a flexible conformable waterproof wrap can be configured to waterproof bottom portions of articles of different sizes and can comprise at least one flexible waterproof sheet of material. The flexible waterproof sheet of material can be configured to extend under at least one article that can be placed on the at least one flexible waterproof sheet of material. The at least one article can have dimensions that define a perimeter portion of at least one flexible waterproof sheet of material, wherein the perimeter portion of the at least one flexible waterproof sheet of material can extend out from under the at least one article when the at least one article rests on the at least one flexible waterproof sheet of material. The perimeter portion of the at least one flexible waterproof sheet of material can be configured to conformably fold up flat along the at least one article. The flexible conformable waterproof wrap can further comprise a releasable securing system that can be configured to hold the perimeter portion of the at least one flexible waterproof sheet of material flat up along the at least one article, in conformance with the size of the at least one article.

In accordance with a yet further embodiment, a wrap can comprise at least one sheet of material with a central portion that can be sized and configured to extend under at least one article. The at least one sheet of material can be configured to be folded up around the bottom portion of the at least one article, such that the central portion has an interior side that can face towards the at least one article when the at least one sheet of material is folded up around the bottom portion of the at least one article, and the central portion can further have an exterior side that faces away from the at least one article when the at least one sheet of material is folded around the bottom portion of the at least one article. The wrap can further comprise a plurality of riser strips that can be attached to the exterior side of the central portion of the at least one sheet of material. At least one of the riser strips can have a thickness that can, cause the at least one riser strip to extend down from the central portion of at least one sheet of material when in use and to hold the central portion of at least one sheet of material slightly elevated up from a surface upon which the wrap and the at least one article can be resting.

For purposes of summarizing the inventions, certain aspects, features, and novel features have been described herein. It is to be understood that not necessarily all such aspects, advantages, or novel features will be embodied in any particular embodiment.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features, aspects and advantages of the present inventions are described in detail below with reference to the drawings of embodiments, which embodiments are intended to illustrate and not to limit the present inventions.

FIG. 1 depicts a perspective view of one embodiment of a reusable, conformable, waterproof wrap fit onto the bottom of a stack of boxes.

FIG. 2 depicts a plan view of an inner sheet of one embodiment of the reusable, conformable, waterproof wrap as seen when the wrap is laid out flat and is ready to be wrapped around a box or other item.

FIG. 3 depicts a plan view of the embodiment of the reusable, conformable, waterproof wrap from FIG. 2, as seen when the wrap is flipped bottom-side up and the outer sheet is laid out flat for viewing.

FIG. 4 depicts a detailed view of a binding that can be provided around an outside edge of the reusable, conformable, waterproof wrap.

FIG. 5A depicts an enlarged view of the reusable, conformable, waterproof wrap in an intermediate step of a process of wrapping around a bottom corner of a box.

FIG. 5B depicts another enlarged view of the reusable, conformable, waterproof wrap shown in FIG. 5A, after the wrap has been secured around the bottom corner of the box.

FIG. 6A depicts one embodiment of a marking system that can be used with the reusable, conformable, waterproof wrap.

FIG. 6B shows the marking system in use on an assembled reusable, conformable, waterproof wrap.

FIG. 7 depicts an embodiment of the reusable, conformable, waterproof wrap being used to protect the top of a stack of boxes.

FIG. 8 depicts an embodiment of the reusable conformable waterproof wrap being gripped by the clamping plates of a warehouse fork vehicle with a clamp system.

DETAILED DESCRIPTION OF EMBODIMENTS

Various embodiments of a waterproof, conformable, and durable warehouse wrap are described below. In some embodiments, the wrap can be used to protect items such as stacks of boxes stored on a warehouse floor by creating a waterproof barrier between the concrete floor and the box or boxes placed on the floor at the bottom of the stack, protecting them from floods, water main breaks, and leaks on warehouse and other floors. At least some embodiments of the wrap can possess sufficient abrasion resistance and durability to withstand being dragged or pushed along the floor with boxes stacked on top and without suffering structural damage that can lead to water permeation if subsequently exposed to water. Nylon riser strips on the under side of the wrap can lift the wrap slightly off the floor and advantageously can further reduce friction between the wrap and floor when the wrap is installed on the bottom of a box that is being moved across the floor.

Using wraps in place of pallets yields many benefits. Utilizing wraps can reduce warehouse costs. Fewer wraps than pallets are needed because, generally, one wrap can be used on the bottom of every stack. Thus, fewer extra wraps need to be kept on hand and stored when not in use. Even if stored, the wraps take up only a small fraction of the space required by pallets or racking. A warehouse wrap can be re-used many times. Furthermore, pallets require constant refurbishing and storage, which adds considerably to their expense.

As depicted in FIG. 5B and FIG. 8 to follow, once the wrap is secured on all sides of a box, the wrap does not increase the floor space taken up by the box in any significant
measure. In contrast to boxes stored on pallets, stacks of boxes protected by the waterproof reusable wraps can be placed right next to one another on a warehouse floor or other storage location. Clamp-type warehouse transport machinery, which uses vertical plates to grip the stack of boxes, can be used to move such stacks. These vertical plates can be inserted between stacks of boxes having very small clearance spaces interposed between them.

[0027] In addition to the issue of side clearance, the greatest weight of a pallet frequently limits the number of boxes 101 that can be stacked vertically on the pallet and moved at one time by a fork lift. The weight of the pallet also frequently precludes the possibility of stacking one loaded pallet on top of another loaded pallet. Instead, in an attempt to use the vertical space of a warehouse facility, racks are sometimes constructed to hold the loaded pallets. These racks, the clearance spaces above and below them, and the pallets themselves combine to take up significant amounts of vertical space. In contrast, a stack of boxes 101 without pallets can include three to five times the number of boxes as a stack of the same type of boxes when stored on a pallet. Protecting the boxes 101 with the reusable, conformable, waterproof wraps 100 instead of pallets can thus allow for a much more efficient use of vertical as well as horizontal storage space, and can thus greatly reduce the square footage of warehouse space used to store the same number of boxes. Storage space for wraps 100 not in use is also negligible in comparison with storage space for pallets that are not in use.

[0028] Thus, utilizing wraps can greatly reduce warehouse space used to store a given quantity of goods and can greatly reduce warehouse costs by allowing companies to use smaller buildings for storage and spend less labor on loading trucks. One major U.S. toy manufacturer has estimated that using the reusable, conformable, waterproof wraps 100 instead of pallets to protect their stored merchandise from ground level water damage can allow them to free up the equivalent of two warehouse buildings, each having over one million square feet of floor space. Another manufacturer has estimated that switching to a palletless warehouse system uses approximately 50% less warehouse space.

[0029] Another benefit derives from the fact that wrapped stacks generally include three to five times as many boxes as can be included in pallet load. Thus, another effect of being able to move the boxes as wrapped stacks is that loading a truck with boxes can be accomplished two to five times more quickly. When each stack includes more boxes, warehouse loading vehicles can load a truck with fewer trips back and forth from storage locations in the warehouse to a loading dock. In addition, truck space otherwise used to haul the pallets can be freed up for other purposes or to reduce the overall load on the truck.

[0030] Additionally, using wraps to protect boxes at a warehouse may reduce insurance claims due to water damage, which in turn can lower annual insurance premiums. In fact, the use of wraps on stacked boxes is sometimes mandated by insurance companies or by government relief agencies such as FEMA.

[0031] In the following description, reference is made to the accompanying drawings which form a part of this written description and which show, by way of illustration, specific embodiments in which the invention can be practiced. Where possible, the same reference numbers will be used throughout the drawings to refer to the same or like components.

[0032] Numerous specific details are set forth in order to provide a thorough understanding of the present invention; however, it would be obvious to one skilled in the art that the present invention may be practiced without the specific details or with certain alternative equivalent devices and methods to those described herein. In other instances, well-known methods, procedures, components and devices have not been described in detail so as not to unnecessarily obscure aspects of the present invention.

[0033] It is to be understood that other embodiments may be utilized and structural changes may be made without departing from the scope of the present invention. Other embodiments of the reusable, conformable, waterproof wrap may or may not include individual features disclosed herein. Moreover, disclosed advantages and benefits may apply to only some embodiments, and should not be used to limit the inventions.

[0034] FIG. 1 depicts a perspective view of a reusable, conformable, waterproof wrap 100, also known for purposes of this disclosure as a wrap, strapped around the bottom of a stack of boxes 101. Embodiments of the wrap 100 can be made of one or more layers of material or materials, wherein at least one layer includes a highly waterproof material and at least one layer includes a very durable, abrasion-resistant material.

[0035] The wrap 100 further includes straps 110 to secure the wrap around the base of the box 101, as will be described in greater detail below. Some embodiments can use straps 110 made of Velcro® or other hook and loop material for quick and easy securing and releasing of the wrap 100 with respect to the box 101. As depicted in FIG. 1, a portion of one or more straps 110 can be permanently secured to the wrap 100, such as by being sewn, at a wrap origin point 115. In some embodiments, two strap origin points 115 are positioned as to be on opposing sides of the box 101 when in use. Portions of the straps 110 that are not permanently secured can be extended away from the wrap origin point 115 and along an upper edge of the wrap, as indicated by directional arrows 120. The straps 110 can further be releasably secured to additional pieces of Velcro® (not shown in FIG. 1) that allow the straps 110 to hold the wrap 100 firmly around the box 101 at a height H above the ground level. Some embodiments of configurations for the straps 110 are described in greater detail with reference to FIG. 3 below. Other types of securing systems for firmly wrapping the wrap 100 around the box 101 can additionally or alternatively be used.

[0036] In some embodiments, the wrap 100 covers the bottom and sides of the box 101 up to a desired height from the floor, indicated with reference letter “H” in FIG. 1. In order to protect the box 101 from a flood of up to an anticipated depth of water or other liquid. For example, in some embodiments, the wrap 100 can be constructed to extend a height of 6” up from the floor of the warehouse. A box protected with the wrap 100, stored on a warehouse floor without use of a pallet, can be kept safe from ground level liquid up to approximately height H or slightly less.

[0037] As depicted in FIG. 1, by securing the wrap 100 around a bottom box 101, any boxes stacked on top of the protected box are also protected from ground level water or other liquid damage. Furthermore, protecting the bottom box 101 from moisture helps to preserve the structural integrity of the box and its ability to adequately support the stack above.

[0038] FIG. 2 depicts a plan view, not necessarily drawn to scale, of the inner sheet 200 of one embodiment of the reusable, conformable, waterproof wrap 100 as seen when the wrap 100 is laid out flat, such as on a warehouse floor, and is ready to be wrapped up around the bottom of a box 101 or other item. When the wrap 100 is in use, the inner sheet 200 of the wrap comes in contact with the box or other item(s) being protected. In some embodiments, the inner sheet 200 of the wrap 100 is rectangular in shape. In various embodiments
that can be used with many commonly-sized boxes for shipping and storing products, the dimensions of the inner sheet 200 can be approximately 60" by 60" or 60" by 52" or 60" by 48". However, one of ordinary skill in the art will appreciate in light of the current disclosure that many other sizes and shapes may also be used for wraps 100 that fold around and provide outer protection for items of a wide variety of sizes and shapes.

[0039] In some embodiments, the inner sheet 200 of the wrap is made of a durable, pliable, and highly waterproof material. For example, a material that can be used in some embodiments is a polyester filament polyvinyl chloride (PVC) material of polyester fibers with a PVC coating in a thickness of 1300£13000. This material is pliable enough to be easily folded and fit snugly and conformably around a box, as will be described in greater detail below, and is durable enough to withstand being repeatedly secured and released from boxes during their warehouse lifecycle, as well as maintaining its structural integrity and waterproofing capability while being secured to boxes that are dropped or otherwise moved from place to place along an unfinished concrete or other type of floor.

[0040] In tests, this type of material, when assembled into an embodiment of the reusable, waterproofing wrap 100 disclosed herein has been shown to maintain its waterproofing protection for stacks weighing 3000 pounds and more that have been dragged six hundred yards across a concrete floor and then an additional ten trips of six hundred feet each and then set into a 4" pool of water. After forty-eight hours sitting in the pool of water with only the wrap 100 as protection, the wrap 100 remained waterproof and the boxes 101 inside remained completely dry. The wear and tear endured by the wrap 100 during this test simulates two years of above-average warehouse use. A second test, in which the loaded wraps 100 were dragged twelve hundred yards and then ten trips of twelve hundred feet each, simulated four years of heavy warehouse use and was also performed on this embodiment of the wrap 100, which passed the test successfully.

[0041] The inner sheet 200 is preferably not perforated, such as with stitching, except around an outer perimeter, which corresponds, when the wrap 100 is assembled on a box 101, to an upper edge of the wrap 100. Thus, the waterproofing integrity of the material of the inner sheet 200 may be maintained.

[0042] FIG. 2 shows an embodiment of the inner sheet 200 of the wrap 100 with a rectangular loading outline 225 printed, marked, or otherwise affixed to the inner sheet 200. In the embodiment shown in FIG. 2, the loading outline 225 defines a central portion 240 and a margin 230 of a given width H, such as 6", from the outside edges of the wrap 100. Thus, the loading outline 225 defines a substantially maximum area on the inner sheet 200 which can be folded and held together by the wrap 100, by folding up around the sides of the box 101 to a height H from the ground level.

[0043] The loading outline 225 can advantageously assist one or more warehouse workers to quickly and easily discern where to place items to be wrapped in the wrap 100 while maintaining a desired extended height H for a perimeter portion that can be folded up around the sides of the items. For example, where an insurance company mandates that boxes stored in the warehouse be protected from water or moisture up to a given height H from the floor, the loading outline 225 assists workers to comply with the mandate.

[0044] While the loading outline 225 provides a useful guideline for loading the wrap 100, the wrap 100 is advanta-

gously configured to adaptably be used to protect articles of a variety of different sizes. Thus, when articles that are stacked within the central portion 240 of the inner sheet 200 take up less than the full area of the central portion 240, then a perimeter portion that can be folded up along the sides of the articles has a width wider than the width H of the margin 230 to the articles thus wrapped can be protected up to a height that is accordingly greater than H. Because of the flexibility and foldability of the materials that make up the wrap 100, articles having a footprint of a range of different sizes can be wrapped tautly and in close conformance with their sizes and shapes.

[0045] The loading outline 225 can additionally or alternatively be formed of a ribbon or tape that is glued or bonded or otherwise secured to the inner sheet 200 of the wrap. In some embodiments, the loading outline 225 can be woven into or otherwise formed integrally with the material of the inner sheet 200.

[0046] In some embodiments, other methods may be used to provide guidelines for discerning how much of a margin 230 to leave free for folding up around the boxes 101 or other items being protected by the wrap 100. For example, the loading outline 225 may be in the form of a circular line that more approximately identifies a center portion of the wrap 100 upon which items needing protection from ground level water may be stacked. In other embodiments, a dot or other mark may be placed in the geometrical center of the inner side 200 of the wrap 200 to indicate a center point around which a stack or other load may be placed. In still other embodiments, the wrap 100 does not include a loading outline 225, and workers determine where to place the load without the aid of a loading outline 225.

[0047] In FIG. 2, unsecured portions of four straps 110 are depicted as extending visibly out from under the wrap 100 as the wrap 100 is laid out flat, such as on a floor. The structure and use of the straps will be described in greater detail with reference to FIGS. 3, 5A, and 5B.

[0048] FIG. 3 depicts a plan view, not necessarily drawn to scale, of the embodiment of the reusable, conformable, waterproof wrap 100 from FIG. 2, as seen when the wrap 100 is flipped bottom-side up and the outer sheet 300 is laid out flat for viewing. In some preferred embodiments, the outer sheet 300 of the wrap 100 is shaped and sized to match the shape and size of the inner sheet 200 of the wrap 100. The inner sheet 200 and outer sheet 300 may thus advantageously be joined such that an interior side of the inner sheet 200 and an interior side of the outer sheet 300 face one another, the combination of the inner sheet 200 and the outer sheet 300 forming a substantial portion of the wrap 100.

[0049] In use, when the wrap 100 is wrapped around a box 101, the outer sheet 300 of the wrap 100 comes in contact with the ground surface on which the wrap 100 is resting and forms the outward facing surface of the wrap 100. In certain embodiments, the outer sheet 300 of the wrap 100 is made of a highly durable, abrasion resistant, and water resistant material. The outer sheet 300 advantageously provides a barrier between the ground on which the wrap 100 sits and the waterproof inner sheet 200 of the wrap 100, thereby protecting the inner sheet 200 from tearing, puncture, and other damage that can occur as the wrapped box is moved and that can impair the waterproofing capability of the inner sheet 200.

[0050] In some embodiments, the outer sheet 300 is made of a heavy-weight 900Dx900D Denier Cordura®. For added protective capability, the Cordura® can be coated and/or pretrained with a polyurethane composition. Additionally or alternatively, a thin layer of polyvinylchloride (PVC) material can be applied to the Cordura®, such as with heat bonding.
or an adhesive. In other embodiments, other durable, flexible and abrasion-resistant materials, such as materials made of polyester and/or nylon, Polyethylene Terephthalate (PET), Kevlar, and other ballistic-type materials can be used for the outer sheet 300.

[0051] Although embodiments have been described in which the inner sheet 200 and the outer sheet 300 are made of two different materials, in other embodiments, the inner and outer sheets 200, 300 of the wrap 100 can be the same sheet and/or can be formed of the same material or of two bonded materials, or of a material that is coated on one or both sides, such as for increased waterproofing.

[0052] A dashed line 325 in FIG. 3 indicates a fold line that corresponds at least approximately to the loading outline 225 of the inner sheet 200 depicted in FIG. 2. The dashed line shows where the sides of the wrap 100 can be folded up along the sides of the box 101 or other item(s) being wrapped when in use. A dotted line 330 in FIG. 3 indicates a diagonal fold line at each corner of the wrap 100 that advantageously allows for a quick and secure folding of the wrap 100 around the corners of the box 101, as will be described in greater detail with reference to FIGS. 5A and 5B to follow. The dashed fold line 325 and the dotted diagonal fold line 330 are not necessarily visible when the wrap 100 is spread out that and, in fact, are defined upon each use by dimensions of a load around which the wrap 100 is being folded. Thus, portions of the wrap 100 that extend beyond the load may be considered a perimeter portion that is folded up around the load, and a portion of the wrap 100 that sits under the load can be considered a central portion that is positioned between the load and a ground or other surface upon which rest the load and the wrap 100.

[0053] As further depicted in FIG. 3, the outer sheet 300 includes one or more riser strips 315, which can be made of a seatbelt-like webbing, such as webbing that is a nylon-based or polyester-based material. The riser strips 315 provide additional reinforcement to the outer sheet 300 of the wrap 100. In some embodiments, the riser strips 315 can be made of a webbed nylon seatbelt type material, such as a webbed riser strip of 1 3/4"-2" wide by a length that is at least slightly less than the length of the outer sheet 300. The material for the riser strips 315 may be of any of a range of thicknesses, such as from 0.5-5.0 mm in thickness. In some embodiments, the thickness of the material for the riser strips 315 may be in range from 1.0 mm-1.5 mm.

[0054] In some preferred embodiments, as depicted in FIG. 5B below, the thickness of the wrapping 315 provides a slight amount of lift of a bottom portion of the wrap 100 up off the level of the ground and a related reduction in friction between the wrap 100 and the ground when the wrap 100 is being moved. Thus, a suitable type and material of wrapping 315 can be selected based at least in part on an expected average load or range of loads to be supported and protected by the reusable, conformable, waterproof wrap 100 and characteristics of an expected ground surface. For example, in certain embodiments in which stacks of boxes to be protected by the wraps 100 are limited approximately to a maximum weight of 2,400 pounds, and in which the ground surface is a concrete floor, nylon webbing with a thickness of 1.35 mm. can be used. For substantially heavier loads, a thicker riser strip 315 may be desired.

[0055] Furthermore, in some embodiments, the riser strips 315 are configured to intersect at one or more intersections 320. Where the intersections 320 are located, two layers of riser strips 315 overlap to form a double thickness of the webbing. For example, when webbing with a thickness of 1.35 mm. is used, the approximate thickness of the intersection 230 is 2.7 mm. The intersections 320 can therefore provide “riser points” with an additional amount of protrusion and associated lift off the floor and a potential additional reduction in friction when the loaded wrap 100 is pushed or dragged along the floor. Preferably, as is depicted in FIG. 3, the riser strips 315 are configured to form four intersections 320 within the area defined by the folding line 325, which corresponds to the center portion of the outer sheet 300 that rests on the floor when the wrap 100 is in use.

[0056] The riser strips 315 may be attached to the outer sheet 300 of the wrap 100 in any of a number of ways. In some embodiments, the riser strips 315 are sewn to the material of the outer sheet 300. In other embodiments, the riser strips 315 can be attached to the outer sheet 300 with an adhesive that can be is waterproof and resistant to abrasion. In another embodiment, the riser strips may be formed integral with the fabric of the outer sheet 300. In still other embodiments, other additions to the outer sheet 300 provide protection to the outer sheet 300 and/or a reduction in friction when the loaded wrap 100 is moved. For example, metal or plastic buttons, knobs, or other devices may be attached to the outer sheet 300 to provide “riser points”, either as an addition or as an alternative to the riser strips 315. In one embodiment, a reinforcing material, such as a strip of metal, plastic, or other rigid material may, additionally or alternatively, be interposed between the riser strip 315 and the material of the outer sheet 300 for added strength and/or thickness.

[0057] In embodiments in which the riser strips 315 are sewn to the outer sheet 300, the riser strips 315 can preferably be attached to the material of the outer sheet 300 before the outer sheet 300 and the inner sheet 200 are joined, as will be described in greater detail with reference to FIG. 4 to follow. Attaching the riser strips 315 directly to the outer sheet 300 but not to the inner sheet 200 advantageously avoids compromising the waterproofing capabilities of the inner sheet 200 with needle holes or other punctures. Other methods of joining the riser strips 315 to the outer sheet 300, such as with an adhesive, can accommodate attachment of the webbing riser strips 315 to the outer sheet 300 after the inner sheet 200 and outer sheet 300 are already attached, as well as embodiments in which the inner sheet 200 and the outer sheet 300 are formed from a single material or a bonded or coated material.

[0058] In at least some embodiments, as depicted in FIG. 3, the riser strips 315 on the outer sheet 300 extend beyond the boundaries of the folding line 325 without extending all the way to the edges of the outer sheet 300. For example, in one embodiment, the binding riser strips 315 are approximately 4½ feet long on a wrap 100 that is five feet long. One advantageous aspect of this configuration, in which the riser strips 315 do not extend to the edges of the wrap 100, is the fact that any water or other liquid that might wick up the fabric of the webbing riser strips 315, when the wrap 100 is sitting for a prolonged period of time in a puddle (as a consequence of a flood or plumbing leak, for example) cannot continue wicking all the way up to the edge of the wrap 100, where it might come in contact with the box 101 or other item(s) being protected.

[0059] FIG. 3 further depicts a configuration for the straps 110 that allow the wrap 100 to conform securely around the base of a box 101 or other item being protected from ground level moisture. As depicted, a set of two straps 110 can be attached to the outer sheet 300 of the wrap 100 at each of two strap origin points 115 situated on two opposing edges of the outer sheet 300 of the wrap 100.

[0060] In at least some embodiments, a strapping system, including the straps 110 in FIG. 1 as well as stationary portions 305, 310, are formed of a material with a high gripping
power that can be released and reattached easily and repeatedly without losing its gripping power. One material that can be used advantageously for the strapping system is Velcro®, a well-known hook-and-loop type material that is available in a variety of sizes and gripping powers. Velcro® is typically formed of two complementary parts capable of engaging one another: one that is formed of a “hook-like” material and one that is formed of a “loop-like” material. In Fig. 3, these two complementary aspects of the Velcro® strapping system 110, 303, 310 are depicted using a diagonal fill pattern for a first type of material and a cross-hatched fill pattern for the second type of material. For example, an underside portion of the straps 110 that are connected at the strap originating point 115 can be depicted with a diagonal fill pattern, while a majority of the stationary portion 305 of a strapping system can be depicted with a cross-hatched fill pattern, indicating that the strap 110 and the stationary portion 305 are of complementary types and can engage and grip one another.

[0061] Some embodiments of the reusable, conformable, waterproof wrap 100 include an auxiliary gripping system for corner portions of the wrap 100 that enhances the speed and ease of assembly of a wrap 100 around a box. In particular, the auxiliary gripping system can allow a single person to very effectively install a wrap 100 on the base of a box without help from another person. In one test, a single worker was able to install the wrap 100 on a box 101 in fifty-two seconds on average. A single worker can also easily disengage the wrap 100 from a box 101, such as before loading a vehicle for delivery elsewhere. This reduction in the manpower and time needed to install the wrap 100 around the box 101 can be especially relevant to warehouse operations, where labor costs are significant. As depicted in the embodiment shown in Fig. 3, small corner portions 310 of the strapping system are formed of the same type of the hook-and-loop material as are the underside of the straps 110. The small corner portions 310 of the strapping system can be situated near the corners edges of the two sides of the outer sheet 300 that do not have a strap originating point 115. Use of the small corner portions 310, and of the strapping system as a whole, will be described with reference to Figs. 5A and 5B to follow.

[0062] FIG. 4 depicts a detailed cross-section view, not drawn to scale, of a binding 400 that can be provided around an outside edge of the reusable, conformable, waterproof wrap 100, binding the inner sheet 200 and the outer sheet 300 of the wrap 100. The view depicted in FIG. 4 shows an exploded version of what would be seen if a perpendicular cut was made in one side of the wrap 100. As has been described with reference to Figs. 2 and 3, the inner sheet 200 and the outer sheet 300 of the wrap 100 can preferably share substantially the same length and can share substantially the same width dimensions. The inner sheet 200 and the outer sheet 300 can be aligned with one another so that their outer perimeters match, such that the side of the inner sheet 200 that includes the loading boundary 225 faces away from the outer sheet 300 and the side of the outer sheet 300 having the webbing riser strips faces away from the inner sheet 200. As depicted in FIG. 4, the binding 400 can be formed of a strip of material that is folded lengthwise over the aligned perimeters of the inner sheet 200 and the outer sheet 300 to enfold the perimeters of the inner sheet 200 and the outer sheet 300, with an inner side portion of the binding 400 being adjacent to the inner sheet 200 and an outer side portion of the binding 400 being adjacent to the outer sheet 300.

[0063] In some embodiments, the width of the binding 400 is approximately twice the width of the stationary portion 305 of the strapping system. In the embodiment shown, the stationary portion 305 of the strapping system can be laid along the outer portion of the binding 400 and can be stitched along stitching lines 410 to bind all of: the outer portion of the binding 400, the outer sheet 300, the inner sheet 200, and the inner portion of the binding 200. In some embodiments, the stitching lines 410 near the perimeter of the waterproof reusable wrap 100 are the only punctures in the waterproof barrier provided by the inner sheet 200. Thus, there is some possibility that a very small amount of moisture may be able to penetrate through the stitching holes of the stitching lines 410, if water reaches the level of the stitching lines 410 (for example, in one illustrated embodiment, approximately 6 above the ground level), and especially if exposed or submerged for prolonged periods of time. Below the level of the stitching lines 410, however, moisture has substantially no pathway for passage through the waterproof inner sheet 200 to the box 101 or item(s) protected within. In some embodiments, extra waterproofing substances may be applied over the stitching lines 410 for extra protection.

[0064] As described in greater detail elsewhere within this disclosure, testing performed on an embodiment of the wrap 100 showed that after being exposed to rigorous wear-and-tear conditions, approximately equivalent to two and four years of use, and being submerged in a 4° pool of water for forty-eight hours, the wrap 100 continued to provide uncompromised protection against exposure to ground level water.

[0065] It is to be noted that while FIG. 4 depicts the basic construction of the binding 400 along one perimeter of the wrap 100, when fully constructed, the binding 400 can be attached along all perimeters of the wrap 100. Furthermore, as will be clear to one of ordinary skill in the art upon review of the current disclosure, while FIG. 4 depicts the provision of two stitching lines 410, located along the edges of the stationary portion 305 of the strapping system, in other embodiments, different numbers and/or configurations of stitching lines 410 may be provided. For example, in one embodiment a polyester material of 3000Dx 3000D weight is used, and binding riser strips 400 that are approximately 2/3" wide can accommodate a 1"-wide riser strip of Velcro® material for the strapping system when the binding 400 is folded in half lengthwise.

[0067] FIG. 5A depicts a closer perspective view of the reusable, conformable, waterproof wrap 100 as it is being wrapped around a bottom corner of a box 101. When the box 101 is placed on the wrap 100 as positioned in FIG. 2 and the unused margin portions 230 of the wrap 100 are manually pushed up against the box 101, a fold 500 of material forms at each corner of the wrap 100. The fold 500 of material can be pushed in the direction of the arrow 515 shown in FIG. 5A, and the strap 110 can be pulled in a similar direction, extending away from the strap originating point 115. The Velcro® underside of the strap 110 can engage with the complementary type of Velcro® material of the stationary portion 305 around the edges of the wrap 100 as the strap 110 is pulled towards and around the corner of the box 101, thereby capturing and securing the fold 500 of material flat against a side of the box 101 at the desired height H.
In one embodiment, one or more of the straps 110 are made of an elasticized version of the loop-type Velcro®. The elasticized strap 110 can be stretched taut as it extends around the corner and engages with the stationary portion 305, wrapping the wrap 100 in a very secure and sag-free manner around the box 101 or other item(s).

In embodiments that include the small corner portions 310 of the strapping system, which was described with reference to FIG. 3, when the fold 500 of material is pressed flat against a side of the box 101, as indicated by the arrow 515, the Velcro® material of the small corner portion 310 can be pressed into and can engage with the complementary type of Velcro® material of the stationary portion 305 of the strapping system. The engagement of the two complementary types of Velcro® material can hold the fold 500 of material flat against the box 101, and therefore it is secured with strap 110. Provision of the small corner portions 310 can greatly enhance the ease and speed with which even a single worker can secure the wrap 100 to the box 101. A worker can press the fold 500 flat against the box 101 with one hand, and the fold 500 will remain engaged in place even if the worker’s hand is removed. The worker’s hands can be freed to reach for the strap 110 and to pull it around the corner to complete securing of the wrap 100 at the corner, without needing to also continue holding the fold 500 in place. Securing a wrap 100 around the bottom of a stack of boxes 101 can thus be carried out by a single worker in a matter of seconds, for example, 30-45 seconds.

In some embodiments, especially where very heavyweight Velcro® is used for the small corner portions 310 of the strapping system, the wrap 100 can be secured around the box 100 without the use of the straps 110. In some embodiments, instead of using two complementary types of Velcro® material, a single, self-engaging mixed hook-and-loop type Velcro® material can be used.

FIG. 5B depicts the closer perspective view of the reusable, conformable, waterproof wrap 100 that was shown in FIG. 5A, after the wrap 100 has been secured around the bottom corner of the box 101. When each of the four straps 110 are extended away from the strap originating point 115 to which each is attached and around a respective corner of the box 101 and of the wrap 100, as has been described with reference to FIG. 5A, the fold of material 500 at each corner can be flattened against the box 101 and the wrap 100 can be firmly secured to the box 101 to protect the box 101 from exposure to ground level moisture for a height H from the floor.

FIG. 5B also depicts the height 515 to which the riser strips 315 raise the wrap 100 up off the floor, which advantageously reduces the friction force on the wrap when moved across a floor. The double-thick intersections 320 of the riser strips 315 can thus raise up the bottom of the wrap 100 approximately twice the distance of height 515. Once the wrap 100 has been secured onto the bottom of a box 101, the wrap 100 can remain on the box 101 and can continue to protect the box 101, as well as any additional boxes stacked on top of the box 101, even if the stack of boxes is moved one or more times.

FIGS. 6A and 6B depict one embodiment of a marking system that can be used with the reusable, conformable, waterproof wrap 100. As shown in FIG. 6A, markings 601, 602 can be added in positions approximately near the corner folding lines 330 of the outer sheet 300. The sample markings 601, 602 in FIG. 6A are of an approximately arrow-headed shape, and in other embodiments, other shapes of marking may be used. The markings 601, 602 may be painted or otherwise printed onto the outer sheet; they may be affixed either permanently or semi-permanently to the wrap 100 using a tape or adhesive; they may be stitched to the outer sheet or formed integrally with the outer sheet 300.

As depicted in FIG. 6B, the markings 601, 602 can be added to locations on the outer sheet 300 such that when the wrap 100 is wrapped around a box 101 or other item, the markings 601, 602 join up to form a desired configuration. For example, the two arrow-shaped markings 601, 602 in each corner of the outer sheet 300 in FIG. 6A join at their respective points when the fold 500 of material at the corners of the wrap 100 is folded and secured by the strap 110, as was described with reference to FIG. 5B. The arrow-headed shape for the marking 601 that is closer to the fold line 330 in FIG. 6A can provide a visual cue to a warehouse worker assembling the wrap 100 regarding in which direction to press the fold 500 towards the box 101. In FIG. 6B, the desired configuration for each corner of the wrap 100 is formed from two markings 601, 602, and in other embodiments, other numbers of markings may be used to form similar or different types of marking configurations.

As will be clear to one of ordinary skill in the art in light of the present disclosure, other useful and/or decorative marking systems may also be used in connection with the reusable, conformable, waterproof wrap 100 disclosed herein. In one embodiment, in which wraps 100 in a given warehouse setting are guaranteed to provide waterproofing protection for a given time period, such as for a given number of months, wraps may be differently colored to provide an easily discernible visual cue that can be indicative of the age of the wrap 100. For example, wraps first used in January can be black, while wraps first used in February can be red, and wraps first used in March can be green, and so forth. If the wraps 100 are guaranteed for a lifetime of eight months, then in August, all black wraps 100 can be pulled from use in the warehouse as having reached their guarantee expiration date, while wraps of the other colors may continue to be used.

FIG. 7 depicts an embodiment of the reusable, conformable, waterproof wrap 100 being used to protect the top of a stack of boxes 101, such as, for example, to protect boxes 101 from inadvertent activation of an overhead sprinkler system, to protect boxes 101 left out on a loading dock overnight or otherwise exposed to weather. The strapping system depicted with reference to FIGS. 3 and 5A-5B allows for quick and easily wrapping and unwrapping of the wrap 100 around the top of the box 101 or other item(s).

In order to waterproof boxes or other products from above, at least one wrap can be draped or wrapped over boxes/products. The wraps 100 can be released within seconds of sprinklers turning off or other water exposure stopping in order to remove wet wraps from the environment.

In some embodiments, a reusable, conformable, waterproof wrap 100 for protecting boxes 101 and other items from above can be constructed without the riser strips 315, described, for example, with reference to FIG. 3. In some embodiments, the reusable, conformable, waterproof wrap 100 can be constructed such that, when assembled on a box 101, the height H of the wrap 100 is different from the height of a wrap 100 constructed for other purposes. In other embodiments, a wrap 100 for protecting boxes 101 from exposure of ground level risks can also be used to protect boxes 101 and other items from above, or for other uses.

Warehouses that do not use pallets or racks often use specialized motorized vehicles, equipped with two adjustable vertical plates or other type of adjustable clamp for firmly gripping a stack of boxes at two opposite sides, in order to transport the stack of boxes from one location to another. Using this kind of system, boxes can be stuck to nearly the
The height of the warehouse and stacks can be placed in very close proximity to one another on the warehouse floor.

FIG. 8 depicts an embodiment of the reusable conformable waterproof wrap 100 being gripped by the vertical clamping plates 800 of a warehouse fork truck with a clamp system that can clamp onto a stack of boxes 101 and can lift, drag, and/or push the stack across the floor of the warehouse from one location to another. The warehouse vehicle typically grips and lifts a stack before moving it; however, it is not uncommon for the driver to set the stack down near its final destination and then push it up to several feet along the concrete flooring until the stack is properly positioned. Understandably, this practice calls for a wrap 100 with a high level of abrasion resistance and durability, both of which are enhanced by the provision of riser strips 315 on the bottom of the wrap 100.

When loading wrapped stacks of boxes onto a truck for delivery elsewhere, the clamps 800 of the warehouse vehicle can grip the stack above the level of the wrap 100, so that the wrap 100 is not gripped by the clamps 800. Then, either the truck or at another desired location, the clamps 800 can hold the stack elevated off the ground while one or more workers easily disengage the straps 310, allowing the wrap 100 to fall way from the stack. The task can be accomplished in seconds, and, thus, unlike pallets, there is no necessity for the wraps 100 to leave the warehouse unless desired.

Manufacturing Process:

The following is a description of an exemplary but non-limiting embodiment of a manufacturing process that can be used to manufacture a reusable, conformable waterproof wrap.

1. Cut a Cordura® outer sheet 300 and a PVC inner sheet 200 to matching shapes and sizes, such as to rectangles of dimensions 52"x60", or other desired dimensions. Although a rectangular or square shape is most commonly used, other shapes can be used to suit specially shaped products, warehouse space, or the like.

2. Cut four pieces of riser strip 315 material, such as 1.35 mm. thick webbing material, to desired lengths, for example four feet long.

3. Sew the riser strips 315 to the outer sheet 300 in a wide "tie-tac-toe" configuration, each strip parallel to an edge of the outer sheet 300, such that the intersections 320 fall within a central portion of the outer sheet 300 which will rest on the ground when the wrap 100 is in use.

4. Stitch inner sheet 200 and the outer sheet 300 together along four edges, joining an interior side of the inner sheet 200 with an interior side of the outer sheet 300. Stitch or double-stitch 1" Extra Durable strength Velcro® or other hook-and-loop fastener material around the edges of the Cordura®/Vinyl wrap. In some embodiments, the hook portion can be sewn to the Cordura®/Vinyl wrap, while the loop portion can be used for the straps that will be described below.

In one embodiment, two types of Velcro® are stitched around the wrap 100. A first type can be the standard hook portion, as described above. A second type includes a mix of loops intermixed with the hooks. This mixed type of Velcro® allows for a certain amount of self-fastening, and can be useful at the corners of the wrap. The mixed type of Velcro® can be sewn around the edges of the Cordura®/Vinyl wrap at the four corners, and the first type of Velcro® can be sewn around a middle portion of each edge of the Cordura®/PVC combination wrap.

In some embodiments, Velcro® used to secure the folds 500 can hold the wrap firmly wrapped around the box without the use of straps.

5. (Optional) If desired, sew an extra layer of vinyl onto the above to form an additional inner sheet 200.

Rectangular lines can be printed onto the inner sheet 200 for indicating optimal placement of boxes or box configurations within a loading boundary 225. In some embodiments, the lines can be printed on before the vinyl and Cordura® are sewn together. In some embodiments, lines can be glued on or otherwise affixed to the "inside face" of the vinyl to help center and guide placement of a box 101 or other product on the wrap 100.

6. Cut two long pieces of Loop Velcro® and stitch them to the Cordura®/Vinyl wrap 100 to form straps 310. In some embodiments, one piece of the loop Velcro® can be attached to each of the two longer sides of the Cordura®/PVC wrap (or, if the wrap can be shaped as a square, to two opposing sides of the square). For each strap, the center of the Velcro® strap can be sewn very securely to the center of the outer edge, with the loops facing so that they can be pulled around to engage with the hook (or mixed hook and loop) portions of the Velcro® sewn on to the Cordura®/PVC wrap.

7. Print or stitch on any additional markings desired.

It can be appreciated by one of ordinary skill in the art that in other embodiments, the steps for manufacturing the wraps can be performed in a variety of different sequences and using a variety of materials. In still other embodiments, other manufacturing methods can be used for making the waterproof reusable wraps.

Assembly/Wrapping Process

The following is a description of an exemplary but non-limiting embodiment of an assembly process that can be used to fit the reusable, conformable waterproof wrap onto one or more articles.

1. Lay wrap 100 on the floor with the outer sheet 300 side face down on the floor. The inner sheet 200 side faces up with the printed loading outline 225 (if any) showing.

2. Place a stack of boxes or other articles within the printed loading outline 225, if provided, of the inner sheet 200. If an indicator of the center point of the inner sheet 200 is provided, center the load at the center point. If no loading outline 225 is provided, leave a sufficient unused perimeter portion around the periphery of the wrap 100 which is at least approximately equal to a desired height 11 to which the wrap 100 extends up the sides of the box 101 when the wrap 100 is completely assembled on the box 101.

3. Beginning at any one of the four corners of the wrap 100, grasp the corner of the wrap 100, holding both left and right sides, and bring the two sides together to meet equally along the fold line 330, forming a fold 500 of fabric. Press the fold 500 over to one side, securing the hook Velcro® and the loop Velcro® on the perimeter of the wrap 100 to one another.

4. Grab a strap 110 and pull the strap 110 around the corner tightly to secure the fold 500 flat against the box 101. Pulling the strap 110 taut before engaging with the stationary portion 305 of the strapping system helps to avoid excess sagging of the wrap 100 as it is folded around the box 101. Preferably, the wrap 100, where folded at the corner creates a vertical line along the side of the box 101 to most completely conform to the shape of the box 100 and avoid allowing water to leak into sides of the wrap 100.
5. Repeat step 3 and step 4 for the remaining three corners.

The wrap 100 is now secured and conformed to the stack of boxes 101, which can be picked up and relocated when desired by the clamping vehicle.

Disassembly/Unwrapping Process

The following is a description of one embodiment of a disassembly process for use with the reusable, conformable waterproof wrap.

Pull Velcro® or loop straps 110 away from all four sides. The wrap 100 now lies approximately flatly on the ground. The unwrapped stack of boxes can then be ready to be lifted, moved, or loaded onto truck. If desired, the wrap 100 can remain attached to boxes when truck is loaded utilizing clamps versus forks.

Alternative Embodiments

Although these inventions have been disclosed in the context of certain preferred embodiments and examples, it will be understood by those skilled in the art that the present inventions extend beyond the specifically disclosed embodiments to other alternative embodiments and/or uses of the inventions and obvious modifications and equivalents thereof.

For example, in various embodiments, other materials may provide the waterproofing and abrasion-resistance of the inner and outer sheets. Additionally or alternatively, one or more materials can be used as an additional inside layer 200 or outside layer 300 of the wrap 100 to accommodate pallets, heavier loads and more puncture-prone products.

In some embodiments, the strapping system of the wrap 100 may use a type of strap other than Velcro®. For example, straps with buttons, grommets, loops, buckles, ties, or other fastening methods may be used. In some embodiments, Velcro® or another fastening system is used to firmly hold down the folds 500 at the corners of the box 101, straps may be omitted from the wrap 100.

Furthermore, although certain embodiments are described herein with respect to their use for wrapping a single box, embodiments of the wrap may also be used to wrap a plurality of boxes, especially when such boxes form the bottom of a stack of boxes. Furthermore, the reusable, conformable, waterproof wraps can also be used with containers of various other types and/or for protecting products that are not enclosed within a container. Additionally, although embodiments are described herein with respect to their use in a warehouse setting, and with respect to protection from contact with water, the reusable, conformable, waterproof wraps can also be used in any of a wide variety of other locations in which it is desirable to protect items, such as from exposure to water or other liquid or to dirt, dust, or other contaminants. For example, the wraps 100 may be used in home garages for small individual boxes, for storage at docks and for loading docks, to protect items in a truck bed to waterproof boxes on office floors, and/or for use underneath furniture in warehouses to avoid water damage in event of flood, rain, and the like. Wraps 100 can be used in planting to provide a water barrier between plants. Wraps 100 can also be useful at parts stores, construction sites, and the like. Wraps 100 can advantageously be used for warehouses overseas where space may be limited, such as in dense industrial areas in Japan and/or China. The wraps can also be used to store boxes and other items in the bed of a pick-up or other truck, where they can be exposed to residual water, dirt, or other risk factors in the truck bed. The wraps can also be useful for just-in-time (JIT) delivery systems, in which warehouses can use their shipping/receiving docks as staging areas for fast deliveries.

Additionally, the wraps 100 can provide great benefit in areas of the country that are prone to heavy rains and/or flooding and could provide an important component to FEMA requirement for residents and companies located in Katrina-type environments.

In addition, while several variations of the inventions have been shown and described in detail, other modifications, which are within the scope of these inventions, will be readily apparent to those of skill in the art based upon this disclosure. It is also contemplated that various combination or sub-combinations of the specific features and aspects of the embodiments can be made and still fall within the scope of the inventions. It should be understood that various features and aspects of the disclosed embodiments can be combined with or substituted for one another in order to form varying modes of the disclosed inventions. Thus, it is intended that the scope of at least some of the present inventions herein disclosed should not be limited by the particular disclosed embodiments described above.

What is claimed is:

1. A wrap for protecting at least a bottom portion of at least one article from exposure to moisture, the wrap comprising: an outer sheet of at least one flexible material, the outer sheet having an exterior side and an interior side; an inner sheet of flexible, highly waterproof material, the inner sheet having an interior side and an exterior side, the interior side of the inner sheet joined to the interior side of the outer sheet, such that the joined combination of the inner sheet and the outer sheet has a perimeter portion and is sized and configured to extend under a bottom portion of at least one article, the perimeter portion of the joined combination of the inner sheet and the outer sheet further configured to extend outwardly beyond the bottom portion of the at least one article and to fold up along sides of the at least one article; and a releasable securing system configured to hold the perimeter portion of the joined combination of the inner sheet and the outer sheet flat against the sides of the at least one article, until the securing system is released.

2. The wrap of claim 1, wherein the releasable securing system is attached to the exterior side of the outer sheeting.

3. The wrap of claim 2, wherein the releasable securing system provides sufficient binding pressure on the perimeter portion to maintain a desired height of the perimeter portion against the sides of the at least one article until the securing system is released.

4. The wrap of claim 1, wherein the inner sheet is made of a material comprising polyester and polyvinyl chloride (PVC).

5. The wrap of claim 1, wherein the outer sheet is made of a material comprising heavy-weight Cordura®.

6. The wrap of claim 1, wherein the releasable securing system comprises one or more straps that hold the folded perimeter portion flat against the sides of the at least one article.

7. The wrap of claim 6, wherein at least one of the one or more straps comprises Velcro® material.

8. The wrap of claim 1, further comprising a plurality of riser strips attached to the exterior side of the outer sheet.

9. The wrap of claim 1, further comprising at least one riser point attached to a central portion of the exterior side of the outer sheet, such that, in use, the riser point is positioned
below the at least one article being protected by the wrap, the riser point further being positioned between the exterior side of the outer sheet and a ground surface upon which the at least one article and the wrap are resting, the riser point further configured to reduce a level of friction to which the exterior side of the outer sheet is exposed when the at least one article and the wrap are moved across the ground surface.

10. The wrap of claim 9, further comprising a plurality of riser strips attached to the exterior side of the outer sheet, wherein at least two of the plurality of riser strips intersect; forming an intersection, and wherein the at least one riser point is formed from the intersection of the at least two of the plurality of riser strips.

11. The wrap of claim 1, further comprising at least one additional sheet of material interposed between the inner sheet and the outer sheet.

12. A flexible conformable waterproof wrap configured to waterproof bottom portions of articles of different sizes, the flexible conformable waterproof wrap comprising:

at least one flexible waterproof sheet of material configured to extend under at least one article that is placed on the at least one flexible waterproof sheet of material, the at least one article having dimensions that define a perimeter portion of the at least one flexible waterproof sheet of material, wherein the perimeter portion of the at least one flexible waterproof sheet of material extends out from under at least one article when the at least one article rests on the at least one flexible waterproof sheet of material, the perimeter portion of the at least one flexible waterproof sheet of material configured to conformably fold up flat along the at least one article; and

a releasable securing system configured to hold the perimeter portion of the at least one flexible waterproof sheet of material flat up along the at least one article, in conformance with the size of the at least one article.

13. The flexible conformable waterproof wrap of claim 12, wherein the releasable securing system is further configured to hold the perimeter portion up in conformance with articles of various sizes.

14. The flexible conformable waterproof wrap of claim 12, wherein the at least one flexible waterproof sheet of material is further configured to extend over at least one article, the perimeter portion further configured to extend out over the at least one article; and

wherein the releasable securing system is further configured to hold the perimeter portion of the at least one flexible waterproof sheet of material flat down along the at least one article, in conformance with the size of the at least one article.

15. A wrap comprising:

at least one sheet of material with a central portion that is sized and configured to extend under at least one article, the at least one sheet of material configured to be folded up around the bottom portion of the at least one article, wherein the central portion has an interior side that faces towards the at least one article when the at least one sheet of material is folded up around the bottom portion of the at least one article, the central portion further having an exterior side that faces away from the at least one article when the at least one sheet of material is folded around the bottom portion of the at least one article;

a releasable securing system that holds folds of the at least one sheet of material flat against sides of the at least one article until the securing system is released; and

a plurality of riser strips attached to the exterior side of the central portion of the at least one sheet of material, at least one of the riser strips having a thickness that causes the at least one riser strip to extend down from the central portion of at least one sheet of material when in use and to hold the central portion of at least one sheet of material slightly elevated up from a surface upon which the wrap and the at least one article are resting.

16. The wrap of claim 15, wherein at least two of the plurality of riser strips are configured to intersect to form an intersection that protrudes down from the central portion of the at least one sheet of material.

17. The wrap of claim 16, wherein the wrap comprises four riser strips that are configured to intersect to form four intersections that protrude down from the central portion of the at least one sheet of material.

18. The wrap of claim 15, wherein at least one of the riser strips is made of seatbelt webbing that is manufactured, at least in part, from nylon.

19. The wrap of claim 15, wherein the thickness of the at least one of the riser strips is between 0.5 mm. and 5.0 mm.

20. The wrap of claim 19, wherein the thickness of the at least one of the riser strips is between 1.0 mm. and 1.5 mm.

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