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(54) **SYSTEM AND METHOD FOR INSTALLING BUILDING VAPOR BARRIER**

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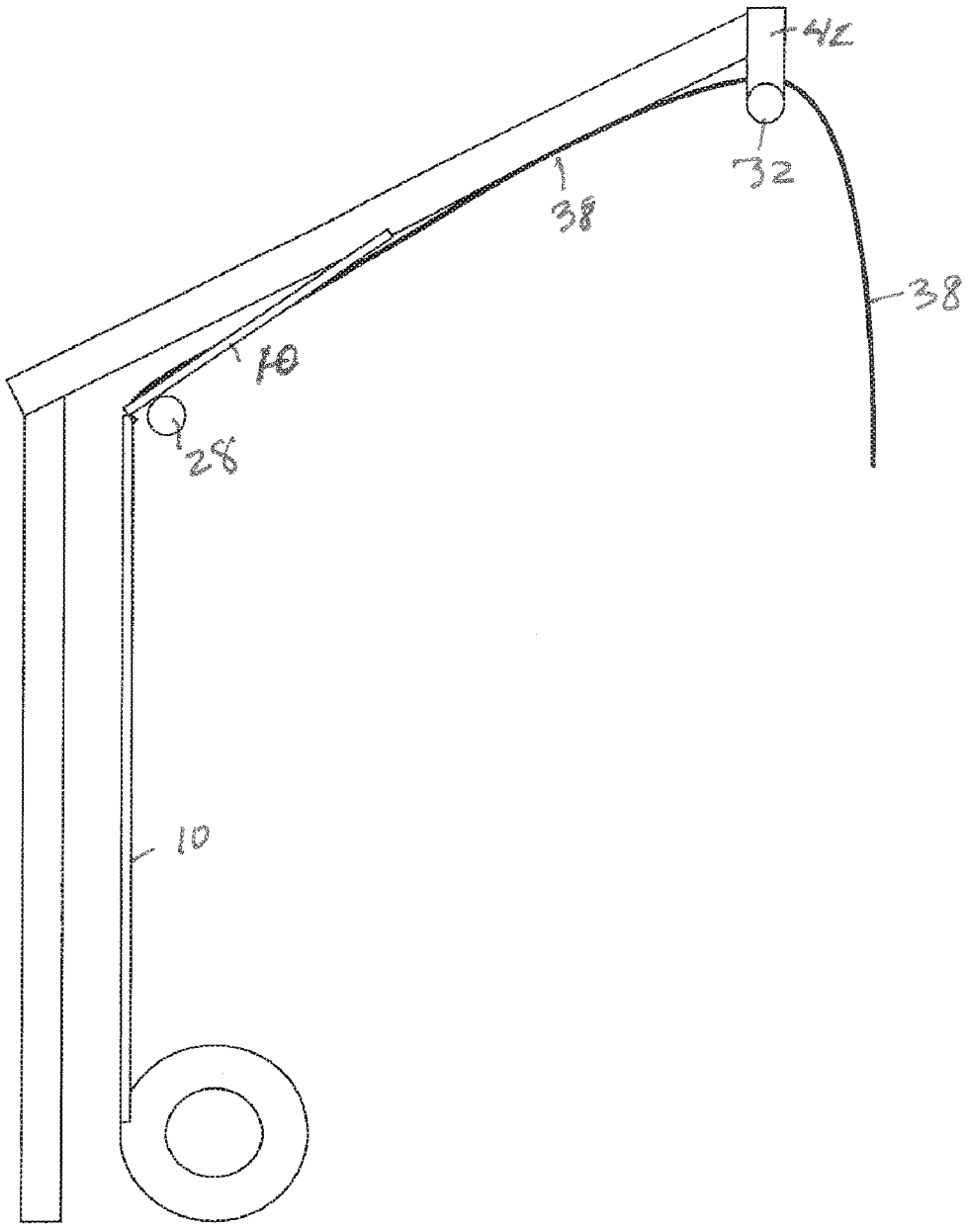
(57) **ABSTRACT**

A method and system for coupling a sealing vapor barrier to an internal surface of the building is presented. The method and systems utilize a flange disposed adjacent to a roof/wall interface to facilitate the movement of a first portion of the vapor barrier from adjacent to a wall frame to adjacent to a roof frame.



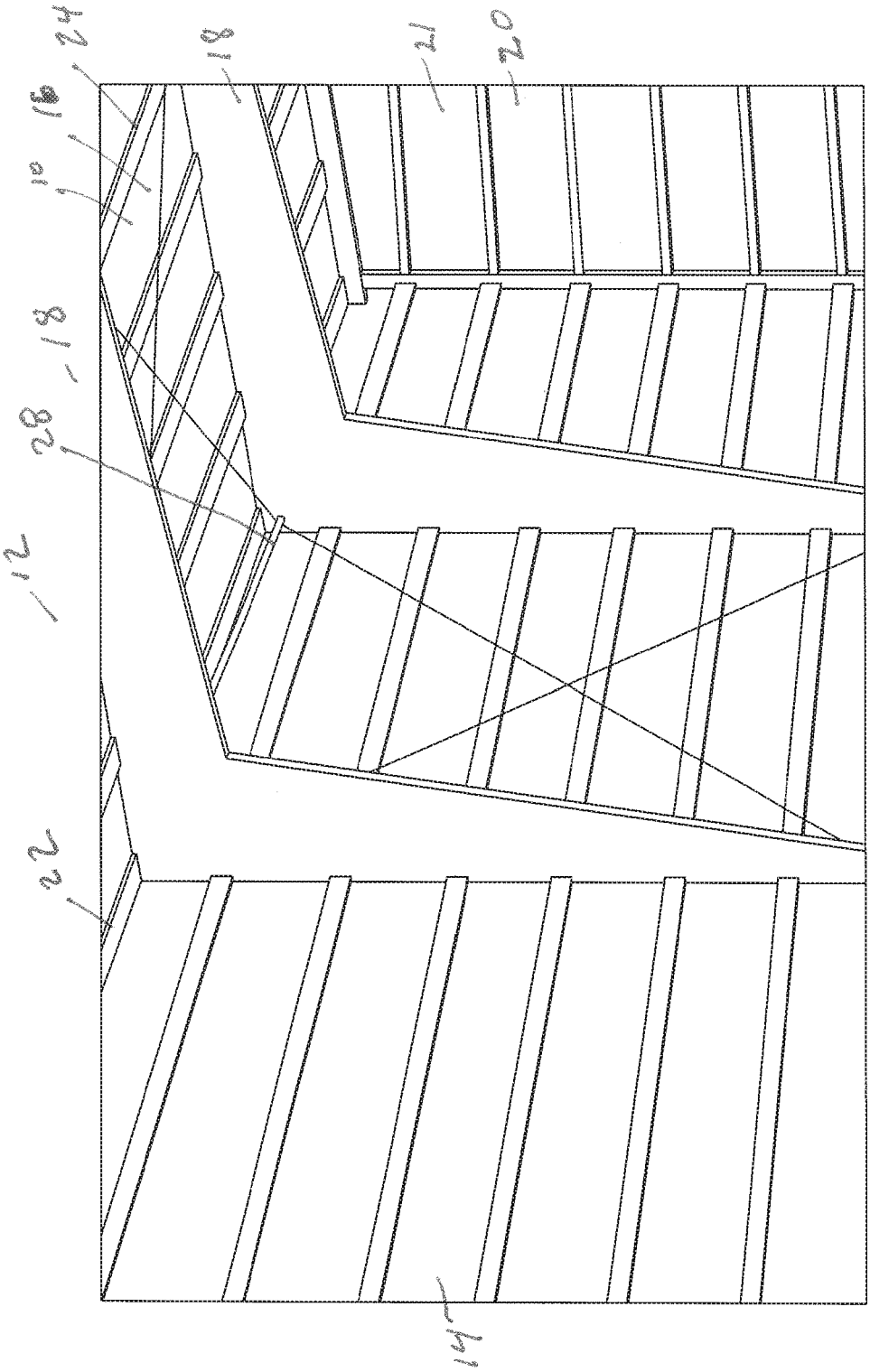


FIG 1

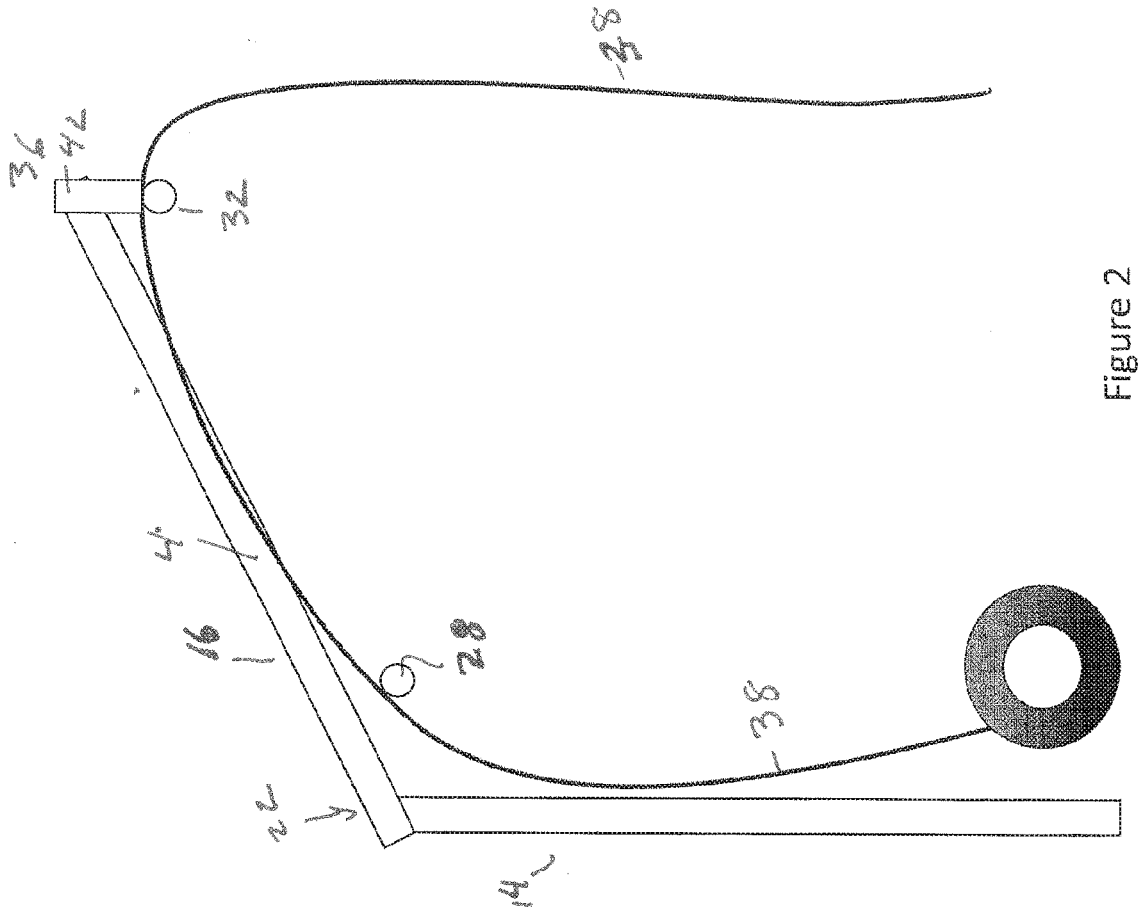


Figure 2

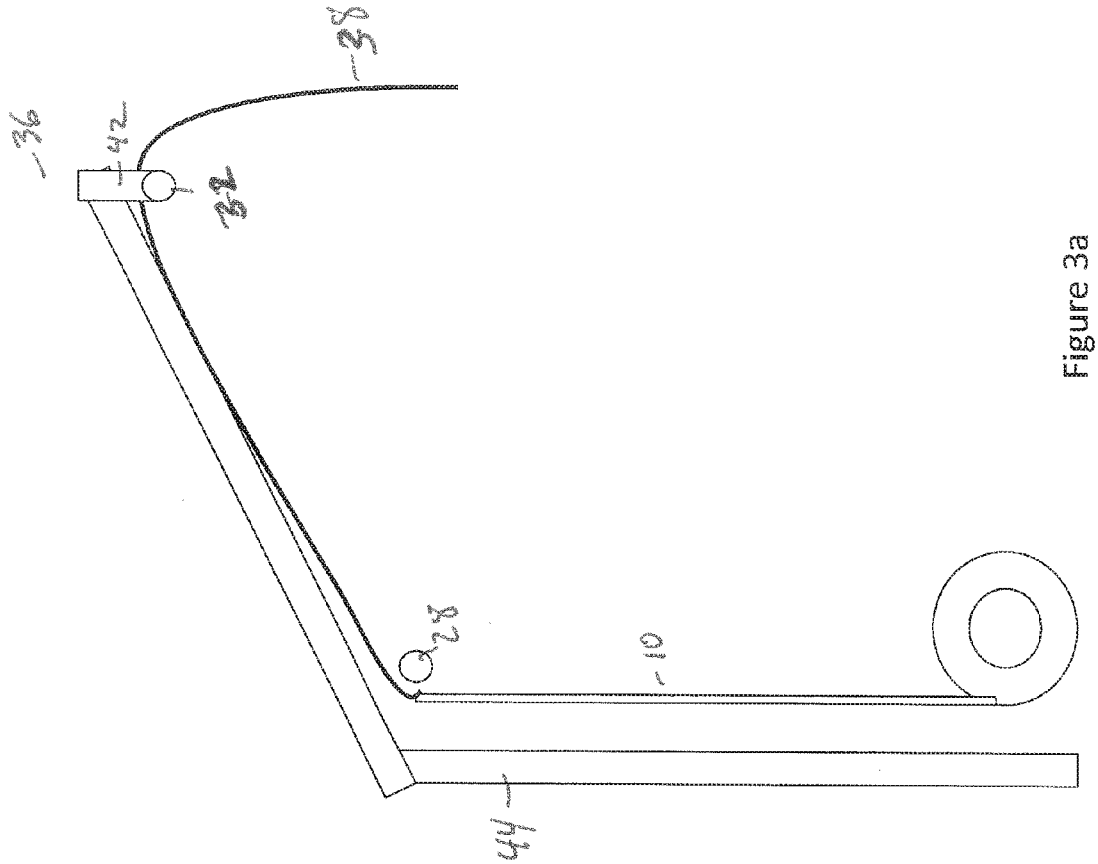


Figure 3a

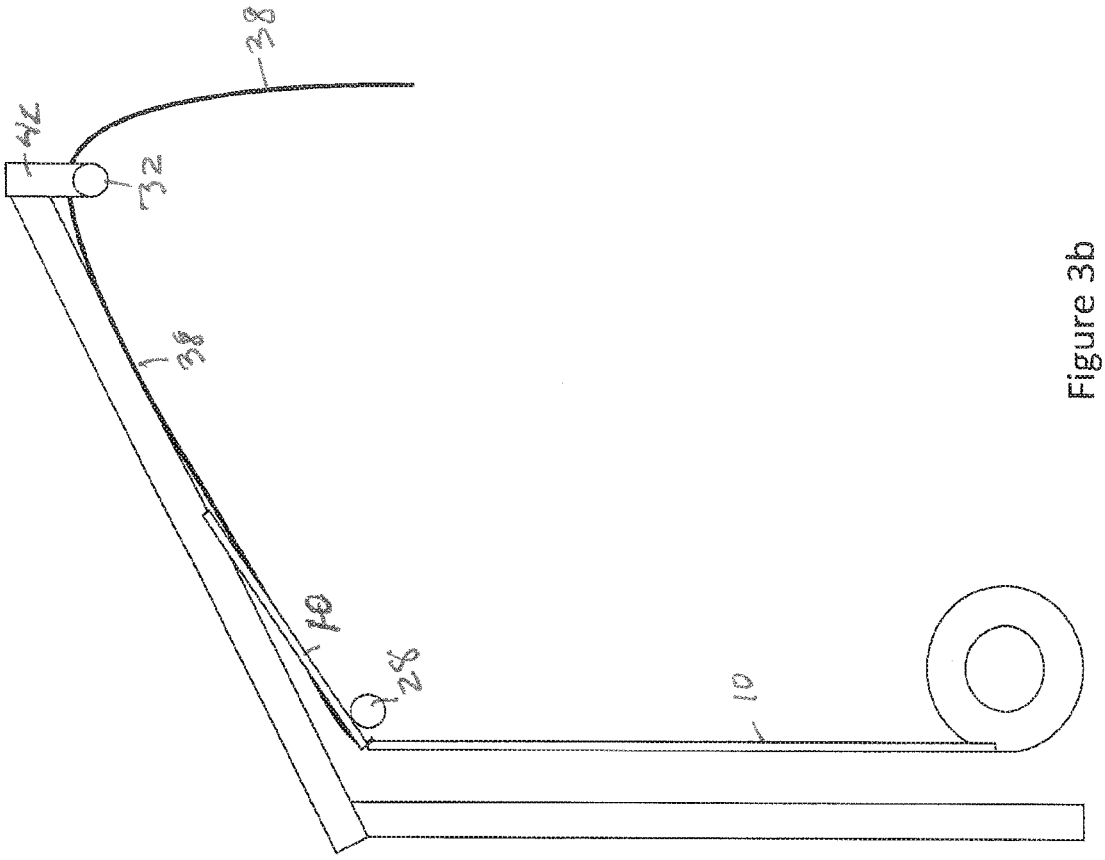


Figure 3b

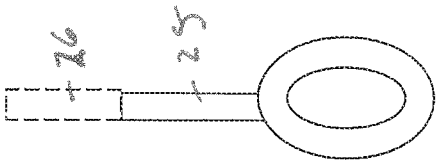


Figure 5

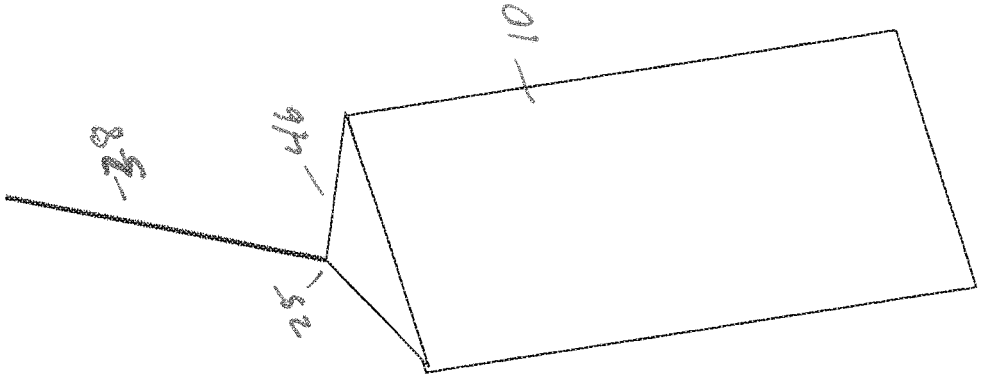


Figure 4

SYSTEM AND METHOD FOR INSTALLING BUILDING VAPOR BARRIER

FIELD

[0001] This application relates to a system and method for installing a vapor barrier in a building and more particularly to a method and system for installing a vapor barrier on an interior of a building having a metal frame.

BACKGROUND

[0002] Air leaks in buildings can be caused for many reasons such as age, corrosion, and rodents. These air leaks cause obvious loss in heat during the winter and cooling air during the summer. Further, the leaks can increase the chance for damage to the building due to water infiltration and water-induced incidence of mold.

[0003] To overcome these problems, builders have begun to reduce air out and inflows using impermeable barriers such as Tyvek™ on interior and exterior surfaces of the building structure. While installing a vapor barrier on an exterior of a surface of a new or refurbished building or on an interior surface of a new construction is not complicated, the installation on an interior surface of a previously constructed structure is problematic. It particularly difficult to install a vapor barrier on the inside of a previously constructed structure. It is therefor an object of the present disclosure to provide a method and system for installing vapor barrier on an interior surface of a pre-existing commercial building which overcomes the problems associated with previous systems.

SUMMARY

[0004] According to the present teachings, a method and system for coupling a sealing vapor barrier to an internal surface of the building is presented. The method and systems utilize a flange disposed adjacent to a roof/wall interface to facilitate the movement of a first portion of the vapor barrier from adjacent to a wall frame to adjacent to a roof frame.

[0005] According to an alternate teaching, a second member is coupled between the vapor barrier and a flexible lifting member to assist in the maintenance of the shape of the barrier during movement of a first portion of the vapor barrier from adjacent to a wall frame to adjacent to a roof frame.

[0006] According to another teaching, edges of the vapor barrier are sealably coupled to vertical wall support structures.

[0007] According to another teaching, a pulley is positioned on the roof and is coupled to the flexible member, which is used to position the vapor barrier adjacent to the roof.

[0008] According to another teaching, the system is described above further has a plurality of first straps configure to couple the vapor barrier to the wall structure.

[0009] According to another teaching, the system is described above further has a second plurality of straps configured to couple of vapor barrier to a roof.

[0010] According to another teaching, the system is described above further has insulation disposed between the vapor barrier and the insulation.

[0011] Further areas of applicability will become apparent from the description provided herein. The description and specific examples in this summary are intended for purposes of illustration only and are not intended to limit the scope of the present disclosure.

DRAWINGS

[0012] The drawings described herein are for illustrative purposes only of selected embodiments and not all possible implementations, and are not intended to limit the scope of the present disclosure.

[0013] FIG. **1** represents the installation of the vapor barrier on an interior surface of a building;

[0014] FIG. **2** represents positioning a flexible member over the support beam and pulley shown in FIG. **1**;

[0015] FIG. **3***a* represents the positioning of the vapor barrier adjacent to wall;

[0016] FIG. **3***a* represents the positioning of the vapor barrier adjacent to roof;

[0017] FIG. **4** represents the use of a secondary flange to support the vapor barrier; and

[0018] FIG. **5** represents a member to couple the support flange to the building structure.

[0019] Corresponding reference numerals indicate corresponding parts throughout the several views of the drawings.

DETAILED DESCRIPTION

[0020] Example embodiments will now be described more fully with reference to the accompanying drawings.

[0021] Shown in FIGS. **1** through **5**, is the method and system for attaching a vapor barrier **10** to the interior surface of a building **12**. The building **12** has a wall portion **14** and a mating ceiling or roof portion **16**. The wall portion **14** and roof portion **16** are supported by a pair of vertical I or T shaped beam members **18**. Also shown, are horizontal members **20** which can be used to support a building's exterior surface structure as well as insulation **21**.

[0022] Shown in FIG. **2** is a bracket configured to support the vapor barrier **10** adjacent to the interface **22** between the wall portion **14** and the roof **16** can be a support flange **24** that runs between the vertical I-beams **18**. The support flange **24** functions as a generally frictionless surface during the installation of the vapor barrier **10**. The support flange **24** is held in position using a pair of mounting members **25** (see FIG. **5**). The mounting members **25** each have a threaded coupling end **26** which can be used to fasten the mounting member **25** to either the wall or roof member. This threaded coupling end **26** can be in the form of a screw or a bolt. At an opposite side of the mounting member **25** can be a circular fasteners configured to couple the support flange **24**. As shown, the support flange **24** can be positioned between a pair of support flanges **24**.

[0023] As shown FIGS. **3**A and **3**B, the vapor barrier **10** can be attached to a flexible member **28** which can be a rope or a cable. The flexible number **28** is passed over the support flange **28** and to a pulley **32** that is position at a high-end **36** of the roof portion **18**. Tension is applied to the flexible number **28** to pull a first portion of the vapor barrier **10** over the support flange **28** and up to an adjacent the roof **16**. Once elevated by the pulley **32**, the vapor barrier **10** can be Sealably coupled to a roof central rail **42**. Additionally, the vapor barrier tennis because simply couple at its second and/or bottom **44** two **446** the support rail **28** can then be

moved towards the roof and ceiling interface to better position and tension the vapor barrier between the first and second ends.

[0024] At this point, the sides of the vapor barrier **10** can be Sealablythe coupled to the I-beams forming a sealed enclosure. This can be accomplished using an adhesive, or the use of tape. Optional horizontal straps can be positioned over the vapor barrier **10** to fix the vapor barrier **10** to the exterior surface of the building if necessary.

[0025] Optionally, a second member **46** is coupled between the vapor barrier **10** and a flexible lifting member **38** to assist in the maintenance of the shape of the vapor barrier **10** during movement of a first portion of the vapor barrier **10** from adjacent to a wall frame to adjacent to a roof frame. The second member **46** can be straight, or can take for instance a 90 degree angle.

[0026] According to another teaching, a pulley is positioned on the roof and is coupled to the flexible member, which is used to position the vapor barrier adjacent to the roof.

[0027] According to another teaching, the system is described above further has a plurality of first straps configure to couple the vapor barrier to the wall structure or the roof structure. When adding the vapor barrier to an existing structure, Insulation can be fastened to the roof or the wall prior to coupling the vapor barrier **10** to the building. Optionally, blown or sprayed insulation can be placed between the vapor barrier **10** and the wall or roof.

[0028] Example embodiments are provided so that this disclosure will be thorough, and will fully convey the scope to those who are skilled in the art. Numerous specific details are set forth such as examples of specific components, devices, and methods, to provide a thorough understanding of embodiments of the present disclosure. It will be apparent to those skilled in the art that specific details need not be employed, that example embodiments may be embodied in many different forms and that neither should be construed to limit the scope of the disclosure. In some example embodiments, well-known processes, well-known device structures, and well-known technologies are not described in detail.

[0029] The terminology used herein is for the purpose of describing particular example embodiments only and is not intended to be limiting. As used herein, the singular forms "a," "an," and "the" may be intended to include the plural forms as well, unless the context clearly indicates otherwise. The terms "comprises," "comprising," "including," and "having," are inclusive and therefore specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations, elements, components, and/or groups thereof. The method steps, processes, and operations described herein are not to be construed as necessarily requiring their performance in the particular order discussed or illustrated, unless specifically identified as an order of performance. It is also to be understood that additional or alternative steps may be employed.

[0030] When an element or layer is referred to as being "on," "engaged to," "connected to," or "coupled to" another element or layer, it may be directly on, engaged, connected or coupled to the other element or layer, or intervening elements or layers may be present. In contrast, when an element is referred to as being "directly on," "directly engaged to," "directly connected to," or "directly coupled to" another element or layer, there may be no intervening elements or layers present. Other words used to describe the relationship between elements should be interpreted in a like fashion (e.g., "between" versus "directly between," "adjacent" versus "directly adjacent," etc.). As used herein, the term "and/or" includes any and all combinations of one or more of the associated listed items.

[0031] Although the terms first, second, third, etc. may be used herein to describe various elements, components, regions, layers and/or sections, these elements, components, regions, layers and/or sections should not be limited by these terms. These terms may be only used to distinguish one element, component, region, layer or section from another region, layer or section. Terms such as "first," "second," and other numerical terms when used herein do not imply a sequence or order unless clearly indicated by the context. Thus, a first element, component, region, layer or section discussed below could be termed a second element, component, region, layer or section without departing from the teachings of the example embodiments.

[0032] Spatially relative terms, such as "inner," "outer," "beneath," "below," "lower," "above," "upper," and the like, may be used herein for ease of description to describe one element or feature's relationship to another element(s) or feature(s) as illustrated in the figures. Spatially relative terms may be intended to encompass different orientations of the device in use or operation in addition to the orientation depicted in the figures. For example, if the device in the figures is turned over, elements described as "below" or "beneath" other elements or features would then be oriented "above" the other elements or features. Thus, the example term "below" can encompass both an orientation of above and below. The device may be otherwise oriented (rotated 90 degrees or at other orientations) and the spatially relative descriptors used herein interpreted accordingly.

[0033] While various embodiments have been described, those skilled in the art will recognize modifications or variations that might be made without departing from the present disclosure. The examples illustrate the various embodiments and are not intended to limit the present disclosure. Therefore, the description and claims should be interpreted liberally with only such limitation as is necessary in view of the pertinent prior art.

[0034] The foregoing description of the embodiments has been provided for purposes of illustration and description. It is not intended to be exhaustive or to limit the disclosure. Individual elements or features of a particular embodiment are generally not limited to that particular embodiment, but, where applicable, are interchangeable and can be used in a selected embodiment, even if not specifically shown or described. The same may also be varied in many ways. Such variations are not to be regarded as a departure from the disclosure, and all such modifications are intended to be included within the scope of the disclosure.

1. A method for coupling a sealing vapor barrier to an internal surface of the building comprising:

providing a flange disposed adjacent to a roof/wall interface;

coupling a flexible member to the sealing vapor barrier;

passing a portion of the flexible member over the flange;

passing the portion of the flexible member over a pulley disposed at a center roof rail;

pulling the flexible member over the flange and the pulley moving a first portion of the vapor barrier from a first location adjacent to a wall frame over the flange to a second position adjacent to a roof frame; and

sealable coupling the vapor barrier to the internal surface of the wall portion and the roof portion.

2. The method according to claim **1** further comprising coupling a second member between the vapor barrier and a flexible member, wherein the second member functions to maintain the shape of the vapor barrier during movement of the first portion of the vapor barrier from adjacent to a wall frame over the flange to the second position adjacent to a roof frame.

3. The method according to claim **1** further comprising sealably coupling the vapor barrier to a vertical wall support structure.

4. (canceled)

5. The method according to claim **1** further comprising placing a plurality of first straps configured to couple the vapor barrier to the wall structure.

6. The method according to claim **5** further comprising positioning a second plurality of straps adjacent the vapor barrier to couple the vapor barrier to the roof.

7. The method according to claim **1** further comprising disposing insulation between the vapor barrier and the wall.

8. The method according to claim **1** wherein the internal surface of the building is a surface on an insulating material.

* * * * *