US 20170183866A1

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2017/0183866 A1

Garrett (43) Pub. Date: Jun. 29, 2017

(54) **PEST AND FIRE BARRIER SYSTEM FOR INSULATING CONCRETE FORMS**

(71) Applicant: **BuilBlock Building Systems, LLC**, Oklahoma City, OK (US)

(72) Inventor: **David Michael Garrett**, Oklahoma City, OK (US)

(21) Appl. No.: **15/392,494**

(22) Filed: **Dec. 28, 2016**

Related U.S. Application Data

(60) Provisional application No. 62/271,755, filed on Dec. 28, 2015.

Publication Classification

(51) **Int. Cl.**

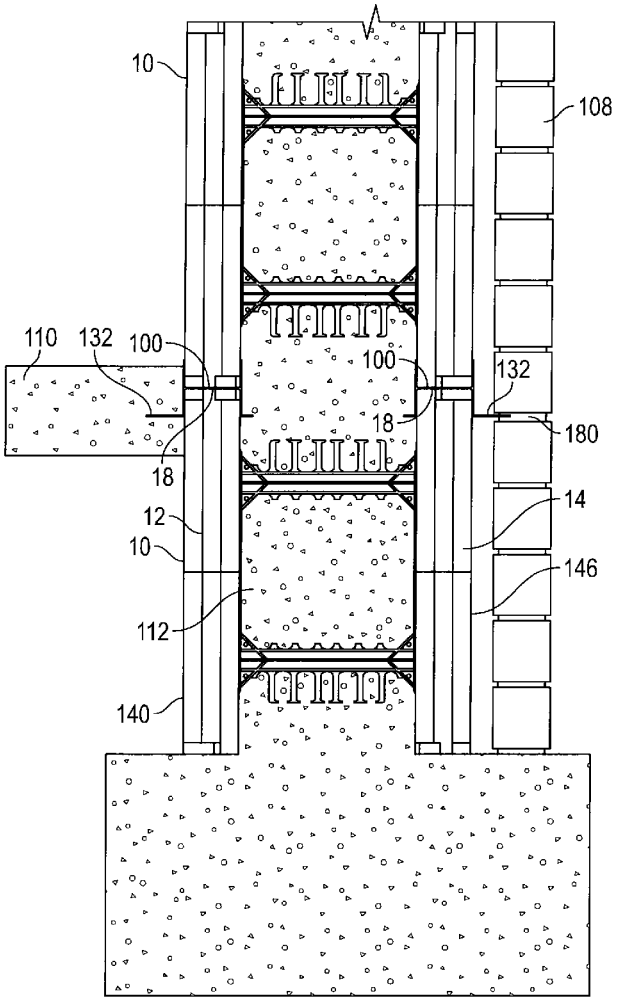
E04B 2/86	(2006.01)
E04B 1/94	(2006.01)
E04B 1/72	(2006.01)

(52) **U.S. Cl.**

CPC ***E04B 2/8635*** (2013.01); ***E04B 1/72*** (2013.01); ***E04B 1/942*** (2013.01); *E04B 2103/02* (2013.01)

(57) **ABSTRACT**

A barrier system for use with a structure having a wall formed of a plurality of insulating concrete form blocks. The barrier system includes a support member having a web, a first flange, and a second flange extending from opposing ends of the web to define a pair of panel receiving cavities on opposing sides of the web. The first flange has a first wing extending outwardly and perpendicularly from the first flange, and the second flange has a second wing extending outwardly and perpendicularly from the second flange. The support member is positionable on the top end of one of the insulating concrete forms with a top end receivable in one of the panel receiving cavities, and a bottom end of another insulating concrete form is positionable in another one of the panel receiving cavities. One of the first wing and the second wing extends towards the concrete receiving cavity.



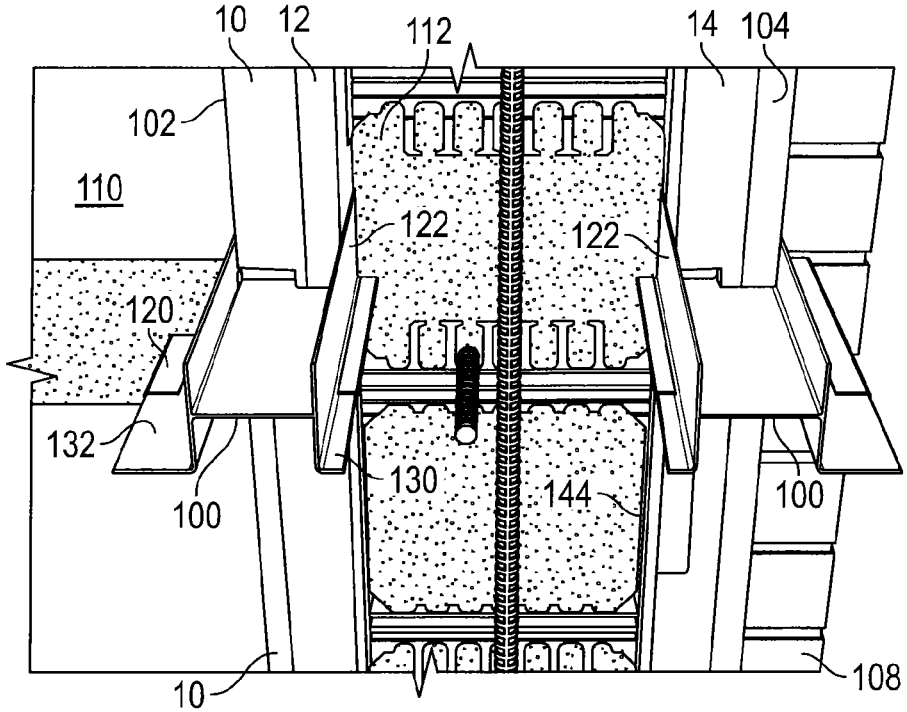

10
12
112
14
104
102
110
122
122
120
132
130
144
100
100
108
10

FIG. 1A

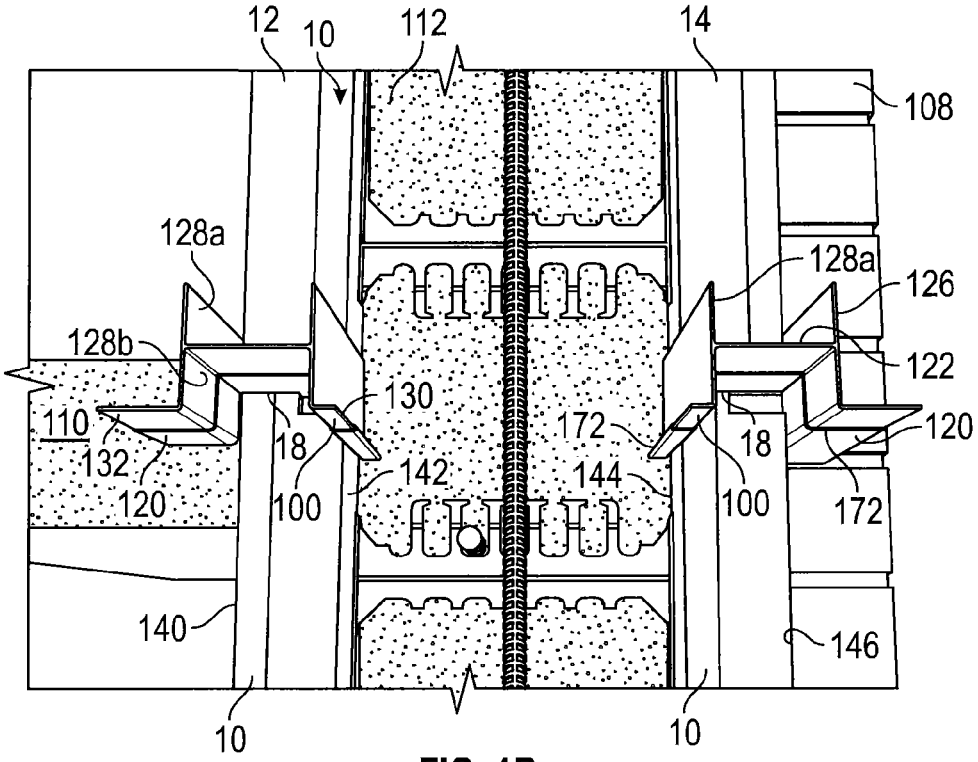

12
10
112
14
108
128a
128a
126
128b
122
130
110
172
18
18
120
132
142
144
120
100
100
172
140
146
10
10

FIG. 1B

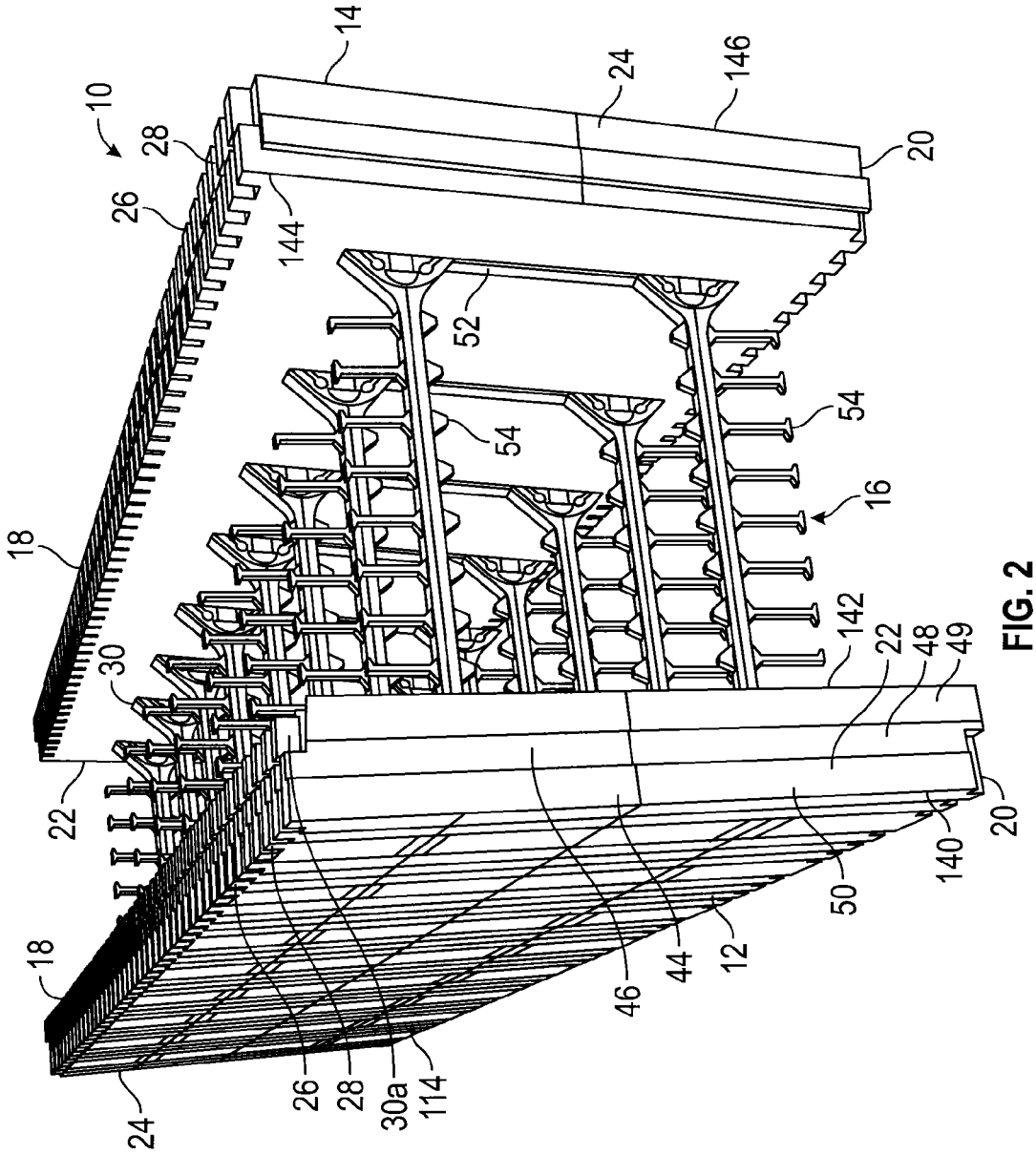

10
14
24
146
20
28
26
144
52
54
54
16
18
142
22
48
49
30
22
20
140
50
18
46
44
12
24
26
28
30a
114

FIG. 2

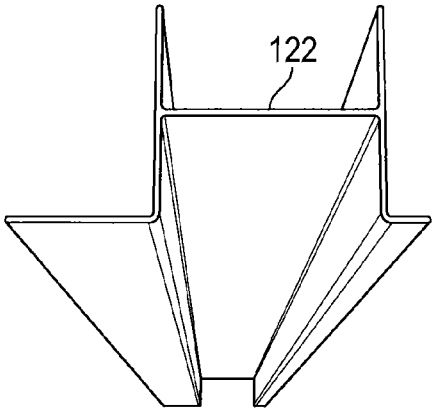


FIG. 3A

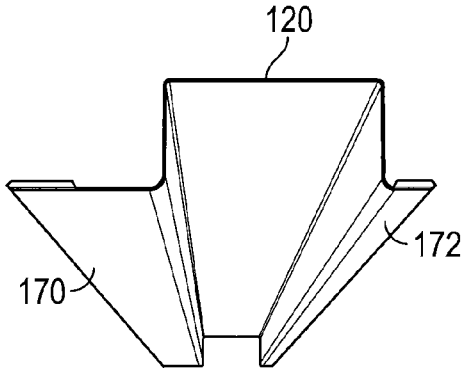


FIG. 3B

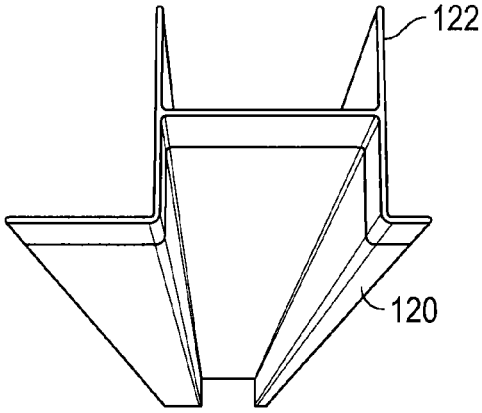


FIG. 3C

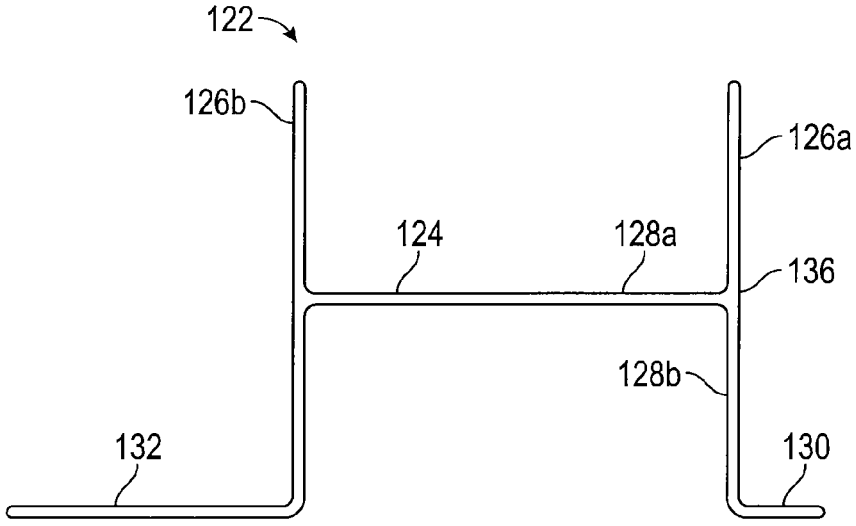


FIG. 4

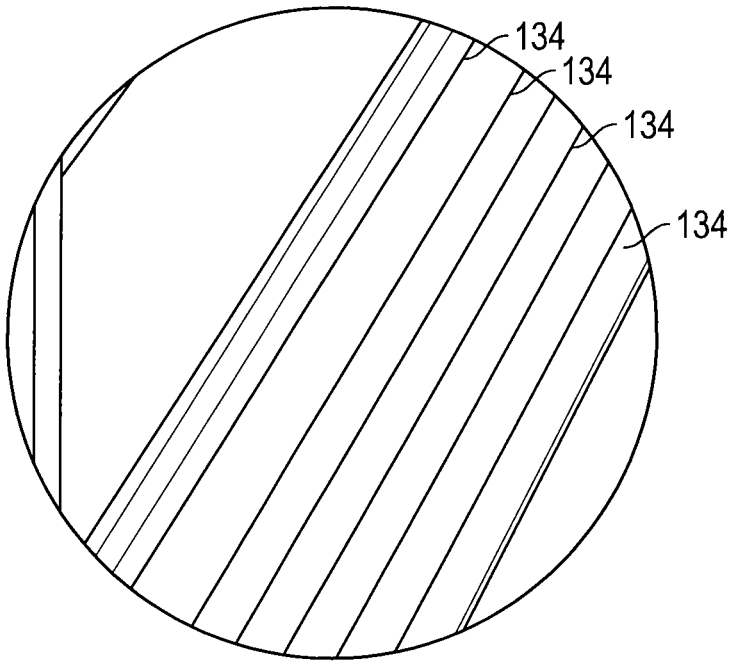


FIG. 5

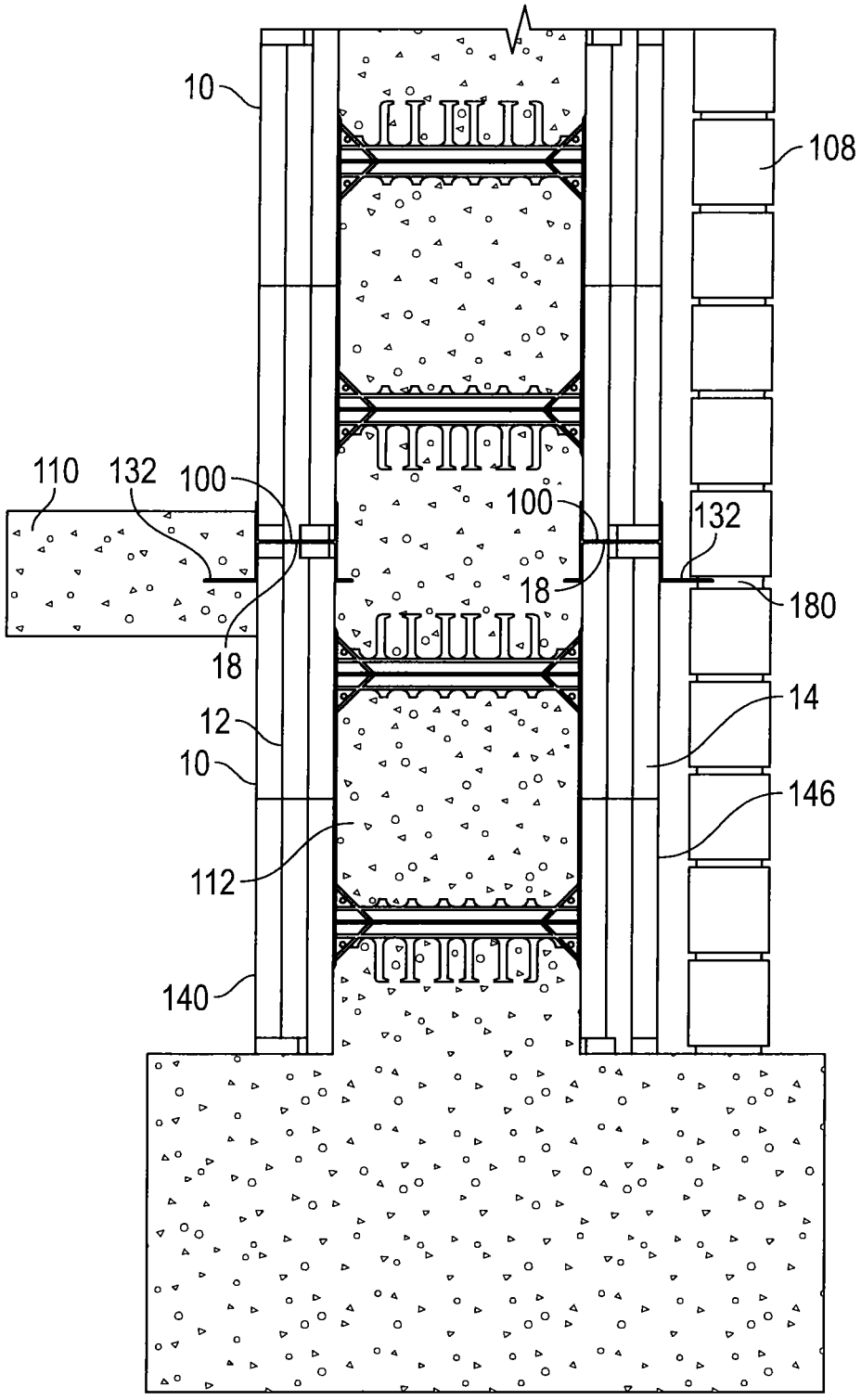


FIG. 6

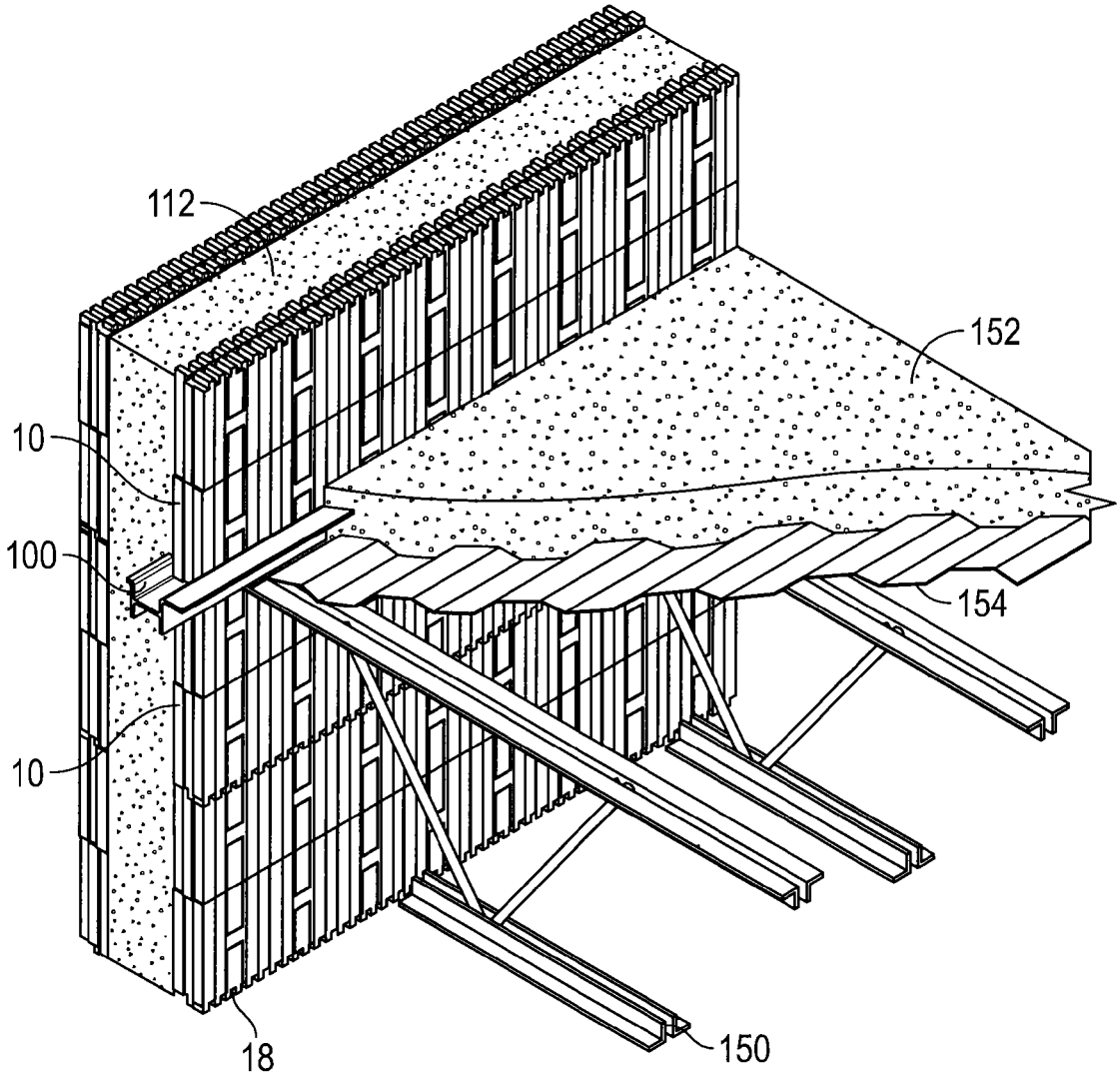


FIG. 7A

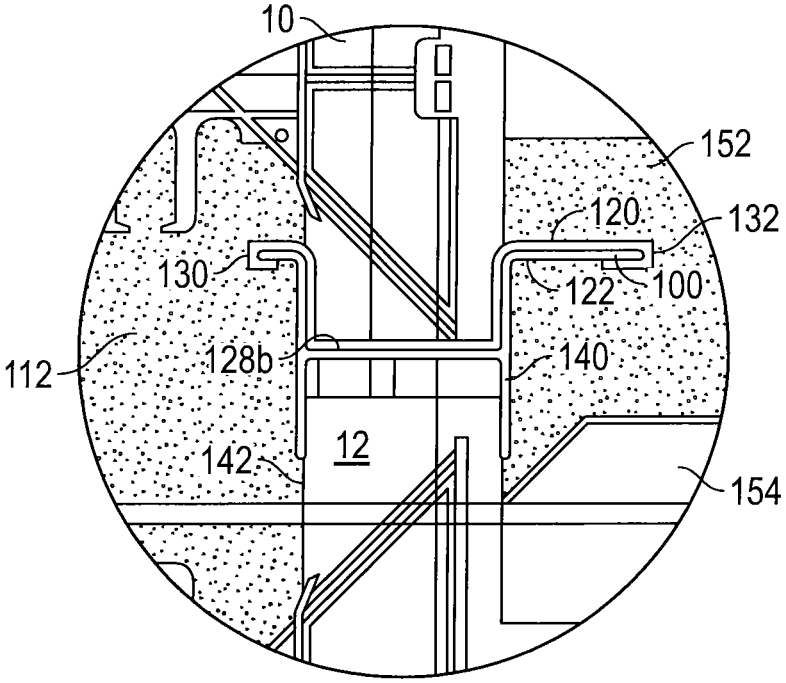

10
152
120
132
130
122
100
112
128b
140
12
142
154

FIG. 7B

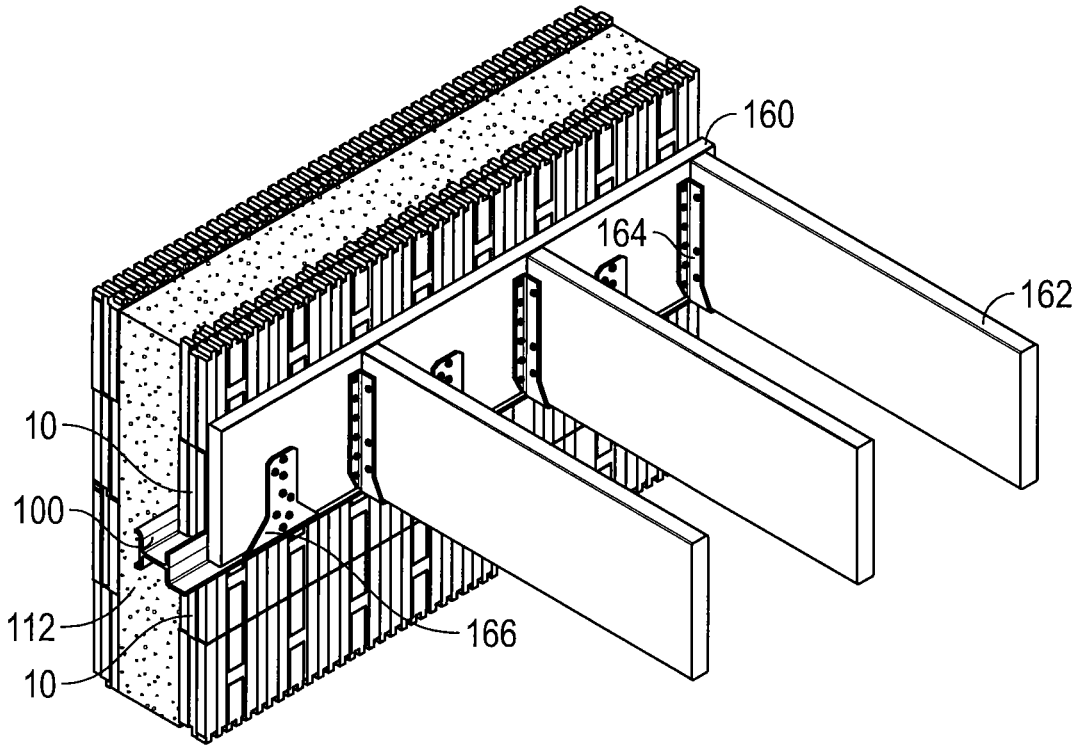

160
164
162
10
100
112
166
10

FIG. 8A

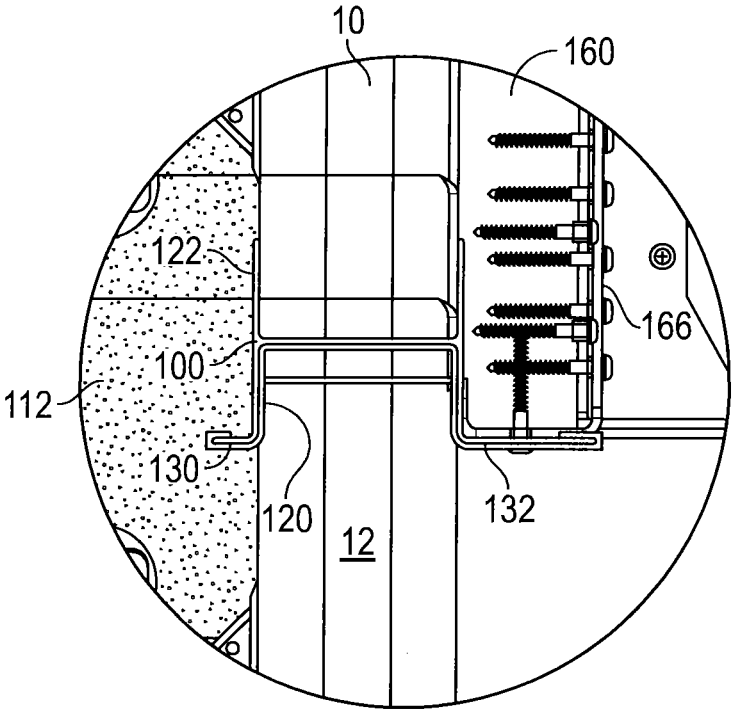


FIG. 8B

PEST AND FIRE BARRIER SYSTEM FOR INSULATING CONCRETE FORMS

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to U.S. Provisional Application Ser. No. 62/271,755, filed on Dec. 28, 2015, the entirety of which being hereby expressly incorporated herein by reference.

BACKGROUND

[0002] Construction utilizing insulating concrete form (ICF) systems (also known as insulated concrete blocks) is well known in the art. These systems often include dry-stacking the ICF blocks or interlocking modular units, installing horizontal and vertical reinforcing rods (rebar) as the ICF blocks are being placed, and then filling the forms with concrete, creating a concrete core. The ICF blocks, often formed of plastic foam, are maintained in place after the concrete hardens to insulate the concrete, provide a sound barrier, insulation, and serve as a backing for finishing material, such as drywall, stucco, siding, or brick.

[0003] Current ICF systems used in building structures provide many advantages over conventional construction methods. For example, because the entire interior space of walls insulated by ICF blocks is continuously occupied (no gaps can occur between blown or fiberglass insulation and a wood frame wall), ICF systems may help deter casual transit by insects, such as termites. Also, ICF systems generally have an increased fire resistance rating and negligible surface-burning properties relative to walls constructed from wood, due to the concrete core formed between two foam blocks.

[0004] Nevertheless, the plastic foam forms used in ICF systems can be tunneled through by pests, and the plastic foam forms will smolder or burn until the ignition source is removed. To this end, a need exists for a barrier system that can be interconnected with the ICF blocks to form a barrier to pests and the spread of fire and that is readily and reliably installed in an insulating concrete form. It is to such a barrier system that the inventive concepts disclosed herein are directed.

SUMMARY OF THE INVENTIVE CONCEPTS

[0005] In one aspect, the inventive concepts disclosed herein are directed to a pest barrier system for ICF systems that includes a support member installed between two ICF blocks. The support member serves as an impenetrable pest barrier against pests entering the structure.

[0006] In another aspect, the inventive concepts disclosed herein are directed to a pest barrier system for ICF systems that includes a support member and a liner installed between two ICF blocks. The support member alone deters pests from entering the structure, and the combination of the support member and the liner creates an impenetrable barrier to pests. The barrier system is a two piece assembly designed to prevent termites from entering a home or commercial structure through a wall insulated by ICF blocks. It has been suggested that termites may tunnel through the plastic foam forms to enter a building insulated by ICF blocks. The barrier system of the inventive concepts described herein interrupts this foam pathway with a rigid, inedible support member or a support member and a liner, such as a stainless steel, through which termites cannot penetrate. Termites thrive in moist and dark environments. Properly installed, the barrier system may prevent termites from tunneling inside the foam, forcing them to move around the barrier towards the concrete core. Unable to penetrate into the concrete core, the pests will move to the outside of the finish of the structure.

[0007] Termites protect themselves from the sun and dry air by building mud tubes. A mud tube is the first sign a termite inspector will look for when inspecting for termite activity. By forcing termites to the outside of the wall, the barrier system exposes termite activity and makes termite inspection quick and simple.

[0008] In another aspect, the inventive concepts disclosed herein create a fire barrier bridging the foam blocks at the top of a wall and between floors in ICF structures, ensuring that hot gases from a fire do not travel up or down the wall, thereby reducing the speed at which flames may spread through the structure. For example, in many floor systems, foam panels may be left in place after a floor attachment. During a structure fire, the foam panel may melt behind a fire barrier (e.g., drywall). When a foam panel melts, hot gases and flames from a fire below or above may follow the pathway created by the foam panel of the ICF block and begin burning the floor or attic above it, rendering any fire rated floor system irrelevant. This is known as "chimney effect" in the ICF block. To prevent chimney effect, fire blocking methods have been employed. Current fire blocking includes stacking lumber pieces against the concrete core after a foam panel has been removed or pouring concrete to the face of a foam panel in a continuous band with the floor systems, such as rim joint systems, attached. There is significant additional labor involved with properly fire blocking an ICF wall. The barrier system of the present invention provides an easy way to ensure the effectiveness of fire rated assemblies.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] Like reference numerals in the figures represent and refer to the same or similar element or function. Implementations of the disclosure may be better understood when consideration is given to the following detailed description thereof. Such description makes reference to the annexed pictorial illustrations and drawings. The figures are not necessarily to scale and certain features and certain views of the figures may be shown exaggerated, to scale or in schematic in the interest of clarity and conciseness. In the drawings:

[0010] FIG. **1**A is an upper perspective view of a barrier system constructed in accordance with the inventive concepts disclosed herein, shown incorporated into a structure.

[0011] FIG. **1**B is a lower perspective view of the barrier system of FIG. **1**A.

[0012] FIG. **2** is a perspective view of an exemplary insulating concrete form block for use with the barrier system.

[0013] FIG. **3**A is a perspective view of a support member.

[0014] FIG. **3**B is a perspective view of a liner.

[0015] FIG. **3**C is a perspective view of a barrier system including the support member of FIG. **3**A and the liner of FIG. **3**B secured thereto.

[0016] FIG. **4** is an end view of the support member.

[0017] FIG. **5** is a plan view of a wing of the support member.

[0018] FIG. **6**A is an end view of the barrier system positioned in a partial structure.

[0019] FIG. **6**B is an end view of the barrier system positioned in a structure.

[0020] FIG. **7**A is a perspective view of another embodiment of a barrier system.

[0021] FIG. **7**B is an enlarged end view of the barrier system of FIG. **7**A.

[0022] FIG. **8**A is a perspective view of another embodiment of a barrier system.

[0023] FIG. **8**B is an enlarged end view of the barrier system of FIG. **8**A.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

[0024] Before explaining at least one embodiment of the inventive concept disclosed herein in detail, it is to be understood that the inventive concept is not limited in its application to the details of construction, and/or the arrangement of the components set forth in the following description, or illustrated in the drawings. The presently disclosed and claimed inventive concept is capable of other embodiments or of being practiced or carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein is for purpose of description only and should not be regarded as limiting in any way.

[0025] In the following detailed description of embodiments of the inventive concept, numerous specific details are set forth in order to provide a more thorough understanding of the inventive concept. However, it will be apparent to one of ordinary skill in the art that the inventive concept within the disclosure may be practiced without these specific details. In other instances, well-known features have not been described in detail to avoid unnecessarily complicating the instant disclosure.

[0026] Further, unless expressly stated to the contrary, "or" refers to an inclusive or and not to an exclusive or. For example, a condition A or B is satisfied by anyone of the following: A is true (or present) and B is false (or not present), A is false (or not present) and B is true (or present), and both A and B are true (or present).

[0027] In addition, use of the "a" or "an" are employed to describe elements and components of the embodiments herein. This is done merely for convenience and to give a general sense of the inventive concept. This description should be read to include one or at least one and the singular also includes the plural unless it is obvious that it is meant otherwise.

[0028] Referring now to the drawings, and more particularly to FIGS. **1**A and **1**B, a pair of barrier systems **100** constructed in accordance with the inventive concepts disclosed herein are shown incorporated within a structure **102** to form a physical barrier against the infestation of pests into the structure **102**. The structure **102** is shown to include a wall **104** formed of a plurality of insulating concrete form (ICF) blocks **10**. An exterior side of the wall **104** has a finishing material **108** (e.g., a brick veneer), and an interior side of the wall **104** includes a concrete slab **110**. As will be described below, the ICF blocks **10** have a first foam panel **12** and a second foam panel **14** supported in a spaced apart, parallel relationship to form a concrete receiving cavity. The concrete receiving cavity receives concrete for forming a concrete core **112**.

[0029] Referring now to FIG. **2**, an exemplary ICF block **10** is illustrated. The ICF block **10** is referred to as a knockdown insulating concrete block because the block **10** is adapted to be shipped in a flat, unassembled condition, and then assembled at a job site. Once assembled, the ICF block **10** is adapted to be interlocked with other insulating construction blocks to form an insulating concrete form for casting concrete. The ICF block **10** is formed from two foam panels **12** and **14** interconnected to one another with a plurality of web structure assemblies **16**.

[0030] Each of the panels **12** and **14** has a top end **18**, a bottom end **20**, a first end **22**, and a second end **24**. Panel **12** also includes an exterior side **140** and an interior side **142**, and panel **14** includes an exterior side **146** and an interior side **144**. The top end **18** and the bottom end **20** of the panel **12** are shown to be provided with an outside row of a plurality of projections **26** which are spaced apart to define a plurality of corresponding recesses **28** and an inside row of projections **30** and **30***a* which are spaced apart to define a plurality of recesses **32**. The projections **30** and **30***a* of the inside row are different in size to one another and are alternated relative to one another. Moreover, the projections **30** and **30***a* of the inside row are each different in size to the projections **26** of the outside row. The projections and recesses along the bottom end **20** of each panel **12** and **14** are offset relative to the top end **18** wherein a recess on the bottom end **20** opposes a projection on the top end **18** of corresponding size and a projection on the bottom end **20** opposes a recess on the top end **18** of corresponding size with the exception that the recesses of the inner rows are sized to receive either of the projections of the inner row.

[0031] It will be appreciated that while the panel **12** has been described to include alternating projections and recesses of varying sizes, numerous systems exist for interlocking insulating concrete forms. By way of example, the panel **14** has been illustrated to have projections of the same size. Other examples of panel structures are described in U.S. Pat. Nos. 6,820,384; 5,896,714; 4,698,947; 6,792,729; 6,401,419; and 5,014,480; each of which is expressly incorporated herein by reference.

[0032] The first end **22** and the second end **24** of the panels **12** and **14** may also be provided with a tongue and groove pattern that allows for a mating interconnection with the end of another panel. More specifically, the first end **22** of the panel **12** has an upper pair of projections **44** spaced apart to form a recess **46** and a lower projection **48** defining a pair of recesses **50** on each side thereof. Similarly, the second end **24** of the panel **12** is formed to have projections and recesses. However, the projections and recesses on the second end **24** are offset relative to the first end **22** wherein a recess on the second end **24** opposes a projection on the first end **22** and a projection on the second end **24** opposes a recess on the first end **22**. In one version, the projections of the first and second ends **22** and **24** are provided with a shallow profile to permit the first and second ends **22** and **24** of the panel **12** to abut the end of another panel that may not have a corresponding tongue and groove pattern. For example, if a block is vertically cut, it is still desirable that the first and second ends abut a smooth end surface. To this end, a preferred height of the projections is approximately **1** mm.

[0033] The panels **12** and **14** can be formed from fire retardant expanded polypropylene, polystyrene, polyethylene or other suitable polymers, with expanded polystyrene

commonly referred to as "EPS" being preferred. Subject to indentations and protrusions of minor dimensions, which can be any structure used to connect the forms together vertically to form a wall as discussed below, the panels are of generally uniform rectangular cross-section. In a typical case, each panel may be 48 inches long, 16.50 inches high and 2.50 inches thick. However, it will be appreciated that the panels may be constructed in a variety of shapes and sizes.

[0034] The exterior face of the panels **12** and **14** may be provided with a series of vertical markings and horizontal markings to serve as guidelines for assisting the installer to cut the block **10** to a desired size. The vertical markings are preferably spaced at one inch intervals; however, it will be appreciated that other intervals may be used. In addition, the vertical markings are identified with numerals much like a measuring tape. This allows an installer to cut blocks many times without the need of marking the cut point on the block, or without the need to measure the form during the cutting and installation process. This will save time and money during the installation process.

[0035] The horizontal markings may include a center line, a pair of upper lines, and a pair of lower lines. These horizontal lines may be spaced every **2** inches from the center line. This allows an installer making horizontal cuts to have a line to follow for cutting straight whether they cut directly on the line or not.

[0036] The panels **12** and **14** may further include a series of markings indicating the position of the web structures assemblies **16**, and in particular an attachment element to be described below.

[0037] The panels **12** and **14** are assembled with the web structure assemblies **16** of desired dimension so that the outside rows are adjacent the outside of the block **10** and the inside rows are adjacent the inside of the block **10**. In addition to the projections and recesses of the outside and inside rows alternating in the longitudinal direction, the projections and recesses alternate across the top end and the bottom end going from one panel **12** to the other panel **14**. Similarly, the projections and recesses of the first and second ends of the panels **12** and **14** alternate going from the panel **12** to the panel **14**. The projections and recesses permit the stacking and interconnection of a plurality of like blocks **10** as would be required in the construction of a wall or similar arrangement. Projections and recesses of the block **10** are substantially symmetrical, thereby permitting the interconnection of like blocks in a bi-directional and/or reversible manner.

[0038] Each web structure assembly **16** includes a pair of web inserts **50** and a pair of bridges **52**. The web inserts **50** are adapted to be molded in the panels **12** and **14** while the bridges **52** are adapted to be connected to the web inserts **50** so as to extend between the panels **12** and **14**.

[0039] The web structure assemblies **16** described herein may be constructed as described in U.S. Pat. No. 8,869,479, which is hereby expressly incorporated herein by reference in its entirety. It will be appreciated that other types of web structure can be used in accordance with the inventive concepts disclosed herein. By way of example, the web structure assemblies can be constructed as described in U.S. Pat. No. 8,181,414, which is hereby expressly incorporated herein by reference in its entirety.

[0040] Referring now to FIGS. **1A-1B**, **3A-3C**, and **4-5**, the barrier system **100** includes a liner **120** and a support member **122**. The support member **122** may serve as an impenetrable pest barrier and may hold the liner **120** and the vertically adjacent ICF blocks **10** in place during the process of constructing the structure. Alternatively, the barrier system **100** may include the support member **122** without the liner **120** (as shown in FIG. **4**).

[0041] In one embodiment, the liner **120** is a flexible, stainless steel liner with an adhesive on one side for securing the liner **120** to the support member **122** in a manner to be described below. The liner **120** (FIG. **3B**) may include a wider portion **170** and a thinner portion **172** and may serve to prevent the spread of structure fires. As will be discussed in further detail below, in one instance, the liner **120** is a sheet material sized to be positioned along the top end **18** of the panel **14** of the block **10**, along a portion of the interior side **144** and exterior side **146**, inwardly so as to be embedded in the concrete core **112**, and outwardly so as to be embedded in the respective exterior material **108**. In one embodiment, the liner **120** may have a width of about **9** inches and be provided with predetermined creased edge or score lines (not shown) to facilitate positioning of the liner **120** about the panels **12** and **14** and about the support member **122**. An example of a suitable liner for use in the barrier system **100** is a stainless steel tape provided by York Manufacturing of Sanford, Maine under the trademark Yorkshield 304 SS.

[0042] With reference to FIG. **4**, the support member **122** is a rigid member having a web **124** and a pair of flanges **126***a* and **126***b* extending from opposing ends of the web **124** to define a pair of panel receiving cavities **128***a* and **128***b* on opposing sides of the web **124**. The first flange **126***a* has a first wing **130** extending outwardly and perpendicularly from the first flange **126***a*, and the second flange **126***b* has a second wing **132** extending outwardly and perpendicularly from the second flange **126***b*. The panel receiving cavities **128***a* and **128***b* are dimensioned to matingly receive a portion of the panels **12** and **14**. In one version, the panel receiving cavities **128***a* and **128***b* may have a width of about 2.5 inches and a depth of about 1.75 inches. Also, the first wing **130** may have a width of about 0.5 inches, and the second wing **132** may have a width of about 1.75 inches. As illustrated in FIG. **5**, the second wing **132** may be provided with a plurality of score lines **134** to facilitate altering the width of the second wing **132**. In addition, the flange **126***a* may be provided with a score line **136** to facilitate removal of a top portion of the flange **126***a*, if desired. The support member **122** may be fabricated from a variety of polymeric materials, such as PVC or other commonly extruded resins. An inedible material helps create a barrier to pests. In an exemplary embodiment, the support member is extruded in four foot lengths and has a thickness of about 0.070 inches. It should be appreciated that the liner **120** may be secured to either the top or the bottom of support member **122**, depending on the desired configuration.

[0043] With reference to FIGS. **1A-1B** and **6**, a method of installing the barrier system **100** for use with an ICF block, such as ICF blocks **10**, is described. First, the ICF blocks **10** are stacked to a height required for placement of the barrier system **100**. Installation of the barrier system may begin at a corner formed by the intersection of two ICF blocks **10**, also referred to a "corner block." Two support members, such as support members **122**, are miter cut for placement into a corner block (not shown). Once installed, one of the support members **122** is positioned over the top end **18** of the

panel **14** with the wing **132** extending from the exterior side **146** towards the finishing material **108**, and another one of the support members **122** is positioned over the top end **18** of the panel **12** with the wing **132** extending from the exterior side **140** towards the concrete slab **110**.

[0044] In an embodiment where the support member **122** is positioned on top of the liner **120**, (such as in the embodiments shown in FIGS. **1**A-**1**B and FIGS. **8**A-**8**B), the liner **120** is rolled out onto the top ends **18** of the panels **12** and **14** of the ICF blocks **10** leaving approximately 2-½" of the liner **120** extending out from the edges of the corner block. The creased edge or score lines in the liner **120** are positioned on the top end **18** of the panel **14** and are aligned with the edges of the panel **14** leaving the wider portion **170** of the liner **120** extending from the score lines down the exterior side **146** of the panel **14**. The thinner portion **172** of the liner **120** extends from the score lines down the interior side **144** of the panel **14**. Similarly, the score lines in the liner **120** positioned on top end **18** of the panel **12** are aligned with the edges of the panel **12**, leaving the wider portion **170** of the liner **120** extending from the exterior side **140** of the panel **12**. The thinner portion **172** of the liner **120** is positioned at the score lines and extends down the interior side **144** of the panel **12**.

[0045] In one embodiment, each of the liners **120** includes a paper backing. When the liner **120** is rolled out on the top ends **18** of the panels **12** and **14** and folded over the interior and exterior sides of the panels **12** and **14**, the paper backing faces upwards.

[0046] Starting at a corner, each of the support members **122** is positioned on top of each of the liners **120**, respectively, working down the wall. The support members **122** are positioned on the top ends **18** of the panels **12** and **14** prior to wrapping the liner **120** around the wings **130** and **132** of the support members **122**. The wings **130** and **132** of the support members **122** are wiped clean to prepare for adhesive before proceeding to the next step. The paper backing of each portion of the liners **120** extending down the interior and exterior sides of the panels **12** and **14** is lightly scored before it is peeled back from the liner **120** to expose an adhesive.

[0047] Each of the support members **122** is securely held in place on top of each of the liners **120** as the portion of the liners **120** extending down the interior and exterior sides of the panels **12** and **14** is lifted away from the interior and exterior sides of the panels and the adhesive of the liner **120** is worked against the bottom surfaces of the wings **130** and **132** of the support members to remove any gaps or bubbles. The liner **120** is then folded over and around to the top surfaces of the wings **130** and **132** to form the liner **120** tightly around the small radius of the wings **130** and **132**. The liner **120** is continuously pressed and formed onto the top surfaces of the wings **130** and **132** until it is fully sealed in place. The combination of an inedible support member and puncture resistant liner may increase the barrier systems effectiveness at preventing termite infestation.

[0048] In an alternative embodiment, where the liner **120** is positioned on top of the support member **122** (e.g., the embodiment shown in FIGS. **7**A and **7**B), proper orientation of the support member **122** on the top ends **18** of the panels **12** and **14** is ensured first. Then, the stainless steel liner **120** is folded at the predetermined creases or score lines to ease placement of a top ICF block **10** on top of the barrier system **100** positioned on a bottom ICF block **10**. Next, the liner **120** is inserted into the panel receiving space **128***b* of the support member **122**. After the liner **120** is positioned in the panel received space **128***b* of the support member **122**, the top ICF block **10** is then positioned into the panel receiving space **128***b* of the support member **122**, such that the top block **10** is adjacent to the stainless steel liner **120**. Once the top ICF block **10** is secured, the steps discussed above for scoring the paper backing of the liner **120** and adhering the liner **120** to the wings **130** and **132** of the support member **122** are repeated, except that liner **120** is folded over and downward and secured to the bottom surfaces of the wings **130** and **132**. It should be appreciated, however, that the liner **120** may be connected or adhered to the support member **122** by any suitable means known in the art.

[0049] In an embodiment where the barrier system **100** is used with a concrete floor system (e.g., the embodiments shown in FIGS. **1**A-**1**B and **7**A-**7**B), the liner **120** is set so that it is fully embedded into the concrete slab **112**. To this end, at least ¾" inches coverage of concrete may be left over and under the wings **130** and **132**.

[0050] The barrier system **100** may preferably extend to or past the exterior finish **108** of the wall. In an embodiment where the exterior finish **108** is brick, the barrier system **100** may extend into a mortar joint **180** between two rows of bricks or courses (as best shown in FIG. **6**). Any holes are preferably grouted on the course above and below the barrier system **100** installation for sealing the same. In an embodiment where the exterior finish **108** is stucco or EIFS, the wing **132** extending away from the exterior side **146** of the panel and towards the exterior finish **108** is preferably shortened to extend flush or slightly beyond the exterior finish **108**. Alternatively, it may be easier to inspect for termite mud tubes in exterior finishes, such as siding, if the wing **132** extending from the exterior side **146** of the panel **14** is not shortened.

[0051] Referring now to FIGS. **7**A-**7**B, an example of the barrier system **100** for use with an ICF block to create a barrier between floors and prevent a fire from spreading is described. As discussed above, the barrier system **100** may prevent the "chimney effect" created in current foam panels. To prevent the chimney effect, the barrier system **100** may be installed between floors or between a top floor and an attic of ICF structures. As shown in FIGS. **7**A-**7**B, the barrier system **100** may be used with a concrete floor, such as concrete floor **152** poured over a metal pan **154** for receiving the concrete floor. The concrete floor **152** is supported by a bar joist system **150**. It should be appreciated, however, that that the barrier system **100** may be used with alternative floor systems with similar applications.

[0052] The wing **130** of the support member **122** extends from the interior side **142** of the panel **12** and into the concrete core **112**, and the wing **132** extends from the exterior side **140** and into the concrete floor **152**. Again, the wing **132** is shown fully encapsulated or embedded in the concrete floor **152**. This may prevent any adhesive on the liner **120** from releasing during a fire.

[0053] In FIG. **7**B, the liner **120** is shown on top of the support member **122** facing up. However, it should be appreciated that the barrier system **100** may be constructed with a concrete floor so that the liner **120** faces either up or down, depending on the desired orientation of the barrier system **100**. In order to install the barrier system **100** for use as a fire-stop mechanism between concrete floors, a method similar to the method described above may be followed.

[0054] With reference to FIGS. **8**A and **8**B, an example of the barrier system **100** used with a wood joist floor system is described. The wood joist floor system may include a floor support member, such as a rim joist **160**, floor joist members **162**, hangers **164**, and ledger connectors **166**.

[0055] The barrier system **100** may be installed with the ICF blocks **10** by a method similar to that described above, except that the barrier system **100** is installed such that the wing **132** extends along the bottom of the rim joist **160** (as best shown in FIG. **8**B), as opposed to being embedded in the floor material. It should be appreciated that the barrier system **100** may also be placed so that the wings **132** extend along the top of the rim joist **160**. Additionally, each support member **122** may be sandwiched between the floor joist members **162**. Furthermore, the barrier system **100** is preferably mechanically affixed to the rim joists **160**, either with screws, such as screws **168** (e.g., **12** inch o.c.), or other means known in the art, to help prevent any adhesive formed between the liner **120** and the support member **122** from releasing during a fire and to help prevent the liner **120** from sagging during a fire. As discussed above, the barrier system may prevent the chimney effect at the foam panels **12** and **14** on the inside of the ICF block **10**.

[0056] The barrier system **100** may also be used under a crawlspace in order to allow inspection for termite mud tubes and other signs of termite activity. In an embodiment where the barrier system **100** is used under a crawlspace (not shown), a four inch clear space between the barrier system **100** and a floor system may be provided for visual inspection.

[0057] From the above description it is clear that the present inventive concept(s) is well adapted to carry out the objects and to attain the advantages mentioned herein as well as those inherent in the inventive concept disclosed herein. While exemplary embodiments of the inventive concept disclosed herein have been described for purposes of this disclosure, it will be understood that numerous changes may be made which will readily suggest themselves to those skilled in the art and which are accomplished without departing from the scope of the inventive concept disclosed herein and defined by the appended claims.

What is claimed is:

1. A barrier system for use with a structure, the structure having a wall formed of a plurality of insulating concrete form blocks interconnected with one another, the insulating concrete form blocks having a first foam panel and a second foam panel supported in a spaced apart, parallel relationship to form a concrete receiving cavity, each of the first panel and the second panel having a top end, a bottom end, a first end, and a second end, the barrier system comprising:

a support member having a web, a first flange extending from one end of the web, and a second flange extending from an opposing end of the web, the web, the first flange, and the second flange cooperating to define a pair of panel receiving cavities on opposing sides of the web, the first flange having a first wing extending outwardly and perpendicularly from the first flange and the second flange having a second wing extending outwardly and perpendicularly from the second flange,

wherein the support member is positionable on the top end of one of the panels with the top end receivable in one of the panel receiving cavities,

wherein the bottom end of another panel is positionable in another one of the panel receiving cavities, and

wherein at least one of the first wing and the second wing is extendable into the concrete receiving cavity.

2. The barrier system of claim **1**, wherein each of the first wing and the second has a width and wherein the width of first wing is different from the width of the second wing.

3. The barrier system of claim **1**, further comprising a liner conformable to one side of the web, an adjacent portion of the first flange and the second flange, and an adjacent side of the first wing and the second wing of the support member.

4. The barrier system of claim **3**, wherein the liner is a flexible, stainless steel liner.

5. The barrier system of claim **4**, wherein the liner includes a first side, a second side, and an adhesive positionable on one of the first sides and the second sides for connecting the liner to the support member.

6. A barrier system in combination with a structure, the structure having a wall formed of a plurality of insulating concrete form blocks interconnected with one another, the insulating concrete form blocks having a first foam panel and a second foam panel supported in a spaced apart, parallel relationship to form a concrete receiving cavity, each of the first panel and the second panel having a top end, a bottom end, a first end, and a second end, the barrier system comprising:

a support member having a web, a first flange extending from one end of the web, and a second flange extending from an opposing end of the web, the web, the first flange, and the second flange cooperating to define a pair of panel receiving cavities on opposing sides of the web, the first flange having a first wing extending outwardly and perpendicularly from the first flange and the second flange having a second wing extending outwardly and perpendicularly from the second flange,

wherein the support member is positioned on the top end of one of the panels with the top end received in one of the panel receiving cavities,

wherein the bottom end of another panel is positioned in another one of the panel receiving cavities, and

wherein at least one of the first wing and the second wing extends into the concrete receiving cavity.

7. The combination of claim **6**, wherein each of the first wing and the second wing has a width and wherein the width of first wing is different from the width of the second wing.

8. The combination of claim **6**, wherein the barrier system further comprises a liner conformed to one side of the web, an adjacent portion of the first flange and the second flange, and an adjacent side of the first wing and the second wing of the support member.

9. The combination of claim **8**, wherein the liner is a flexible, stainless steel liner.

10. The combination of claim **6**, wherein the structure further comprises a material extending along an exterior surface of one of the insulating concrete form blocks, wherein at least one of the first wing and the second wing is embedded in the material.

11. The combination of claim **10**, wherein the material is selected from a group consisting of brick, stone, stucco, and a brick and mortar combination.

12. The combination of claim **6**, wherein the structure further comprises a floor support member having a top and a bottom, wherein one of the first wing and the second wing extends along one of the top and the bottom of the floor support member.

13. The combination of claim **6**, wherein the structure further comprises a floor support member, wherein one of the first and second wings is embedded in the floor support member.

14. A method for forming a barrier in a structure having a wall formed of a plurality of insulating concrete form blocks interconnected with one another, the insulating concrete form blocks having a first foam panel and a second foam panel supported in a spaced apart, parallel relationship to form a concrete receiving cavity, each of the first panel and the second panel having a top end, a bottom end, a first end, and a second end, the method comprising:

positioning a support member over the top end of one of the panels, the support member having a web and a pair of flanges extending from opposing ends of the web to define a lower panel receiving cavity and an upper panel receiving cavity on opposing sides of the web, the first flange having a first wing extending outwardly and perpendicularly from the first flange and the second flange having a second wing extending outwardly and perpendicularly from the second flange;

positioning the bottom end of another panel of another insulating concrete form block in the upper panel receiving cavity; and

forming a concrete core in the concrete receiving cavity in a way that at least one of the first and second wings is embedded in the concrete core.

15. The method claim of claim **14**, further comprising positioning a flexible liner on at least a portion of the top end of one of the panels.

16. The method claim of claim **15**, furthering comprising securing the liner to at least a portion of the first wing and the second wing.

17. The method claim of claim **14**, further comprising positioning a flexible liner over at least a portion of the support member.

18. The method claim of claim **17**, furthering comprising securing the liner to at least a portion of the first wing and the second wing.

19. The method of claim **14**, further comprising providing a material on an exterior side of one of the insulating concrete form blocks in a way that at least one of the first wing and the second wing is embedded in the material.

20. The method of claim **14**, further comprising providing a floor support member having a top and a bottom on an exterior side of one of the insulating concrete form blocks in a way that at least one of the first wing and second wing extends along one of the top and bottom of the floor support member.

21. The method of claim **14**, further comprising providing a floor support member on an exterior side of one of the insulating concrete form blocks in a way that at least one of the first wing and the second wing is embedded in the floor support member.

* * * * *