A wooden floor truss/foundation wall combination is not made entirely from all-weather wood. In one embodiment, opposed end studs of untreated lumber rest upon treated lumber resting upon a footing just inside and near the bottom of the concrete foundation stem wall. In another embodiment, the end stud bottoms rest in a pocket depression in the footing lined with an environmental barrier to protect the stud bottom from dampness in the concrete footing. In another embodiment, an elongated floor joist member extends to the foundation wall to rest on a pad on the wall or in a pocket depression in the wall that is lined with an environmental barrier, or to hang on a joist hanger connected to the wall, and frame webbing extends down from the floor joist member to an environmentally-lined corner between the top of the footing and the bottom of the inside foundation wall.
FIG. 3

CONC. STEMWALL SECTION
CMU STEMWALL FLOOR TRUSS SYSTEM
FIG. 5A TAR PAPER INSERT

BARRIER:
TAR PAPER

34

38

TEMPORARY
WOOD BLOCK

FOOTING

FIG. 5B STUD CAP METHOD

BARRIER:
CAP

34

FOOTING
TOP MOUNTED WOOD FLOOR TRUSS W/ CONC. STEMWALL SECTION
FIG. 7

SYMMETRICAL ABOUT CENTER LINE

2x6 x 24" O.C.

2x4 x 24" O.C.
DF-L STUD

2x4 x 24" O.C.
DF-L STUD

DF-L No. 2
OR BETTER

PLATING CONFORMS TO UBC PLATE VALUES
BASED ON ICBO 1994, FOR ROBBING ENGINEERING,
INC. GRIP VALUES BASED ON DOUG-FIR LUMBER
(GROSS AREA TEST), PLATES-20 GAUGE,
TENSION 1165-480 PLI PER PAIR
SHEAR 144-450 PLI PER PAIR
LL = 40 PSF
DL = 20 PSF
WOODED FLOOR TRUSS AND FOUNDATION WALL ASSEMBLY

DESCRIPTION

[0001] This application claims priority of my prior, co-pending provisional patent application, U.S. Serial No. 60/174,224, filed Dec. 31, 1999, which is entitled "Wooden Floor Truss and Foundation Wall Assembly" and which is hereby incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention generally relates to frame building construction. More specifically, the present invention relates to frame building floor truss systems including foundation walls.

[0004] 2. Related Art

[0005] Typical frame building construction involves a well known procedure of excavating, pouring a concrete footing, "forming-up" for pouring a foundation wall, pouring the wall, waiting for the concrete in the wall to cure, removing the forms, setting sill plates, and installing the floor joists on the sill plates.

[0006] Standard floor joists commonly comprise a popular wooden beam design, commonly known as an "I-beam." This wooden I-beam, typically includes a center panel of plywood, with a laminated-wood edge bar on each of the two center panel edges. Groups of these I-beams are typically hung from or set on a concrete foundation wall, thereby creating the structure's floor joists.

[0007] Other floor joist systems have been developed, such as the integral foundation and floor frame system shown in U.S. Pat. No. 4,457,118 (Bowen). Bowen discloses the combination of an all-weather-wood floor joist and foundation wall stud truss.

[0008] Still, there is a need for an economical, effective and simple wood truss that need not be manufactured from all-weather wood. This invention addresses that need.

SUMMARY OF THE INVENTION

[0009] The present invention is an untreated wooden floor truss and a foundation wall combination. In one embodiment, the floor truss includes an elongated horizontal floor joist member and opposed end vertical studs. Optionally, depending on the span of the floor joist member, intermediate support vertical studs may also be used. Preferably, the end and intermediate support studs are reinforced with the floor joist by frame webbing. In one embodiment, the bottoms of the end studs rest upon a treated piece of lumber which rests upon a footing, the treated piece of lumber being just inside and near the bottom of the foundation wall. In another embodiment, only the end studs and support studs, if present, are made of treated lumber. In a second embodiment, the bottom of the stud rests in a pocket depression in the footing which is lined with an environmental barrier to protect the bottom of the stud from the dampness in the concrete footing.

[0010] The floor joist is dimensioned so that the end studs extend vertically from the treated piece of lumber on or pocket depression in the top of the footing just inside (about 1" away from) the stem wall. This way, untreated lumber may be used for the end studs and truss. Also, the end studs are dimensioned so that the top edge of the floor joint, which rests on the top of the studs, cooperates with the top edge of the foundation wall for supporting a sub-floor system. Intermediate support studs, if present, are constructed and laid out similarly to end studs, as discussed above. In another embodiment, the floor truss does not include opposed end studs. In this embodiment, the elongated floor joist member extends to the foundation wall, and either rests on a pad on the wall, or rests in a pocket depression in the wall which is lined with an environmental barrier, or hangs on a joist hanger connected to the wall. In this embodiment, frame webbing extends down from the elongated floor joist member at a location away from the outside edge thereof to a corner between the top of the footing and the bottom of the inside foundation wall. The corner is lined with an environmental barrier to protect the bottom of the webbing from the dampness in the concrete footing and foundation wall.

[0011] In all embodiments, the foundation wall may be concrete, cinder-block (CMU), or all-weather-wood (permanent wood foundation (PWF)).

[0012] This way, a strong, but economical, floor truss of untreated wood for the building is provided.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. 1 is a schematic elevational view of one embodiment of the invention with an end stud.

[0014] FIG. 2 is an enlarged, detailed view from FIG. 1.

[0015] FIG. 3 is a schematic view of the embodiment depicted in FIG. 1 with a concrete footing and concrete foundation wall.

[0016] FIG. 4 is a schematic view of the embodiment depicted in FIG. 1 with a concrete footing and cinder-block (CMU) foundation wall.

[0017] FIGS. 5A and 5B are schematic views of an alternative embodiment wherein the bottom of an end stud rests in a pocket depression in the footing which is lined with an environmental barrier.

[0018] FIG. 6 is a schematic elevational view of another embodiment of the invention without an end stud wherein the elongated joist member rests on a pad on the foundation wall.

[0019] FIG. 7 is another version of FIG. 6.

[0020] FIGS. 8A and 8B are side, detail views of the embodiment depicted in FIGS. 6 and 7, but wherein the elongated joist member rests in a pocket depression in the foundation wall, wherein the joist member hangs from a joist hanger on the foundation wall, respectively.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0021] Referring to FIGS. 1 and 2, there is depicted one, but not the only, embodiment of the invention 10. Generally, frame building 12 has footings 14 for supporting foundation stem wall 16. In this invention, footings 14 also support a vertical end stud 18, the bottom of which rests on treated lumber piece 20 which, in turn, rests on footing 14. End stud
18 is connected to or part of elongated horizontal floor joist member 22. Preferably, frame webbing 24 may be used to reinforce the connection between end stud 18 and floor joist 22. Floor joist 22 may be of 2"x6", 2"x8", 2"x10", or 2"x12" dimensions, and 8-28 feet in length.

[0022] On the top edge of stem wall 16 is a sill plate 26 secured by bolt 28 onto stem wall 16. The top edge of joist member 22 cooperates at the same grade with sill plate 26 to support and secure a sub-floor system 30. Then, wall 32 may be constructed in conventional manner.

[0023] Footings 14 for the invention may be of conventional manufacture. Preferably, footings 14 are made of concrete and include an inside ledge large enough (typically, about 4" wide) to support a piece of treated lumber 20 laying horizontally on the ledge. Preferably, treated lumber piece 20 is secured onto the inside ledge of footings 14 by bolts or concrete nails. Lumber piece 20 is treated to protect it from environmental contact with the concrete of footings 14.

[0024] End stud 18 is part of, or connected to, elongated floor joist 22. Also, preferably end stud 18 is reinforced to joist 22 by webbing 24. Because end stud 18 is distanced (about 1") away from the inside of stem wall 16, and because end stud 18 is isolated from footing 14 by resting on treated lumber piece 20, it is not necessary that end stud 18 be treated lumber and it may be untreated. This results in substantial economy from this design, compared to designs which require treated end studs.

[0025] Optionally, depending on the span of floor joist member 22, intermediate support studs (not shown) may also be used. Preferably, these support studs are constructed similarly to end stud 18, also connected to or part of floor joist member 22, and are also reinforced to floor joist 22 by frame webbing 24. The support studs themselves are supported on concrete pier pads similar to footings 14 or pony walls, with another piece of treated lumber simlar to treated lumber piece 20 between the top of the concrete pier pad and the bottom of the support stud.

[0026] Referring to FIG. 3, there is depicted an embodiment of the invention with a concrete footing 14 and a concrete foundation stem wall 16.

[0027] Referring to FIG. 4, there is depicted an embodiment of the invention with a concrete footing 14 and a cinder-block (CMU) foundation stem wall 16.

[0028] Referring to FIGS. 5A and 5B, there are depicted two (2) views which depict an environmental barrier 34 lining the inside of a pocket depression 36 in footing 14 for receiving the bottom of end stud 18. This way, end stud 18 is secured in footing 14, and, at the same time, protected from environmental contact with the concrete of footing 14. Environmental barrier 34 may be, for example, a tar paper wrap inside depression 36. Or, barrier 34 may be a plastic boot fitted on the bottom of stud 18.

[0029] Preferably, pocket depression 36 is formed in footing 14 when the footing is made. For example, when footing 14 has been poured and partially set, a wooden block 38 of the size of the bottom of stud 18, wrapped in tar paper may be pushed into the top of the footing 14. The location of the block to make the pocket depression must be where the bottom of the stud 18 will be, that is, spaced away from the inside of the foundation wall by about 1". Alternatively, a plastic boot or cup adapted to fit around the bottom of stud 18 may be pushed into the top surface of footing 14 after the concrete for the footing has been poured and partially set.

[0030] Referring to FIG. 6, there is depicted an alternative embodiment 10' of the invention without an end stud wherein the elongated joist member rests on a pad of top of the foundation wall. Generally, frame building 12' has footings 14 for supporting foundation stem wall 16. In this embodiment, there is no end stud 18. Instead, elongated floor joist member 22 extends to the foundation wall 16, and rests on a pad 40 of treated lumber secured to the top of foundation wall 16 by, for example bolt 42. This way, joist member 22 is supported by the top of the foundation wall 16. The connection between joist member 22 and foundation wall 16 may be adjusted to provide room also on top of the foundation wall for a rim joist 44, connected perpendicularly to elongated joist member 22 at its outside end. This way, rim joist 44 helps secure together several floor trusses 10' arranged in parallel to the top of the foundation wall, and provides a finished book there. Above elongated joist member 22 a sub-floor assembly 30 may be installed, and outside wall 32 built in conventional fashion.

[0031] In this embodiment, frame webbing 24' extends down from elongated joist member 22' at a location away from the outside edge thereof to a corner 46 formed of treated lumber between the top of the footing 14 and the bottom of the inside of the foundation wall 16. In the corner are two pieces of treated lumber, piece 48 stacked edge-wise on top of another piece 50 that is laying on its side. Preferably, the piece of lumber 50 on its side is fastened to the footing with bolts or concrete nails. Also preferably, the piece of lumber 48 on its edge is fastened to the foundation wall with bolts or concrete nails. This way, an environmental barrier is provided in the corner 46 to protect the end of webbing 24' from contact with the footing and the foundation wall. The lower end of webbing 24' is cut or trimmed to fit securely in the corner 46. In this embodiment, because elongated joist member 22' is protected from the foundation wall 16 by treated pad 40, the joist member need not be treated wood. Also, because the lower end of webbing 24' is protected from the footing 14 and foundation wall 16 by the two (2) pieces of treated lumber 48 and 50, the webbing need not be treated wood. This way, an economical, effective and simple wooden floor truss system may be provided.

[0032] In FIGS. 8A and 8B are depicted alternative ways of securing elongated truss member 22' to the foundation wall 16. Any conventional securing techniques will do. For example, the joist 22' may be inserted in a pocket depression 52 lined with a plastic boot or cup 54, or lined with tar paper (not shown). Or, joist 22' may be inserted in a conventional joist hanger 56 hung from or supported by foundation wall 16.

[0033] Other features of components for the invention are conventional materials and conventional methods of manufacture and assembly.

[0034] Although this invention has been described above with reference to particular means, materials and embodiments, it is to be understood that the invention is not limited to these disclosed particulars, but extends instead to all equivalents within the scope of the following claims.
I claim:

1. A wooden floor truss and foundation wall assembly, comprising:
   a foundation footing supporting a foundation wall, said footing having an inside ledge;
   a piece of treated lumber supported and laying horizontally on said inside ledge of said foundation footing;
   a vertical end stud of untreated lumber, the bottom of which rests on said piece of treated lumber, said end stud extending vertically a distance away from the inside of said foundation wall; and
   an elongated horizontal floor joist member connected to the top of said vertical end stud.

2. A wooden floor truss and foundation wall assembly, comprising:
   a foundation footing supporting a foundation wall, said footing having an inside ledge;
   a depression in said inside ledge for receiving an environmental barrier;
   a vertical end stud of untreated lumber, the bottom of which rests within said environmental barrier in said depression in the inside ledge, said end stud extending vertically a distance away from the inside of said foundation wall; and
   an elongated horizontal floor joist member connected to the top of said vertical end stud.

3. A wooden floor truss and foundation wall assembly, comprising:
   a foundation footing supporting a foundation wall, said footing having an inside ledge;
   a piece of treated lumber supported on said inside ledge of said foundation footing, said piece of treated lumber creating a corner of treated lumber on said inside ledge;
   a frame webbing member extending from its bottom at an angle up from said corner on said inside ledge; and
   an elongated horizontal floor joist member connected to the top of said frame webbing member.