May 2, 1944. J. W. GUNN 2,347,776

TERMITE CONTROLLING BUILDING CONSTRUCTION

Filed June 23, 1941 2 Sheets-Sheet 1

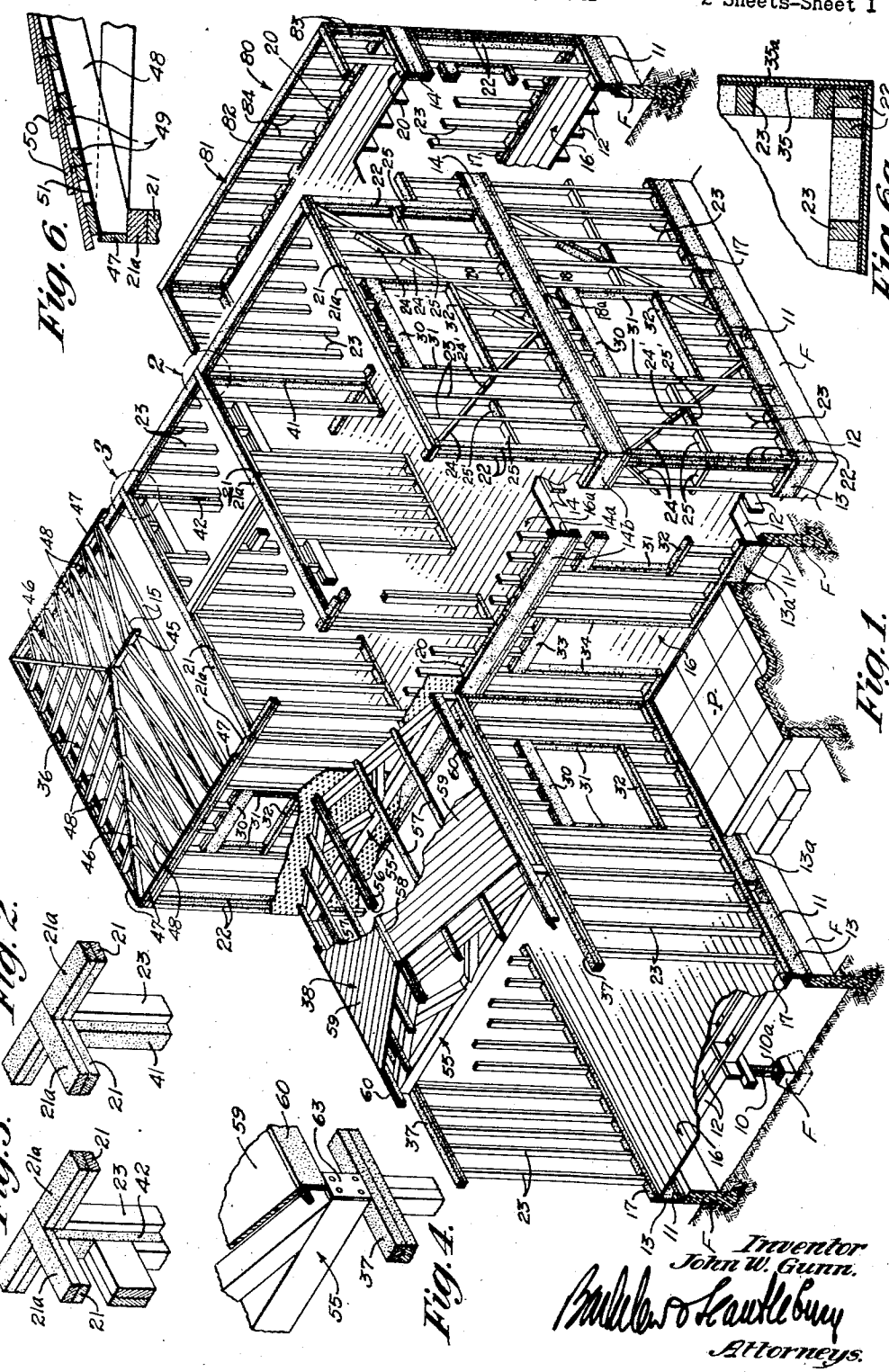


Fig. 1.

Fig. 6.

Fig. 6a.

Fig. 2.

Fig. 3.

Fig. 4.

Inventor
John W. Gunn.
Bakewell & Hawkesbury
Attorneys.

May 2, 1944. J. W. GUNN 2,347,776

TERMITE CONTROLLING BUILDING CONSTRUCTION

Filed June 23, 1941 2 Sheets-Sheet 2

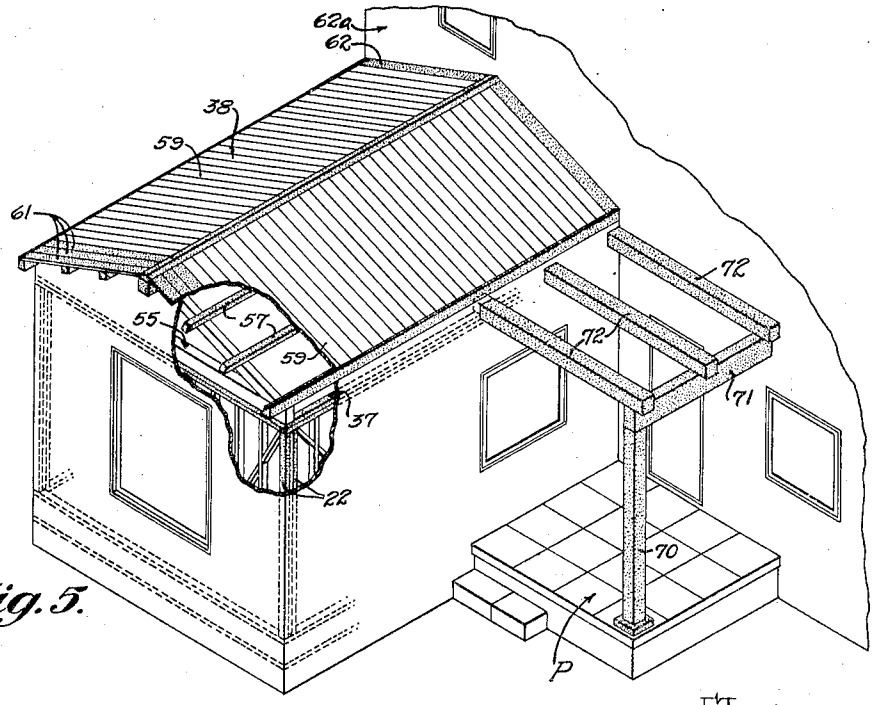


Fig. 5.

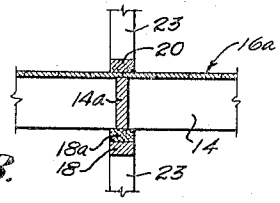


Fig. 8.

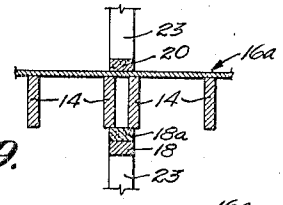


Fig. 9.

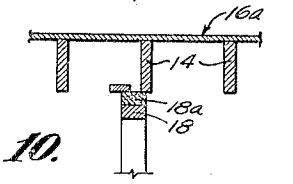


Fig. 10.

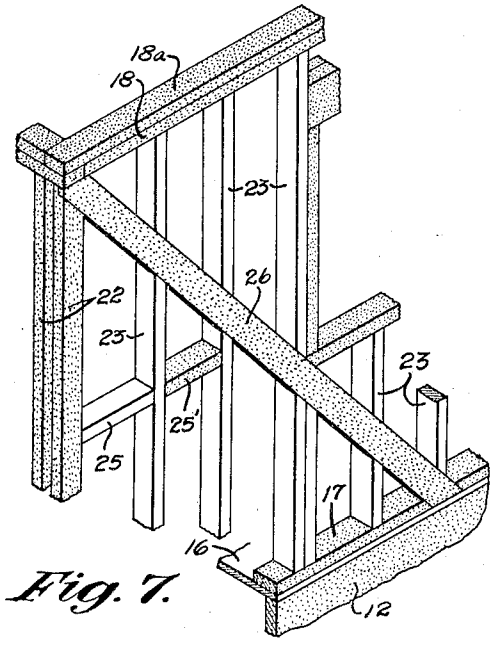


Fig. 7.

Inventors
John W. Gunn.

Attorneys.

Patented May 2, 1944 2,347,776

UNITED STATES PATENT OFFICE

2,347,776

TERMITE CONTROLLING BUILDING CONSTRUCTION

John W. Gunn, Montrose, Calif.

Application June 23, 1941, Serial No. 399,371

8 Claims. (Cl. 20—1)

This invention deals with building structures, and particularly with the control of dry-wood-termite and similar infestations in building structures.

Several varieties of termites are known, the present invention being concerned with those of the type known as dry wood termites. Such termites have no contact with the soil, but reach the building through the air. Their access to the building is gained via exposed woodwork, a crack the size of the head of a pin affording an adequate entrance. They may enter through wood shingle roofs, wood siding, rafters, exposed beams, or other exposed woodwork connected with the framing. No precautions taken below the first floor level, such as use of pressure impregnated lumber, as is often called for by building ordinances, will prevent an infestation of dry wood termites from starting in the upper part of the structure.

After entering and becoming established in the framing of a house, these dry wood termites may spread in all directions, following along the framing members in a search for the most desirable foods, mainly, spruce and larch. In this way the infestation gradually spreads and in time may penetrate so much of the framing that removal and replacement of the infested members (the only known sure method of elimination) becomes impracticable, and the structure is lost. Dry wood termite infestations are sometimes treated with chemicals; however, such treatment serves principally to scatter the termites, and does not ordinarily result in elimination. The only satisfactory procedure known is frequent inspection, and removal of all infested structure discovered.

The object of the present invention is to provide a building structure designed to confine infestations to relatively small limited areas, so that the necessary replacement job becomes correspondingly inexpensive.

In accordance with the invention, the general framework of the building structure is divided, so to speak, into a number of local frames or frame units, the bounding members of which are composed of pressure impregnated lumber. Any approved commercially available pressure treated lumber, impregnated under pressure with either creosote or any of the salts used for termite proofing, may be employed. For convenience I will hereinafter refer to such pressure impregnated termite-proofed lumber simply as treated lumber. Such a local frame or frame unit as is referred to above may consist, for example, of the sole and cap plates, the two corner posts or studs, and the intermediate studs and cross bracing, that make up the framing for a wall or partition of the building. Such a local structural assembly will be referred to herein as a frame, while the framework of the building as a whole, made up of a number of such local frames, will be referred to as the framework. The treated, bounding members of the particular frame mentioned are the sole and cap plates, and the two corner posts or studs. The intermediate studs and the cross bracing and fire stops are, with certain exceptions to be mentioned, preferably of untreated lumber. The entire framework of the building structure is thus divided into local frames, each exterior wall, each interior portion, each roof section, etc., forming such a local frame, each of which is entirely bounded by treated members.

Each local frame joins the frame or frames next to it by engagement of treated members of the respective frames, and no untreated member of any frame is permitted to contact an untreated member of another frame. The untreated portions of each local frame are thus isolated within the frame, and while termites infesting the untreated portions of the frame may work within the confines of that frame, they cannot spread to other frames. At the worst, therefore, penetration of a building structure by a colony of dry wood termites will result in damage to but one local frame of the structure, replacement of which is usually not unduly costly.

The invention will be best understood from the following detailed description of typical constructions in accordance therewith, reference for this purpose being had to the accompanying drawings, in which:

Fig. 1 is a perspective view, with parts broken away, of the framework of an illustrative two story house, the treated members of the framework being identified by stipple shading;

Fig. 2 is an enlarged detail of the construction shown within the dotted circle 2 of Fig. 1;

Fig. 3 is an enlarged detail of the construction shown within the dotted circle 3 of Fig. 1;

Fig. 4 is an enlarged detail taken from Fig. 1, with parts broken away, showing the application of a metal plate to the end of a roof truss;

Fig. 5 is a view similar to a portion of Fig. 1, but with roof sheathing, side walls and portions of a porch roof structure added;

Fig. 6 is a vertical section through a portion of the upper story roof of Fig. 1, showing the ap-

plication over the rafters of building paper, shingle supporting strips, and shingles;

Fig. 6a is a horizontal sectional view of a typical corner construction, showing the application of building paper over the studs;

Fig. 7 is a fragmentary perspective showing the use of diagonal bracing cut into the studs;

Figs. 8 and 9 are vertical sections showing two forms of interior bearing partitions; and

Fig. 10 is a vertical section showing an interior non-bearing partition.

Fig. 1 shows an illustrative building framework. The framework here illustrated is not necessarily that of a complete house of harmonious design, but is intended merely to show to advantage various typical building construction features pertinent to the present invention. It will not be necessary to describe this illustrative building framework in detail, since its various features will be apparent to those skilled in the art.

In general, all members of the framework identified throughout the drawings by stipple shading are of treated lumber. It is a common requirement of city building codes that all lumber below the first floor be treated. This requirement will be followed wherever such codes govern, though for the purposes of the present invention, no such requirement obtained, and the drawings therefore do not depict exclusive use of treated lumber below the first floor level. However, I prefer to specify treated lumber for the girder posts 10, foot blocks 10a, and for the foundation plates 11 resting directly on foundation F.

Fig. 1 shows the outside lower floor joists 12, and headers 13 abutted by the joists, to be of treated lumber. However, this is specified only for a wood sided house, where there is liability of termites entering through the siding. With stucco siding, the outside members 12 and 13 may generally be of untreated lumber, though exceptions are made, first, where building codes require use of treated lumber, and second, where earth filled concrete enclosed areas are placed against the members. An instance of the second exception is shown in Fig. 1, where the earth-filled cement porch P abuts the headers 13a. The cement abutted members 13a are of treated lumber, regardless of the nature of the siding. If the joists in the one story part of the structure ran the other way, the cement porch would abut the outside joist, rather than a header, and it will be understood that in such case the joist would be of treated lumber.

The upper story floor joists 14, any header or fill-in blocks, such as 14a, and ceiling joists 15, are in general of untreated lumber, though in the case of a wood sided house, all the outside upper floor joists and headers are of treated lumber. Thus Fig. 1 shows upper story floor joists 14 to abut a header 14b, which is of treated lumber, the header being backed up by untreated fill-in blocks 14a. With stucco siding, the header 14b may be omitted, if desired, and the fill-in blocks 14a installed in conventional manner. And with stucco siding, the outside joists and headers or header blocks may be of untreated lumber. The usual lower story sub-flooring 16 is laid on joists 12 and headers 13, and the upper story sub-flooring 16a on joists 14, header blocks 14a and headers 14b.

The lower story sole plates 17 are of treated lumber, and the double lower story cap plates 18, 18a are also of treated lumber, as are the upper story sole plates 20, and double cap plates 21, 21a for all outside walls. For the inside partitions, the upper cap plate 21a is of treated lumber, though generally speaking the lower cap plate 21 may be constructed either partly or wholly of untreated lumber, as will later appear. Generally speaking, all the corner studs 22, whether made of a single piece of lumber, or multiple, are of treated lumber, while the intermediate studs 23 are of untreated lumber. Each exterior wall and interior partition of the structure thus comprises a rectangular frame made up of a treated sole plate, a treated cap plate or plates, treated corner studs 12 at the two ends of the wall or partition, and a plurality of untreated intermediate studs 23, together with cross braces 24 and fire stops 25 in the instance of exterior walls. It is preferred that selected cross braces 24' and fire stops 25' be of treated lumber, for instance as illustrated in Fig. 1, to prevent travel of the termites from stud to stud via these members, and thus retard the spread of infestations within individual frames. Fig. 7 illustrates the optional use of continuous diagonal braces 26 cut into the studs. Such diagonal braces, when used, are preferably of treated lumber, for a like reason. Relatively long walls or partitions may, if desired, have one or more intermediate studs of treated lumber, being thus subdivided into two or more local frames.

Figs. 2 and 3 show two alternative methods of framing partition plates to isolate the untreated lumber of the partitions at the juncture with the exterior side wall framing. The purpose of each of these constructions is to prevent the spread of termites from an untreated side wall stud 23 into any part of the partition that contacts that stud.

In the construction of Fig. 2, the end partition stud 41 abuts the lower surface of the lower cap plate 21 of the partition and supports that plate; and an end portion of plate 21 is of treated lumber, though this plate need not be of treated lumber for its full length (see Fig. 1). The whole of upper partition plate 21a is of treated lumber.

In the construction of Fig. 3, the treated end partition stud 42 abuts the lower surface of the upper cap plate 21a of the partition, and the lower cap plate 21 abuts the upper end of stud 42, and being thus isolated from the untreated side wall stud 23, is not necessarily treated.

Some liberty is allowed in the use of treated members; e. g., especially in corner constructions, where more than one corner stud may be employed to make up a corner post, it being advisable in some such instances to use treated lumber for the additional members. The essential requirement is that each wall and partition of the structure comprise a frame or frames bounded by treated plates and studs, and that no untreated lumber within any such frame contact untreated lumber of any abutting frame. It will thus be seen that the wall structure of the building is divided into a plurality of abutting frames, each bounded by treated members, and each isolating the untreated lumber within it from the untreated lumber within all other frames and of all other untreated lumber of the building. Termites entering the untreated lumber within a given frame thus cannot spread beyond the confines of that frame.

The framings of any openings through any of the isolated frames are also of treated lumber, so as to prevent entry of the termites through the finish work around the openings. Thus, the

window defining headers 30 and side and bottom trimmers 31 and 32, respectively, are of treated lumber, as are the exterior door defining headers 33 and trimmers 34.

To prevent travel of the termites around the corner studs on the outside, by way of wood siding or sheathing, a layer of building paper, indicated at 35 in Fig. 6a, is applied over the studs before placing the wood siding or sheathing 35a. Complete avoidance of the use of wood lathing within the structure prevents the travel of the termites from wall to wall around the insides of the corner studs.

The roof structures are supported by the treated uppermost plates, designated at 21a for the upper story roof 36, and at 37 for the lower story roof 38. These plates serve to isolate the roof structures as a whole from the wall structure as a whole. Further, the roof structures are divided into local frames, which mutually isolate sections of untreated lumber in the roof structures from one another.

The upper story roof structure of Fig. 1 is of a ridge type with a hipped end; its ridge 45 and hip rafters 46 are of treated lumber, and these members, together with the rafter-supporting plates 21a and cornice members 47, which are also treated, form frames that isolate sections of the untreated rafters 48 from one another. Fig. 6 shows the application over rafters 48 of 1 x 3 strips 49 and shingles 50. A layer of building paper 51 is placed over the rafters prior to application of the strips 49, since otherwise the strips 49 and the shingles would provide communication between the described roof frames; with the building paper, the untreated lumber within the roof frames is effectively isolated.

The lower story roof 38 is of a gable type, supported by trusses 55 which rest on the treated plates 37. The ridge members 56 and the rafters or purlins 57 resting on trusses 55, and also the ridge cap 58 laid along the ridge over the solid roof sheathing 59, are in this instance all of treated lumber. Longitudinal cornice members 60, of treated lumber, abut and frame the lower edges of the roof sheathing 59. The purlins 57 and roof sheathing 59 are shown in Fig. 5 to form overhanging eaves at the end of roof 38, and all the overhanging boards 61 of the sheathing are shown as of treated lumber. The solid sheathing boards and rafters or purlins of overhanging eaves in any form are preferably thus constructed entirely of treated lumber, since the eaves present a ready place of entrance for the termites directly into the roof structure. The end sheathing boards 62 abutting the building side wall 62a is also of treated lumber, completing the framing of the roof sheathing.

The ends of the roof trusses 55 are preferably covered with a plate 63 of 26 gauge galvanized iron or the like, as illustrated in Fig. 4, which serves as a protection against entry of termites into the trusses through the siding.

Any "outlookers," that is, such members as rafters, beams, and the like, connected with the interior framing and projecting externally through the side of the building, are constructed of treated lumber, so as to prevent direct access into the framing via such members. The treated purlins 57 are typical. And all exposed beams and columns on porches, patios, etc., are preferably constructed of treated lumber. Fig. 5 shows a typical construction, in which a post 70 supports a girder 71 carrying the ends of roof supporting beams 72, the members 71 and 72 extending through the siding of the building structure and being anchored to the interior framing. The members 70, 71 and 72 are therefore to be constructed of treated lumber.

The building structure of Fig. 1 is shown as furnished with a deck 80, bounded by a fire wall 81. The framing of each of the several sections of this wall 81 consists of roof plate 20, cap plate 82, corner studs 83, and intermediate studs 84. The roof and cap plates, and corner studs are of treated lumber, thus dividing the wall 81 into local frames isolating the untreated studs 84 contained in each, in accordance with the principle of the invention.

The entire framework of the building, including all walls, partitions, roof sections, etc., is thus divided into local frames, each of which is entirely bounded by treated lumber, and all so arranged that no untreated lumber of any frame contacts untreated lumber of any other frame. Termites may enter the untreated lumber contained within one or more frames from the outside (which cannot be prevented by any known method short of exclusive use of treated lumber throughout), but once within a frame, they are prevented from spreading to other frames. And upon discovery, the job of elimination involves replacement of no more, at the maximum, than the untreated lumber of the particular frame into which the colony made its initial entry.

I claim:

1. A building framework comprising a plurality of juxtaposed wood frames, each comprising a plurality of untreated wood members bounded by termite treated wood members, said termite treated members mutually isolating the untreated members of the respective frames, in such manner that no untreated member of any frame is permitted to contact an untreated member of another frame.

2. A building wall structure of wood embodying a plurality of abutting wall frames, each comprising termite treated sole and cap plates and termite treated corner studs, and untreated intermediate studs between the termite treated corner studs, the untreated studs of each frame being isolated by the treated corner studs and treated sole and cap plates from the untreated studs of the other frames, all in such manner that no untreated stud of any frame is permitted to contact an untreated stud of another frame.

3. A wooden wall frame comprising termite treated sole and cap plates and termite treated end studs, and untreated intermediate studs between said end studs, said treated members being adapted to position said untreated members out of contact with untreated members of other similar frames with which the said frame may be assembled.

4. A wooden wall frame construction comprising a wall frame that includes a termite treated sole plate, a pair of termite treated overlaid cap plates, and untreated studs, and an abutting partition frame that includes a termite treated sole plate, a pair of overlaid cap plates joining with the wall ceiling plates, the uppermost of the partition cap plates being of termite treated wood and the lowermost of the partition ceiling plates being of termite treated wood at least at the end adjacent to the wall frame abutted by the partition, a termite treated partition end stud resting on the partition sole plate and abutting the treated end portion of the lowermost partition cap plate at the point of juncture of the partition frame with the wall frame, and untreated

partition studs beyond said treated partition end stud.

5. A wooden wall frame construction comprising a wall frame that includes a termite treated sole plate, a pair of termite treated overlaid cap plates, and untreated studs, and an abutting partition frame that includes a termite treated sole plate, a pair of overlaid cap plates, the uppermost of the partition cap plates being of untreated wood, the uppermost partition cap plate joining with the uppermost wall cap plate, a termite treated partition end stud resting on the partition sole plate and abutting the uppermost partition cap plate, the lowermost partition cap plate abutting the upper end portion of said treated partition end stud, and untreated partition studs beyond said treated partition end stud.

6. A wooden building frame structure embodying abutting room-defining wall frames, each of which comprises termite treated sole and cap plates and termite treated corner studs, and untreated intermediate studs between said treated corner studs, the untreated studs of each frame being isolated by the treated corner studs from the untreated studs of the other frames, in such manner that no untreated stud of any frame is permitted to contact an untreated stud of another frame, and a wood roof structure embodying termite treated wood members resting on the treated cap plates of the wall frames, and untreated wood members supported by said treated roof members out of contact with the untreated wood members of the wall frames, whereby no untreated wood of the roof structure is permitted to contact untreated wood of the wall frames.

7. A wood building roof structure comprising termite treated framing members adapted to rest on the uppermost plates of a building wall structure, untreated rafters supported by said framing members, and termite treated wood framing members subdividing said rafters into local isolated frames, no untreated wood structure of any such local frame being permitted to contact untreated wood of another frame.

8. A wood building roof structure comprising termite treated framing members adapted to rest on the uppermost plates of a building wall structure, untreated rafters supported by said framing members, termite treated wood framing members subdividing said rafters into local isolated frames, no untreated wood structure of any such local frame being permitted to contact untreated wood of another frame, building paper applied over said rafters, and wood roofing on said rafters over said building paper.

JOHN W. GUNN.