[0006] There are numerous representatives of known art resident in the patent records that deal with various hurricane or tornado storm wind forces by claiming use of any one of several strengthening components. However, one of the major problems with all of the known examples is that they do not lend themselves to our do-it-yourself culture and do not lend themselves to be cost effective for the mass consumption public at large.

[0007] Another problem with known art examples is that none of these patent records for structural strengthening systems includes a means to provide a secondary sealing system for the structure in the event the primary sealing system of shingles and/or siding of the structure are compromised.

[0008] There are some references of known art in the patent records related to systems that minimize water influent damage from wind storms, but once again, none of these examples lend themselves to our do-it-yourself culture and do not lend themselves to be cost effective for the mass consumption public at large. In addition, none of the known examples provide any strengthening enhancements to improve the structural integrity of the construction. Furthermore, none of these prior art sealing systems provides a secondary sealing system in the event that the primary sealing system is compromised.

SUMMARY

[0009] This section provides a general summary of the disclosure, and is not a comprehensive disclosure of its full scope or all of its features.

[0010] ~~The~~ Embodiments of the subject invention seek to overcome well-known problems in such a way that those skilled in the art will readily recognize and appreciate. Furthermore, embodiments of the present invention seek to provide features and capabilities for many other applications beyond the preferred embodiments disclosed, which those skilled in the art will readily recognize also embody the spirit of the subject invention.

[0010a] According to an aspect of the present invention, there is provided a construction system to provide structural integrity for a building structure to withstand

the destructive forces of storm winds and to minimize or prevent the influent of associated wind-driven blowing rain, comprising:

multiple subsystems connected to the building structure, the building structure including a wall structure having multiple studs and a roof structure having multiple components, including trusses or a combination of joists and rafters, the multiple subsystems including:

an anchoring system providing multiple sets of two anchor fasteners partially embedded in a foundation and having portions of the two anchor fasteners extending out of the foundation;

a wall reinforcement system having multiple structural columns individually positioned between proximate ones of the studs, the portions of the two anchor fasteners both connected to the structural column and the structural column oppositely connected to the roof structure such that the wall reinforcement system ties together the roof components and the wall structure to the foundation using the structural columns; and

a wind-beam system having:

a wind-beam chord connector connected to ~~one of the~~ a joist~~s~~ and to a kingpost extending transversely from ~~and connected to~~ the joist~~, the kingpost also connected to adjoining first and second rafters~~;

a wind-beam ridge connector connected to ~~the~~ adjoining first and second rafters and to the kingpost; and

a wind-beam extension connecting the wind-beam chord connector to the wind-beam ridge connector ~~independent of the kingpost~~.

[0010b] According to another aspect of the present invention, there is provided a construction system providing structural integrity for a building structure to withstand the destructive forces of storm winds and to minimize or prevent the influent of associated wind-driven blowing rain, comprising:

multiple subsystems connected to the building structure, the building structure including a wall structure having multiple studs and a roof structure having multiple components including trusses or a combination of joists and rafters, the multiple subsystems including:

an anchoring system having anchor fasteners connected to and partially extending from a foundation;

a wall reinforcement system having multiple structural columns individually positioned between proximate ones of the studs, each structural column connected to two of the anchor fasteners;

a rafter/joist tie-down system having multiple members individually coupling each of the structural columns to the roof structure such that the wall reinforcement system ties together the roof components and the wall structure to the foundation using the structural columns;

a wind-beam system having multiple connectors each connecting members of the roof structure to individual ones of a plurality of kingposts; and

a roof decking system having a water resistant tape seal applied at each joint defined between adjacent ones of a plurality of roof decking members attached to the roof structure,

wherein the multiple connectors of the wind-beam system include:

a wind-beam chord connector connected to a joist and to a joining member angularly extending from the joist; and

a wind-beam ridge connector connected to adjoining first and second rafters and to the joining member.

[0011] One preferred embodiment of the subject invention relates to a typical residential stick-built or prefabricated home construction which is enhanced and substantially strengthened in specific areas of the structure to better withstand the destructive wind forces of hurricanes and tornados. One preferred embodiment also provides a secondary watertight seal which is utilized to

CLAIMS:

What is claimed is:

1. A construction system to provide structural integrity for a building structure to withstand the destructive forces of storm winds and to minimize or prevent the influent of associated wind-driven blowing rain, comprising:

multiple subsystems connected to the building structure, the building structure including a wall structure having multiple studs and a roof structure having multiple components, including trusses or a combination of joists and rafters, the multiple subsystems including:

an anchoring system providing multiple sets of two anchor fasteners partially embedded in a foundation and having portions of the two anchor fasteners extending out of the foundation;

a wall reinforcement system having multiple structural columns individually positioned between proximate ones of the studs, the portions of the two anchor fasteners both connected to the structural column and the structural column oppositely connected to the roof structure such that the wall reinforcement system ties together the roof components and the wall structure to the foundation using the structural columns; and

a wind-beam system having:

a wind-beam chord connector connected to one of the joists and to a kingpost extending transversely from and connected to the joist, the kingpost also connected to adjoining first and second rafters;

a wind-beam ridge connector connected to the adjoining first and second rafters and to the kingpost; and

a wind-beam extension connecting the wind-beam chord connector to the wind-beam ridge connector independent of the kingpost.

2. The construction system of claim 1, wherein the wall reinforcement system further includes first and second anchor brackets individually connected to opposite ends of the structural columns.

3. The construction system of claim 1, wherein the multiple subsystems further include a rafter/joist tie-down system having a rafter tie-down extension connected to upper and lower chords of individual ones of the trusses.

4. The construction system of claim 1, wherein the multiple subsystems further include a rafter/joist tie-down system having multiple rafter tie-down extensions each connected to a rafter and to a joist of the roof structure and to one of the structural columns.

5. The construction system of claim 1, wherein the multiple subsystems further include a wall sheeting system having wall sheeting bolted to multiple ones of the structural columns.

6. The construction system of claim 1, wherein the multiple subsystems further include a roof decking system having a water resistant tape seal applied at each joint defined between adjacent ones of a plurality of roof decking members.

7. The construction system of claim 6, wherein each joint defined between adjacent ones of a plurality of roof decking members is a shiplap joint.

8. The construction system of claim 6, further including a lineup block positioned at each joint defined between adjacent ones of the plurality of roof decking members acting to reinforce the joint.

9. The construction system of claim 1, wherein the multiple subsystems further include a diaphragm reinforcement system acting to reinforce a gable end of the building structure, the diaphragm reinforcement system having a joist brace connected to multiple ones of the joists, a strut angularly oriented with respect to the joist brace, and a pearling brace connecting the strut to the gable end.

CLAIMS

1. A construction system to provide structural integrity for a building structure to withstand the destructive forces of storm winds and to minimize or prevent the influent of associated wind-driven blowing rain, comprising:

multiple subsystems connected to the building structure, the building structure including a wall structure having multiple studs and a roof structure having multiple components, including trusses or a combination of joists and rafters, the multiple subsystems including:

an anchoring system providing multiple sets of two anchor fasteners partially embedded in a foundation and having portions of the two anchor fasteners extending out of the foundation;

a wall reinforcement system having multiple structural columns individually positioned between proximate ones of the studs, the portions of the two anchor fasteners both connected to the structural column and the structural column oppositely connected to the roof structure such that the wall reinforcement system ties together the roof components and the wall structure to the foundation using the structural columns; and

a wind-beam system having:

a wind-beam chord connector connected to a joist and to a kingpost extending transversely from the joist;

a wind-beam ridge connector connected to adjoining first and second rafters and to the kingpost; and

a wind-beam extension connecting the wind-beam chord connector to the wind-beam ridge connector.

2. The construction system of Claim 1, wherein the wall reinforcement system further includes first and second anchor brackets individually connected to opposite ends of the structural columns.

3. The construction system of Claim 1, wherein the multiple subsystems further include a rafter/joist tie-down system having a rafter tie-down extension connected to upper and lower chords of individual ones of the trusses.

4. The construction system of Claim 1, wherein the multiple subsystems further include a rafter/joist tie-down system having multiple rafter tie-down extensions each connected to a rafter and to a joist of the roof structure and to one of the structural columns.

5. The construction system of Claim 1, wherein the multiple subsystems further include a wall sheeting system having wall sheeting bolted to multiple ones of the structural columns.

6. The construction system of Claim 1, wherein the multiple subsystems further include a roof decking system having a water resistant tape seal applied at each joint defined between adjacent ones of a plurality of roof decking members.

7. The construction system of Claim 6, wherein each joint defined between adjacent ones of a plurality of roof decking members is a shiplap joint.

8. The construction system of Claim 6, further including a lineup block positioned at each joint defined between adjacent ones of the plurality of roof decking members acting to reinforce the joint.

9. The construction system of Claim 1, wherein the multiple subsystems further include a diaphragm reinforcement system acting to reinforce a gable end of the building structure, the diaphragm reinforcement system having a joist brace connected to multiple ones of the joists, a strut angularly oriented with respect to the joist brace, and a pearling brace connecting the strut to the gable end.

10. A construction system providing structural integrity for a building structure to withstand the destructive forces of storm winds and to minimize or prevent the influent of associated wind-driven blowing rain, comprising:

multiple subsystems connected to the building structure, the building structure including a wall structure having multiple studs and a roof structure having multiple components including trusses or a combination of joists and rafters, the multiple subsystems including:

an anchoring system having anchor fasteners connected to and partially extending from a foundation;

a wall reinforcement system having multiple structural columns individually positioned between proximate ones of the studs, each structural column connected to two of the anchor fasteners;

a rafter/joist tie-down system having multiple members individually coupling each of the structural columns to the roof structure such that the wall reinforcement system ties together the roof components and the wall structure to the foundation using the structural columns;

a wind-beam system having multiple connectors each connecting members of the roof structure to individual ones of a plurality of kingposts; and

a roof decking system having a water resistant tape seal applied at each joint defined between adjacent ones of a plurality of roof decking members attached to the roof structure,

wherein the multiple connectors of the wind-beam system include:

a wind-beam chord connector connected to a joist and to a joining member angularly extending from the joist; and

a wind-beam ridge connector connected to adjoining first and second rafters and to the joining member.

11. The construction system of Claim 10, wherein the multiple subsystems further include a diaphragm reinforcement system acting to reinforce a gable end of the building structure, the diaphragm reinforcement system having a joist brace connected

to multiple ones of the joists, a strut angularly oriented with respect to the joist brace, and a pearling brace connecting the strut to the gable end.