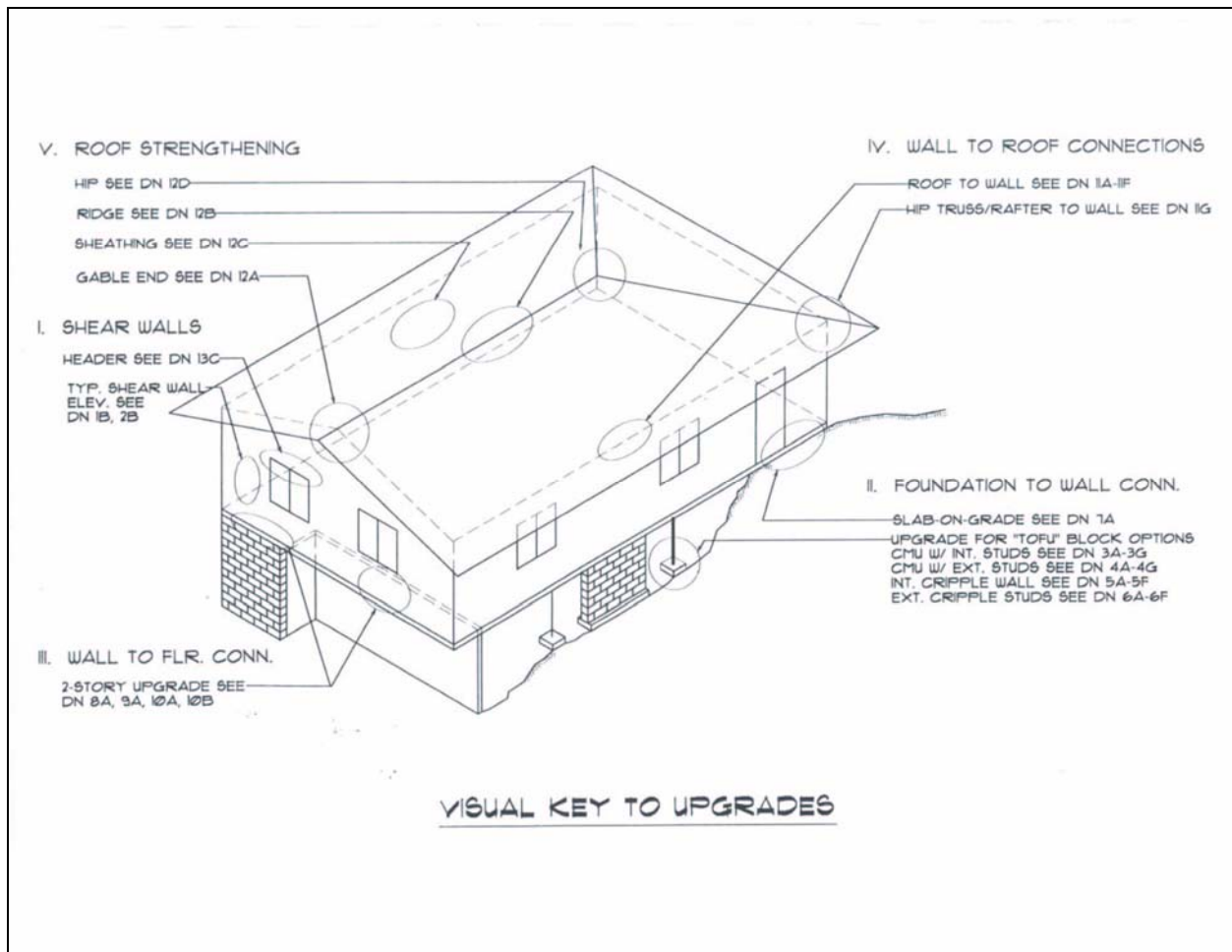


Items to be Upgraded for Hurricane Retrofits

- I. Shear Walls
- II. Foundation to Wall Connections
- III. Wall to Floor Connections
- IV. Wall to Roof Connections
- V. Roof Strengthening



Upgrade Procedure

- I. Shear Walls: The first step is to determine the length of shear walls required on each side of your home. Shear walls are needed to resist the lateral (horizontal) forces on the house due to a hurricane or earthquake.
 - A. The tables on Drawing Numbers (DN) 1 A & 2A will help determine the length of shear walls required for one and two story houses respectively. The required length depends on the overall plan dimensions of your house and the plywood sheathing nail spacing.
 - B. The minimum length requirements on a given side may be satisfied by one long wall section or the cumulative length of two or more wall sections provided each wall section is not less than 4 feet long.
 - C. DN 1B & 2B illustrate how the plywood should be nailed to the studs, plates and headers.
 - D. DN 13A, 13B & 13C show typical stud, plate and header details used for wall framing.

<u>Dwg.</u>	<u>No. Sheet Description</u>
1A	Shear Wall Table - Single Story Dwelling
1B	Typical Shear Wall Elevation - Single Story Dwelling
2A	Shear Wall Table - Two Story Dwelling
2B	Typical Shear Wall Elevation - Two Story Dwelling
13A	Typical Stud Wall Framing Details
13B	Typical Top Plate Details
13C	Typical Header Details

- II. Foundation to Wall Connections: To resist uplift, walls must be anchored to their foundation. Several different upgrade options are provided to the homeowner. Choose one of the following:
 - A. DN 3A-3G provide an upgrade for a single wall house on a "tofu" block foundation by adding studs interior to the existing walls connected to a new CMU wall foundation.

<u>Dwg. No.</u>	<u>Sheet Description</u>
3A	"Tofu" Blk. Found. Upgrade w/ Studs Added to Interior Side
3B	Typ. Intermediate Shear Wall Condo
3C	Typ. Corner Shear Wall Condo.
3D	Typ. Corner Shear Wall Condo
3E	Upgrade w/ Inter. Studs, Plywd. Shthg. & Tie Strap
3F	Angle Connecting 4x Beam to CMU Wall
3G	Hold-down Connection to CMU Wall @ Ends of Shear Walls

- B. DN 4A-4G provide an upgrade for a single wall house on a "tofu" block foundation by adding studs exterior to the existing walls connected to a new CMU wall foundation.

<u>Dwg. No.</u>	<u>Sheet Description</u>
4A	"Tofu" Blk. Found. Upgrade w/ Studs Added to Exterior Side
4B	Typ. Intermediate Shear Wall Condo
4C	Typ. Corner Shear Wall Condo
4D	Typ. Corner Shear Wall Condo
4E	Upgrade w/ Ext. Studs, Plywd. Shthg. & Tie Strap
4F	Angle Connecting 4x Beam to CMU Wall
4G	Hold-down Connection to CMU Wall @ Ends of Shear Walls

- C. DN 5A-5F provide an upgrade for a single wall house on a "tofu" block foundation by adding studs interior to the existing walls connected to cripple stud walls on a concrete foundation.

<u>Dwg. No.</u>	<u>Sheet Description</u>
5A	"Tofu" Blk. Found. Upgrade w/ Studs Added to Interior Side
5B	Typ. Intermediate Shear Wall Condo
5C	Typ. Corner Shear Wall Condo
5D	Typ. Corner Shear Wall Condo
5E	Upgrade w/ Inter. Studs, Plywd. Shthg. & Tie Strap
5F	Hold-down Connection to Cripple Wall

- D. DN 6A-6F provide an upgrade for a single wall house on a "tofu" block foundation by adding studs exterior to the existing walls connected to cripple stud walls on a concrete foundation.

<u>Dwg. No.</u>	<u>Sheet Description</u>
6A	"Tofu" Blk. Found. Upgrade w/ Studs Added to Exterior Side
6B	Typ. Intermediate Shear Wall Condo
6C	Typ. Corner Shear Wall Condo
6D	Typ. Corner Shear Wall Condo
6E	Upgrade w/ Ext. Studs, Plywd. Shthg. & Tie Strap
6F	Shear Connecting 4x Beam to Shear Wall

- E. DN 7A provides an upgrade for a single wall house on an existing slab-on-grade foundation.

<u>Dwg. No.</u>	<u>Sheet Description</u>
7A	Single Wall Upgrade - Slab-an-Grade Foundation

- III. Wall to Floor Connection: Applies to existing two-story houses showing continuous load path connections.

- A. DN 8A & 9A show upgrade for second floor single walls over existing double wall and CMU wall respectively.

<u>Dwg. No.</u>	<u>Sheet Description</u>
8A	Single Wall Upgrade on Existing CMU Wall
9A	Single Wall Second Story Upgrade - Dble. Wall Below

- B. DN 10A & 10B show upgrade for second floor single walls over existing double wall and CMU wall respectively where the second floor cantilever over the first floor walls.

<u>Dwg. No.</u>	<u>Sheet Description</u>
10A	Single Wall Upgrade - Fir. Cantilevers Over Existing Dble. Wall Below
10B	Single Wall Upgrade - Fir. Cantilevers Over Existing CMU Wall Below

- IV. Wall to Roof Connections: Rafter and truss to wall connections required for the first link of the continuous load path.

- A. DN 11A, 11B & 11C provide connections for shake, shingle or built-up roofs. Choose appropriate ON depending on whether studs are interior, exterior or existing.
- B. DN 11D, 11E & 11F provide connections for metal roofs.
- C. DN 11G provides a hip truss/rafter connection at wall corners.

<u>Dwg. No.</u>	<u>Sheet Description</u>
11A	Upgrade Roof to Wall Connections w/ Inter. Studs
11B	Upgrade Roof to Wall Connections w/ Exter. Studs
11C	Upgrade Roof to Wall Connections w Existing Studs
11D	Upgrade Metal Roof to Wall Connections w/ Inter. Studs
11E	Upgrade Metal Roof to Wall Connections w/ Exter. Studs
11F	Upgrade 4x Rafter to Wall Connection
11G	Hip Truss/Rafter Connection @ Wall Corner

- V. Roof Strengthening: Wind damage is most severe at the roof level. Choose appropriate details to strengthen your roof.

<u>Dwg. No.</u>	<u>Sheet Description</u>
12A	Gable End Upgrade
12B	Ridge Upgrade
12C	Plywood Roof Sheathing Nailing Details
12D	Hip Truss/Rafter Connection @ Supporting Truss