

Verona Hurricane Design Criteria

Information from the permitted plans for 415 Castle Pines Lane, Page N1 Structural Details Sheets:

GENERAL STRUCTURAL NOTES:

I. CODES & REFERENCES:

- 1.1. FLORIDA BUILDING CODE, RESIDENTIAL 5th EDITION.
- 1.2. AMERICAN CONCRETE INSTITUTE OF STRUCTURAL CONCRETE (ACI 318).
- 1.3. AMERICAN CONCRETE INSTITUTE OF MASONRY STRUCTURES (TMS 402/ACI 530/ASCE 5).
- 1.3.1 THE MASONRY SOCIETY DIRECT DESIGN HANDBOOK FOR MASONRY STRUCTURES (TMS 403)
- 1.4. AMERICAN SOCIETY OF CIVIL ENGINEERS MINIMUM DESIGN LOADS FOR BUILDINGS & OTHER STRUCTURES (ASCE-7).
- 1.5. SPECIFICATION FOR THE DESIGN, FABRICATION & ERECTION OF STRUCTURAL STEEL FOR BUILDINGS LATEST EDITION.
- 1.6. DESIGN SPECIFICATION FOR LIGHT METAL PLATE CONNECTED WOOD TRUSSES BY THE TRUSS PLATE INSTITUTE (TPI) LATEST EDITION.
- 1.7. NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS) LATEST EDITION.
- 1.8. AMERICAN PLYWOOD ASSOCIATION DESIGN CONSTRUCTION GUIDE. (APA) LATEST EDITION

5th Edition of Florida's Building Code was published in 2014. Wind speed capabilities from Page N1 of the plans:

ULTIMATE WIND SPEED (Vult)	<u>150</u> MPH
NOMINAL WIND SPEED (Valt)	<u>116</u> MPH
RISK CATEGORY	<u>II</u>
WIND EXPOSURE	<u>C</u>
INT. PRESSURE COEFF.	+/- 0.18 ENCLOSED
MAX. MEAN ROOF HEIGHT	35.0'
 COMPONENTS AND CLADDING (ULTIMATE)	
ROOF @ 10 SQFT	<u>+33.8 / -138.3</u> PSF
@ 20 SQFT	<u>+30.9 / -129.3</u> PSF
@ 50 SQFT	<u>+26.8 / -117.5</u> PSF
@ 100 SQFT	<u>+23.9 / -108.5</u> PSF
WALL @ 10 SQFT	<u>+58.7 / -78.6</u> PSF
@ 20 SQFT	<u>+56.1 / -73.2</u> PSF
@ 50 SQFT	<u>+52.5 / -66.3</u> PSF
@ 100 SQFT	<u>+49.9 / -61.0</u> PSF
@ 500 SQFT	<u>+43.8 / -48.7</u> PSF
GARAGE DOOR 8' WIDTH	<u>+52.2 / -65.6</u> PSF
10' WIDTH	<u>+51.4 / -64.2</u> PSF
12' WIDTH	<u>+50.7 / -62.7</u> PSF
16'+ WIDTH	<u>+49.9 / -61.0</u> PSF
 CHART IS IN 'ULTIMATE' PRESSURES. 'ALLOWABLE' = 0.6 X 'ULTIMATE' FOR COMPARISON CHART MAY BE INTERPOLATED FOR INTERMEDIATE PRESSURES	

Plans reviewed for code compliance in accordance
with Hillsborough County Construction Code
Folio # _____

MAY 17 2016

Reviewed by G.S.
The issuance of this permit shall not be held to
permit or approve the violation of any
County, State, or Federal Law Code or Regulation


Master issued date: 06/30/15
 Lot issued date: -



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WG
 Saved by:



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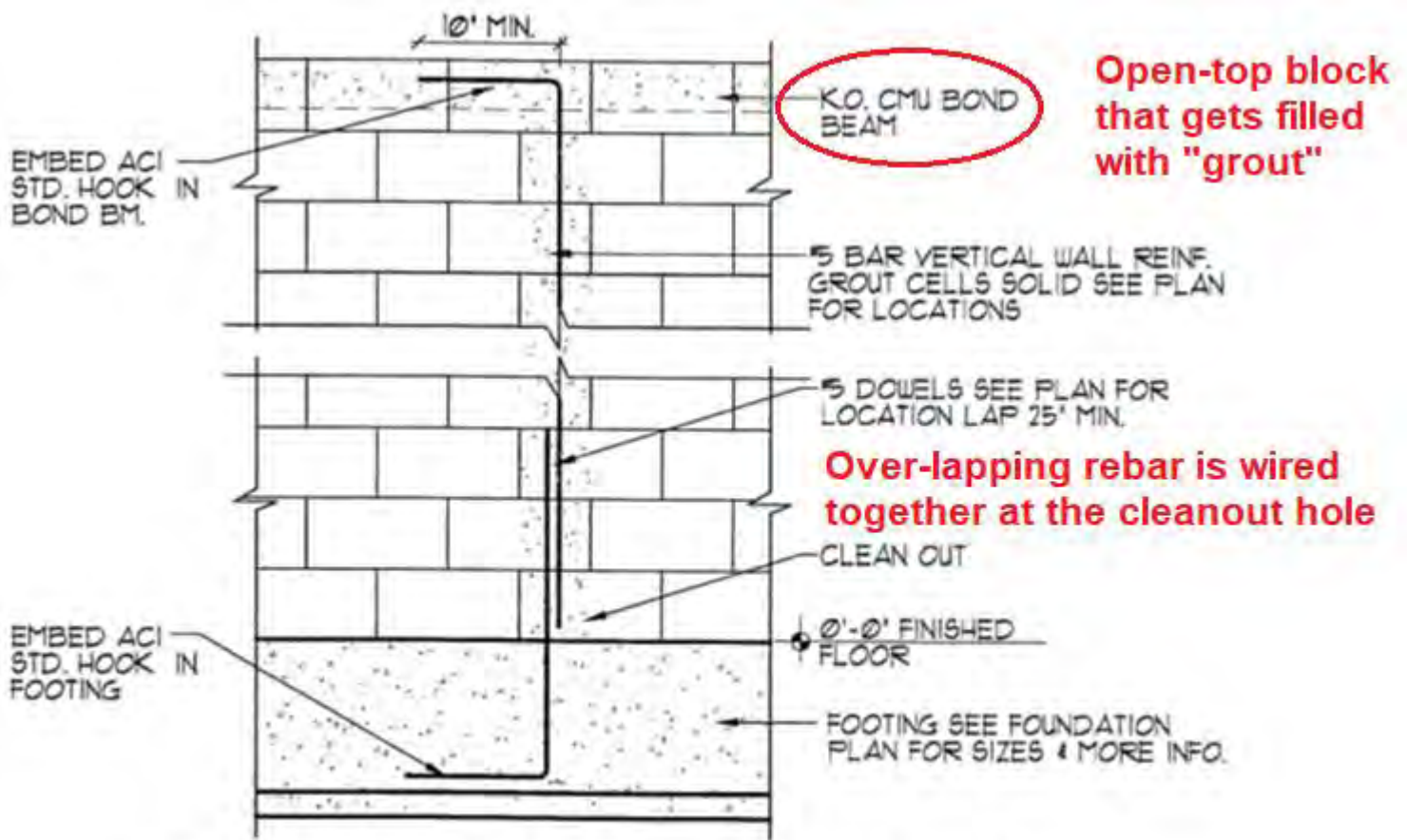
I HEREBY CERTIFY THAT I HAVE REVIEWED THE ATTACHED DESIGN, AND FIND IT TO BE IN COMPLIANCE WITH SECTION R301 OF THE FLORIDA BUILDING CODE, RESIDENTIAL (5th EDITION, 2014).

THE ENGINEER HAS NOT REVIEWED THE PRE-ENGINEERED TRUSS MANUF. LAYOUT TO DETERMINE ANY LOAD BEARING CONDITIONS AND RESERVES THE RIGHT TO MAKE ANY CHANGES AFTER TRUSS LOAD INFORMATION IS SUPPLIED TO THE ENGINEER.

SEALED FOR STRUCTURE ONLY

Plot date: 10/09/2015
 Save date: 10/06/2015
 Administrator

Page S1 shows how we have steel reinforcing bars running through the block walls connecting the slab beneath the homes to the “bond beam” or open-top block creating “reinforced cells”:



Masonry Wall Reinforced Cell Detail
 SCALE: NTS



Rebar (#5 reinforcing steel bar) shown imbedded in the poured concrete slab. Each one is part of the reinforced cells that surround our homes providing extreme hurricane protection.



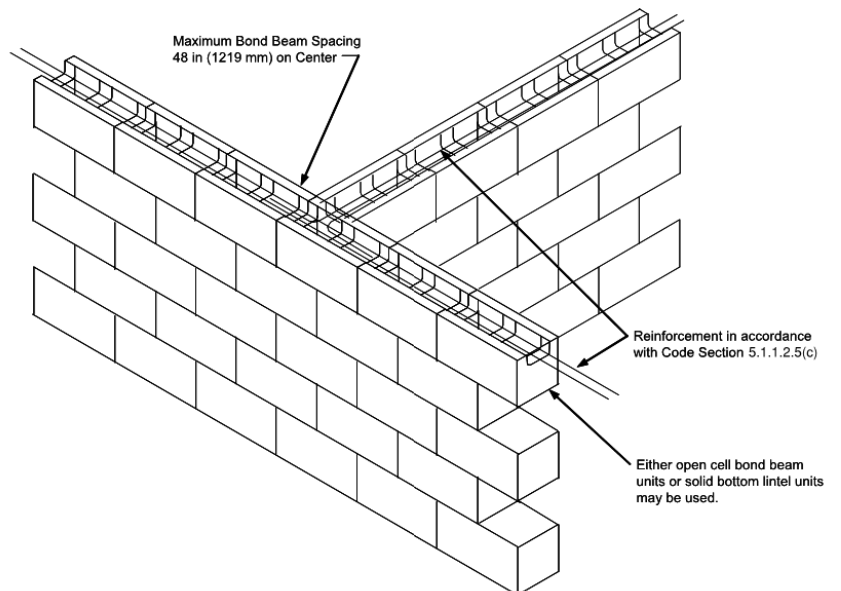
What is #5 reinforcing bar?

Made from carbon-steel composite, #5 reinforcing bar or “rebar” is used to pave roads and highways, and in certain climates, it can also be used to build swimming pool frames. It is often trusted as a strengthening material in slabs, piers, columns and walls.



Bond Beam Block

A Bond Beam is a type of Concrete Masonry Unit (CMU) with a notch running through it designed to accommodate placement of horizontal rebar.



Basically an “open-top” block

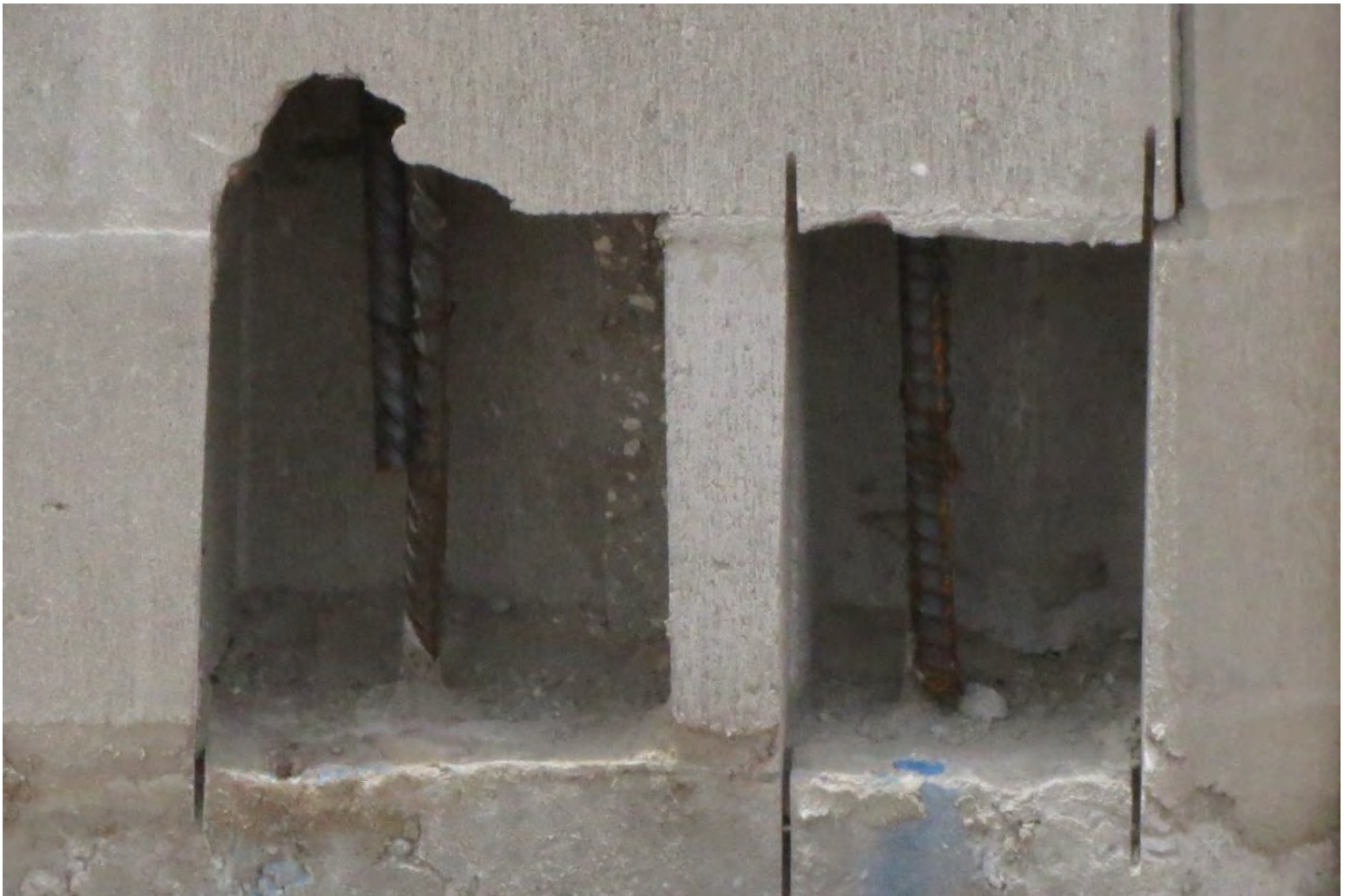


“Bond beam” or open-top blocks shown below:





The rebar hanging off the side of the wall in this photo will be fed down through the hollow blocks at each of the “clean out” openings, where they will be wired to the rebar embedded in the slab.



Plywood is used to temporarily cover the clean out openings and after laying additional horizontal steel rebars in the open-top block, each reinforced cell containing the vertical rebar is filled solid with concrete or grout.



As the open-top block is being filled, perforated steel straps are inserted into the wet grout at each location where a roof truss will go. Later these straps will be nailed to the prefabricated roof trusses. (steel straps shown on the left building above)





Reinforced cell locations are indicated by the check marks on the wall and the concrete filled clean out openings at the bottom.

Perforated “hurricane” straps are nailed to each of the prefabricated, engineered roof trusses.



This method of construction is why Verona pays less for insurance than the older homes in Sun City Center.

For comparison, the new Minto homes being built in Panama City Beach have wooded walls and instead of “reinforced cells” holding their roofs on, they have ¼” steel cables:



Considering we are in a non-evacuation zone and over 70 feet in elevation, we are much safer from hurricanes here. - Jim Sears