

# RONEY PARRISH DESIGN GROUP, INC.

RESIDENTIAL DESIGNERS AND PLANNERS

April 11, 2002

Pinellas County Building Department  
Technical Services Building  
310 Court Street  
Clearwater, Florida 34616

RE: The Villages of North Redington Beach - The Shoals Complex (Village South)  
3 Unit Bldg. - Units 11 & 13  
3 Unit Bldg. - Units 14 & 16

Project #: 9848-V

To Whom it May Concern:

The flood water flow through vents at the ground floor level has been determined by the land surveyor, who is surveying each property for change of ownership purposes, to be less than that shown on the permitted plans. The permitted plans indicate the minimum requirement of one (1) square inch of opening per one (1) square foot of floor area for the vent area. This was determined to be 880 square inches of vent area. The surveyor has indicated the total vent area to be 867 square inches.

FEMA requirement CFR 44, Section 60.3(C)(5), allows the engineer of record to design the exterior walls to '...automatically equalize hydrostatic floor forces on exterior walls... Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the ... minimum criteria.'

The engineer of record, Thomas F. Devening, P.E., has reviewed the quantities of the net opening amounts listed above in relation to the exterior wall design and has determined that the 867 square inches is sufficient to withstand the hydrostatic forces of flood waters on the exterior walls. Please refer to the attached calculations sheet verifying the results.

If you have any additional questions or concerns please contact this office.

Sincerely,  
RONEY PARRISH DESIGN GROUP, INC.

Timothy E. Roney  
President

a:\winworks\villages\loodvs

Thomas F. Devening, P.E.

Thomas F. Devening, P.E.  
Structural Engineer, P.E. # 41724

9.11.02

3434 Fourth Street North  
St. Petersburg, Florida 33704

(727) 528-9866  
Fax (727) 528-9826

SAT 1 OF 4  
 FLOI-606  
 4.11.02


STRUCTURAL CALCULATION

FOR

VILLAGES OF NORTH REEDINGTON

BEACH - THE SHORES

WALLS 11-13 & 14-16

 9.10.02

PE 41724

Purpose: Consider existing level CMU wall with flood water loading

Conclusion: CMU wall will support flood

Design Data: WATER LOADING

THOMAS F. DEVENIER  
 1364 WILLOW DRIVE  
 TAMPA SPRINGS, FL 34688  
 (727) 937-9146

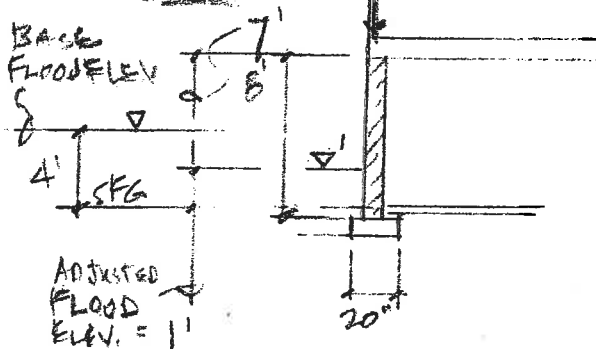
ALLOW SOIL BEARING<sub>c</sub> = 2000 PSF

SOIL WT. = 110 #/CF

WATER WT. = 62.4 #/CF

W. ROOF =  $2' \times 14 \frac{1}{2}' = 30$   $2' \times 16 \frac{1}{2}' = 30$   
 WALL =  $26' \times 15 \frac{1}{2}' = 390$   
 FLOOR =  $26' \times 14 \frac{1}{2}' \times 2 = 365$   $26' \times 30' = 390$   
 DL =  $\frac{365}{2} + 26' \times 90' = 520$   
 $\frac{940}{2}$

NOTE: WALL VENTS AT  
 1<sup>ST</sup> STORY:  $1.0 \text{ in}^2 / 1.0 \text{ ft}^2$  @ 2' O  
 PROVIDED  $867 \text{ in}^2$  REQ'D =  $880 \text{ in}^2$

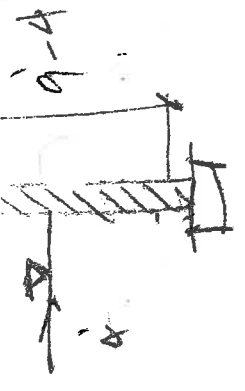


IT IS ASSUMED HERE A PORTION OF FLOOD ELEV. WILL BE RELIEVED BY THE EXIST.  $867 \text{ in}^2$  OF WALL VENTS

$\therefore$  RATIO ELEV. =  $4' - \left( \frac{867}{880} \times 4' \right) = 0.06'$

ASSUME 1' FOR WALL CALC

AR



10' LONG RIDGE VENT - CONT.  
(20' LONG @ UNIT 'F')

TOP / ROOF

METAL ROOFING OVER  
1 LAYER 30 lb FELT

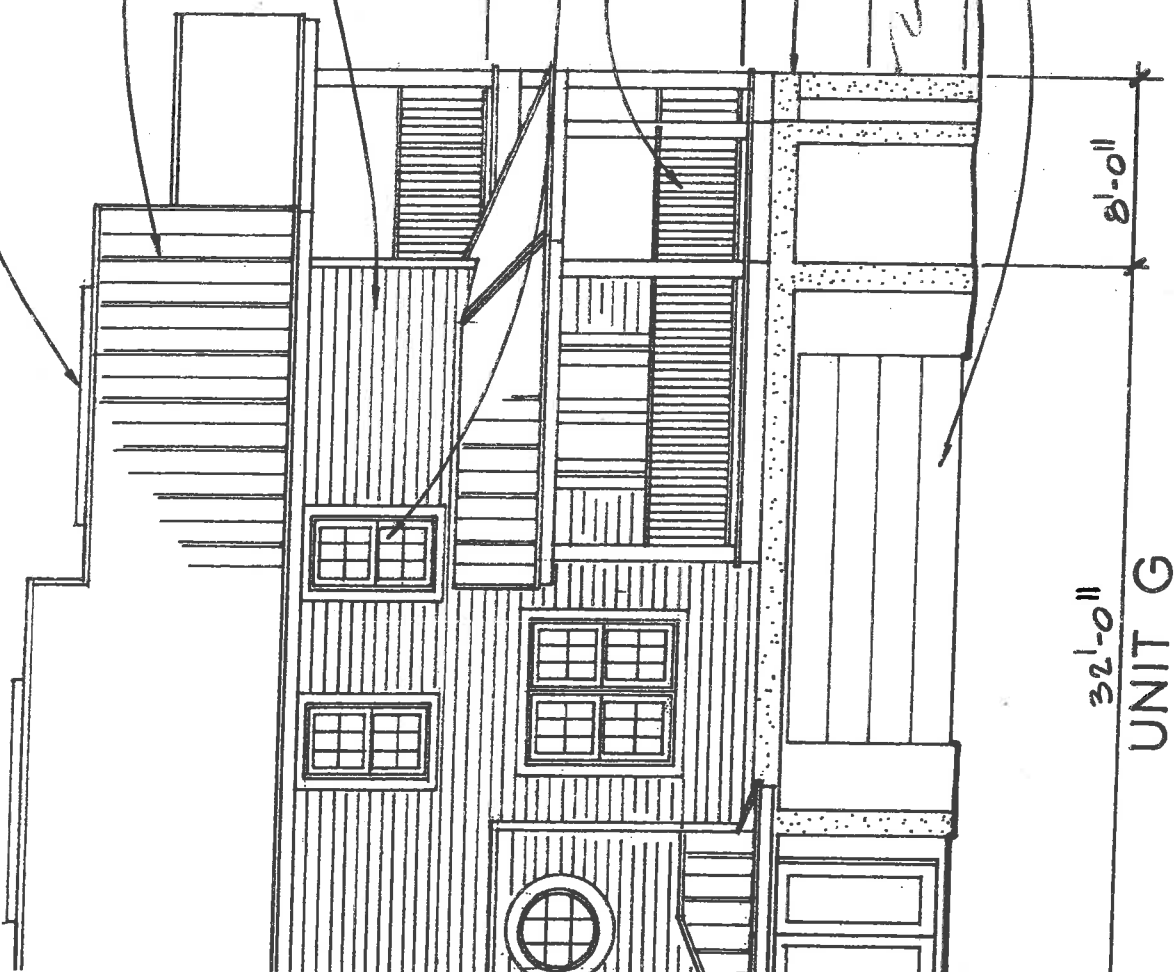
VINYL SIDING

SINGLE HUNG ALUM.  
WINDOWS, TYP.  
42" HIGH ALUMINUM  
GUARDRAIL SYSTEM

TEXTURED  
WALL FINISH

2" SID WALL USED  
FOR EXAMPLE

OVERHEAD SECTIONAL  
GARAGE DOOR



TOP / ROOF BEARING

TOP / 2ND FLOOR

TOP / 1ST FLOOR

TOP / 4TH FLOOR  
PASS FLOOD ELEVATION

TOP / 4GROUND FL. SLAB

7'-11 1/4"

10'-8"

5'-4 3/4"

4'-0"

42"

42"

1'-4 3/8"

8'-0"

32'-0 1/2"

UNIT G

CONT

SHEET 2 OF 4

VILLAGES OF NORTH BRINGTON BEACH

BLDG. TYPE 3 (EXAMPLE)  
EXTERIOR FINISH ELEVATION

32'-0 1/2" MAX

To specify your title block on these five lines, use the SETTINGS selection on the main menu and enter your title block information will be printed on each page.

Title : The Shoals Job # FL01-606  
 Dsgnr: Thomas F Devening Date: 9:26AM, 11 APR 02  
 Description : Unit s 11-13 and 14-16

Scope :

SHT 3 OF 4

Rev. 510300  
 User: KW-060703, Ver 5.1.3, 22-Jun-1999, Win32  
 (c) 1983-99 ENERCALC

### Restrained Retaining Wall Design

Page 1

c:\ec\fl01-606.ecw\Calculations

**Description** Restrained CMU wall at end unit bearing 2nd and 3rd floor diaphragm. This wall is assumed to be the most loaded with vertical dead and live loading along a wall with no

Criteria	
Retained Height	= 1.00 ft
Wall height above soil	= 7.00 ft
Total Wall Height	= 8.00 ft
Top Support Height	= 8.00 ft
Slope Behind Wall	= 0.00 : 1
Height of Soil over Toe	= 6.00 in
Soil Density	= 110.00 pcf
Wind on Stem	= 30.0 psf

Soil Data	
Allow Soil Bearing	= 2,000.0 psf
Equivalent Fluid Pressure Method	
Heel Active Pressure	= 0.0
Toe Active Pressure	= 62.4
Passive Pressure	= 0.0
Water height over heel	= 0.0 ft
Footing  Soil Friction	= 0.300
Soil height to ignore for passive pressure	= 0.00 in

Footing Strengths & Dimensions	
f <sub>c</sub>	= 3,000 psi
F <sub>y</sub>	= 60,000 psi
Min. As %	= 0.0014
Toe Width	= 0.50 ft
Heel Width	= 1.50
Total Footing Width	= 2.00
Footing Thickness	= 12.00 in
Key Width	= 0.00 in
Key Depth	= 0.00 in
Key Distance from Toe	= 0.00 ft
Cover @ Top	= 3.00 in @ Btm. = 3.00 in

Surcharge Loads	
Surcharge Over Heel	= 100.0 psf
>>>NOT Used To Resist Sliding & Overturn	
Surcharge Over Toe	= 50.0 psf
NOT Used for Sliding & Overturning	

Uniform Lateral Load Applied to Stem	
Lateral Load	= 0.0 #/ft
...Height to Top	= 0.00 ft
...Height to Bottom	= 0.00 ft

Adjacent Footing Load	
Adjacent Footing Load	= 0.0 lbs
Footing Width	= 0.00 ft
Eccentricity	= 0.00 in
Wall to Ftg CL Dist	= 0.00 ft
Footing Type	Line Load
Base Above/Below Soil at Back of Wall	= 0.0 ft

Axial Load Applied to Stem	
Axial Dead Load	= 785.0 lbs
Axial Live Load	= 940.0 lbs
Axial Load Eccentricity	= 0.0 in

Design Summary	
Total Bearing Load	= 2,526 lbs
...resultant ecc.	= 1.52 in
Soil Pressure @ Toe	= 1,743 psf OK
Soil Pressure @ Heel	= 783 psf OK
Allowable Soil Pressure Less Than Allowable	= 2,000 psf
ACI Factored @ Toe	= 2,635 psf
ACI Factored @ Heel	= 1,184 psf
Footing Shear @ Toe	= 10.3 psi OK
Footing Shear @ Heel	= 4.4 psi OK
Allowable	= 93.1 psi
Reaction at Top	= 117.5 lbs
Reaction at Bottom	= 70.5 lbs

Masonry Stem Construction			
Thickness	= 8.00 in	f <sub>m</sub>	= 1,250 psi
Wall Weight	= 49.0 pcf	F <sub>s</sub>	= 20,000 psi
Stem is FREE to rotate at top of footing			
Block Type = Medium Weight			
Partial Grouting			
	@ Top Support	Mmax Between Top & Base	@ Base of Wall
Design height	= 8.00 ft	Stem OK	Stem OK
Rebar Size	= # 4	4.08 ft	0.00 ft
Rebar Spacing	= 48.00 in	# 4	# 4
Rebar Placed at	= Center	48.00 in	48.00 in
Rebar Depth 'd'	= 3.81 in	Center	Center
Rebar Depth 'd'	= 3.81 in	3.81 in	3.81 in
Design Data			
fb/FB + fa/Fa	= 0.000	0.785	0.000
Moment...Actual	= 0.0 ft-#	230.2 ft-#	0.0 ft-#
Moment...Allowable	= 293.3 ft-#	293.3 ft-#	293.3 ft-#
Shear Force @ this height	= 0.0 lbs		70.5 lbs
Shear...Actual	= 0.00 psi		2.68 psi
Shear...Allowable	= 17.68 psi		17.68 psi
Rebar Lap Required	= 20.00 in	20.00 in	
Rebar embedment into footing	=		6.00 in

Sliding Calcs Slab Resists All Sliding!  
 Lateral Sliding Force = 70.5 lbs

Footing Design Results		
	Toe	Heel
Factored Pressure	= 2,635	1,184 psf
Mu' : Upward	= 314	0 ft-#
Mu' : Downward	= 45	175 ft-#
Mu: Design	= 270	175 ft-#
Actual 1-Way Shear	= 10.28	4.36 psi
Allow 1-Way Shear	= 93.11	93.11 psi

Other Acceptable Sizes & Spacings:  
 Toe: None Spec'd -or- Not req'd, Mu < S \* Fr  
 Heel: None Spec'd -or- Not req'd, Mu < S \* Fr  
 Key: No key defined -or- No key defined

#5 @ 6' o/c  
 ERWIN TO #4 AT 48" o/c

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**Restrained Retaining Wall Design**

Page 2  
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**Description**      Restrained CMU wall at end unit bearing 2nd and 3rd floor diaphragm. This wall is assumed to be the most loaded with vertical dead and live loading along a wall with no

**Summary of Forces on Footing : Slab RESISTS sliding, stem is PINNED at footing**

**Forces acting on footing soil pressure**

(taking moments about front of footing to find eccentricity)

Surcharge Over Heel	=	lbs	ft	ft-#
Axial Dead Load on Stem	=	1,725.0lbs	0.83 ft	1,437.5ft-#
Soil Over Toe	=	27.5lbs	0.25 ft	6.9ft-#
Surcharge Over Toe	=	lbs	ft	ft-#
Stem Wsight	=	392.0lbs	0.83 ft	326.7ft-#
Soil Over Heel	=	91.7lbs	1.58 ft	145.1ft-#
Footing Weight	=	290.0lbs	1.00 ft	290.0ft-#
<b>Total Vertical Force</b>	=	<b>2,526.2lbs</b>	<b>Moment =</b>	<b>2,206.2ft-#</b>

Net Moment User For Soil Pressure Calculations      **320.0 ft-#**