Memorandum

MIAMI-DADE COUNTY

Date: August 27, 2014

To: Honorable Chairwoman Rebeca Sosa
and Members, Board of County Commissioners

From: Carlos A. Gimenez
Mayor

Subject: Feasibility Analysis of Air Rights Above West Dade Regional Library to Construct Housing Units for the Elderly

---

This report is provided in response to Resolution R-452-14, sponsored by Senator Javier D. Souto, directing that a feasibility and cost/benefit analysis be conducted of the air rights above the West Dade Regional Library for the purpose of constructing affordable housing units for the elderly.

In order to accomplish the analyses required in this resolution, the Internal Services Department (ISD) retained the services of Revuelta Architecture International, PA (Consultant) to determine the feasibility of adding a third and fourth floor to the existing Library building for the purposes of housing 50 to 100 residential units for affordable housing for the elderly, including an analysis of existing construction systems to accommodate such an addition, and, estimated costs of such an endeavor. ISD also received input from the Library Department, the Planning and Zoning Division of the Regulatory and Economic Resources Department, and the Office of Management and Budget in developing this report.

In short, there were numerous structural, logistical, and construction-related challenges noted by the consultant that will be summarized in brief below and in full detail throughout their final report. Further, cost estimates provided by the consultant significantly exceed the existing funding allocated for this project, and there would be zoning challenges associated with the addition of the two floors as is being considered. The major findings of the consultant as well as the major findings of County staff are as follows:

Consultant Findings

- An analysis of the existing construction systems was conducted to determine the capacity of the existing structural system to receive the loads of the proposed addition, site and building circulation, building entrances, mechanical/plumbing/electrical capacity, and life safety and accessibility systems; and other associated components were also examined. The Library's structure and architectural details of the original building are in good condition based on visual inspection.
- The addition of two residential floors are that proposed above the existing roof level, arranged in two masses that are connected by an interior corridor, would allow for a maximum of 26 residential units per level for a total of 50 one-bedroom units and two studio units. The studios proposed in this study are approximately 400 square feet, and the one-bedroom units are approximately 550 square feet.
- Conventional construction assemblies of cast-in-place concrete and concrete masonry units would yield loads that would require extensive structural modifications to the existing building and foundations. However, alternative construction assemblies, which do not have the same life span as traditional cast-in-place methods, and would require greater long-term maintenance, could be utilized (i.e. light gauge metal, wood sheathing and stucco assembly for perimeter walls, wood joist construction for floors and roof framing).
- Some operational areas of the existing Library will be affected, and may require temporary closure while the work is in progress. For example, an alternative means of egress may be required during construction on the second floor, and the strengthening of existing columns may

produce such noise and dust contamination that patrons may be impacted during this particular phase of construction. These requirements are further discussed in the structural evaluation component of the study, which involves major structural improvements to portions of the existing structure. Other improvements to bring the building into compliance with County Code will be required throughout the existing building.

- Onsite parking is being proposed within the adjacent Florida, Power & Light (FPL) easement to supplement the existing parking and accommodate the new residential use. Use of this area would have to be negotiated with FPL.
- While the impacts of the new construction would likely require replacement of the entire existing roof membrane, there would likely not be extensive impacts or reconfiguration of the existing roof utilities. For example, the proposed structure would not affect the existing cooling tower or a majority of the existing roof drains.

Planning and Zoning Findings

- The site is designated Low Density Residential (2.5 to six units per acre) on the adopted 2020 and 2030 Land Use Plan map of the County's Comprehensive Development Master Plan (CDMP) and is currently zoned RU-1. The construction of two additional floors to the existing Library building for housing for the elderly would convert the Library property into a mixed-use development, which is not allowed on Low Density Residential designated properties. The CDMP Land Use Plan map would need to be amended to change the property's land use designation to Low-Medium Density Residential (six to 13 units per acre) or other CDMP designation that allows mixed-use developments.

Consultant Conclusion

Per the Consultant, based on the complexity of the proposed additional floors being built on top of an existing structure, required modifications to the existing structure and other systems, greater site complexities, unforeseen conditions, and atypical construction systems, construction of these modifications would be at a premium rate for construction costs. Their overall construction cost estimate, without consideration of other soft costs, is approximately $12 million based on an average cost of approximately $418 per square foot of living space. By comparison, this rate per square foot is more than two times greater than the cost of other recently constructed affordable housing projects in Miami-Dade County.

Currently, there is $4.592 million in Building Better Communities General Obligation Bond (BBC-GOB) funding available for this project. Clearly, additional funding would be required based on the estimate provided by the consultant.

More detailed information and drawings are available in the attached report from the Consultant. Staff will work with Senator Javier D. Souto on the next appropriate steps for Board of County Commissioners' consideration.

If you have any questions, please contact Tara Smith, Design and Construction Services Division, Internal Services Department at 305-375-1135.

c: Robert A. Cuevas, Jr., County Attorney
Office of the Mayor Senior Staff
Jennifer Moon, Director, Office of Management and Budget
Gia Arbogast, Director, Library Department
Lester Sola, Director, Internal Services Department
Charles Anderson, Commission Auditor

WEST DADE REGIONAL LIBRARY

9445 SW 24th Street Miami Florida
A Feasibility Study for a Building Addition Utilizing Air Rights
GOB Affordable Housing Site #76326
July 11, 2014

Architect:
Revuelta Architecture International
2950 SW 27th Avenue
Suite #110
Miami, FL 33133
T: 305.590.5000
www.revuelta.com

Structural Engineer:
Youssef Hachem Consulting Engineer
12151 SW 128 Court
Suite #104
Miami, FL 33186
T: 305.969.9423
www.yhengineering.com

MEP Engineer:
PJV Engineering, Inc.
8300 NW 53rd Street
Suite #350
Doral, FL 33166
T: 305.742.2112
www.pjveng.com

TABLE OF CONTENTS

1.0 Introduction ..... Page 01

2.0 Code Compliance ..... Page 02

3.0 Zoning Analysis ..... Pages 03 – 04

4.0 Architectural Concept ..... Pages 05 – 12

5.0 Building Construction Type ..... Page 13

6.0 Impact on Existing Library ..... Page 14

7.0 Structural Analysis ..... Pages 15 – 17

8.0 MEP Analysis ..... Pages 18 – 20

9.0 Estimated Cost ..... Page 21

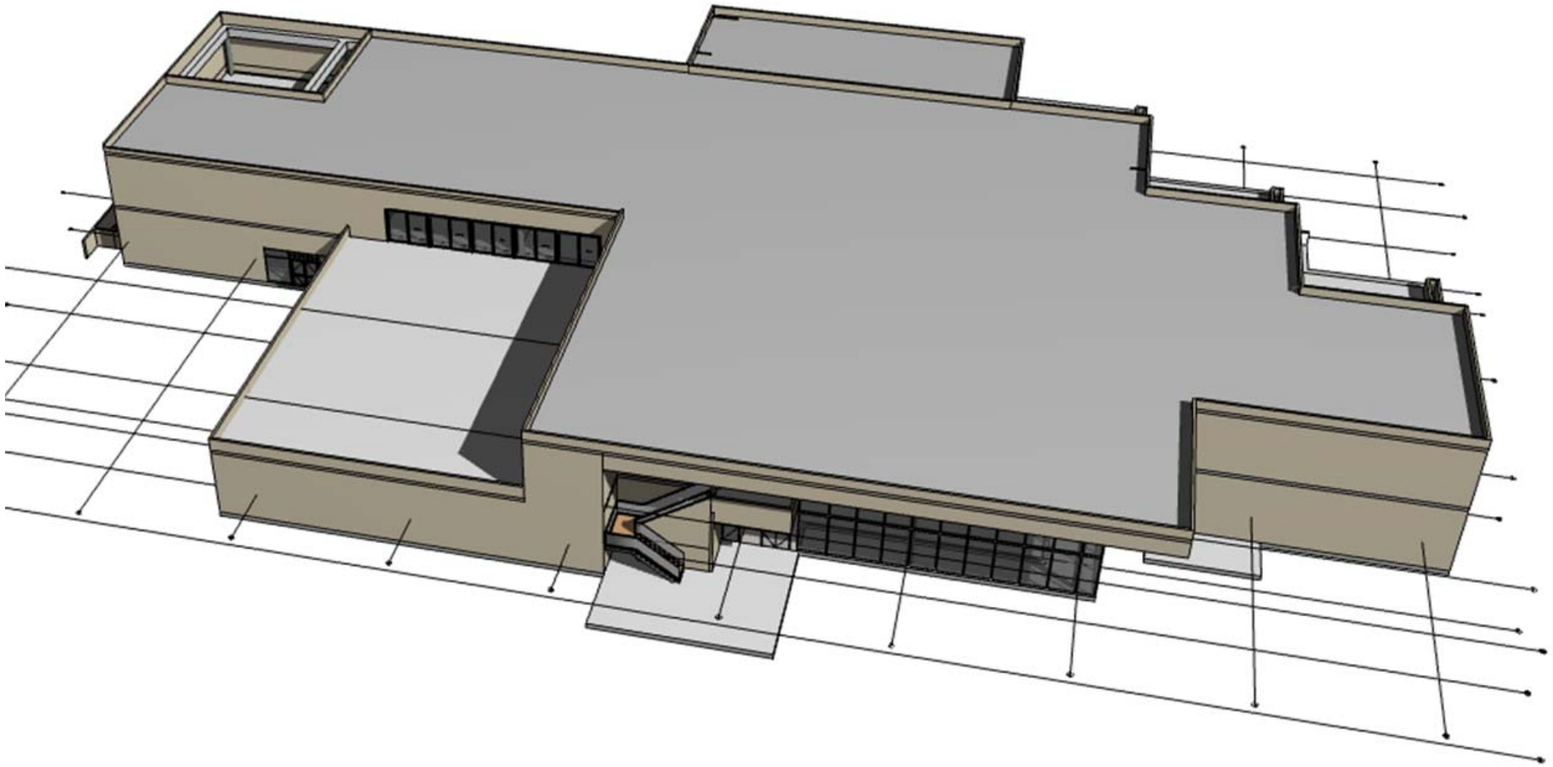
10.0 Conclusion ..... Page 21

11.0 Structural Appendices A, B, C, D ..... Pages 22 – 47

12.0 Zoning Appendix ..... Page 48

1.0 Introduction:

The existing West Dade Regional Library was designed in the late 1970's by the prominent architectural firm Spillis and Candela. The library's original structure and architectural details are in good condition based on visual inspection. Many of the buildings original details for outdoor terraces and planters have been neglected and are no longer used. However, the building maintains its original architectural characteristics.



Axonometric of Existing Building

Per Miami-Dade County Board of County Commissioner's Resolution #R-452-14, Miami Dade County Internal Services Department requested per work order Z000135 that the design team perform a feasibility study to investigate the ability to construct a new addition of two (2) floors containing approximately 50-100 affordable elderly housing units along with its support services above the existing two (2) story structure. This scope includes analysis of the existing structure to accommodate the structural loads of the proposed addition, site and building circulation, life safety systems, MEP systems and capacities, and other associated components.

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

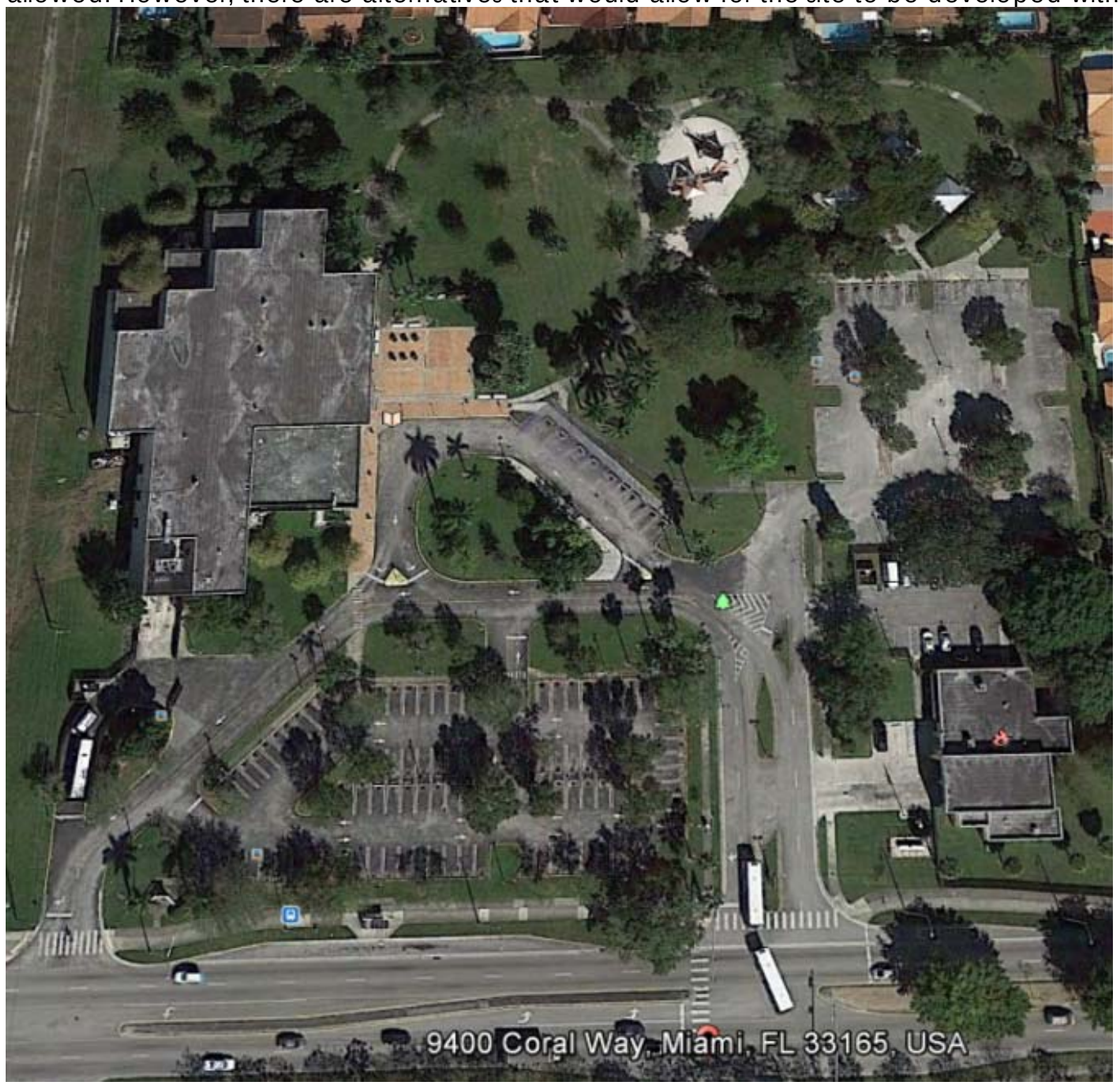
2.0 Code Compliance:

The following codes are the primary applicable codes for architectural requirements:
Miami Dade County Zoning
Florida Building Code 2010 (FBC 2013 effective date to be determined)
NFPA \ Florida Fire Prevention 2010
Fair Housing Act

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

3.0 Zoning Analysis:

The site is currently zoned RU-1 which allows for limited residential uses. Under the property's current Low Density Residential Comprehensive Development Master Plan, mixed use is not allowed. However, there are alternatives that would allow for the site to be developed with the requested residential units.

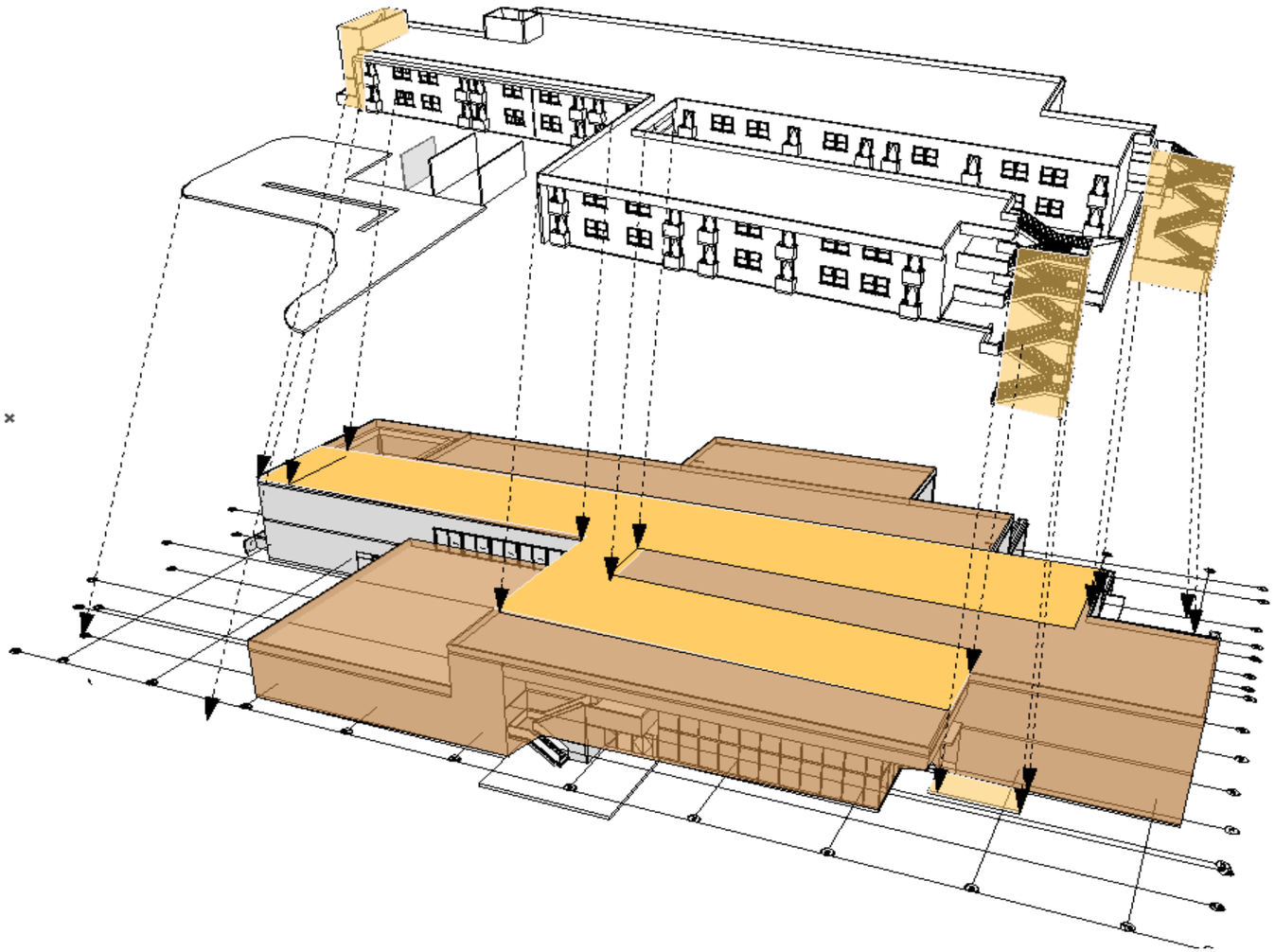


Site location

North

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

The first alternative which is not included in this feasibility analysis as it is not part of the contracted scope, would be to subdivide the site into multiple uses: one area for the housing, a separate area for the library, and another parcel for the park. The specific request of this work order is to study the feasibility of housing on top of the existing structure. Therefore, this option has not been investigated in this Work Order. However, a prior study was completed by Miami-Dade County's Department of Planning and Zoning on June 2011.



Two floor story addition on top of the existing library

The second alternative which is analyzed in this feasibility study and allows for the residential units on top of the existing library is to amend the property's land use designation to Low-Medium Density Residential. The Comprehensive Development Master Plan (CDMP) Board has regularly scheduled meetings, but these vary year to year. The amendment application filing period is specified each year and they advise that the process takes approximately 10 months. The ISD provided information prior to commencing the feasibility study that as the site is less than 10 acres, it would go through the small scale review process.

The ISD also provided documentation (see section 12.0 Zoning Email Appendix) that under this designation, mixed use is allowed and over 100 units would be feasible by the zoning code. However, per the feasibility study, 100 units is not achievable. The number of units that are feasible are limited by a combination of criteria that include, but are not limited to, such limitations as the addition being two stories, the integration of the addition on top of the existing structure, and the project cost.

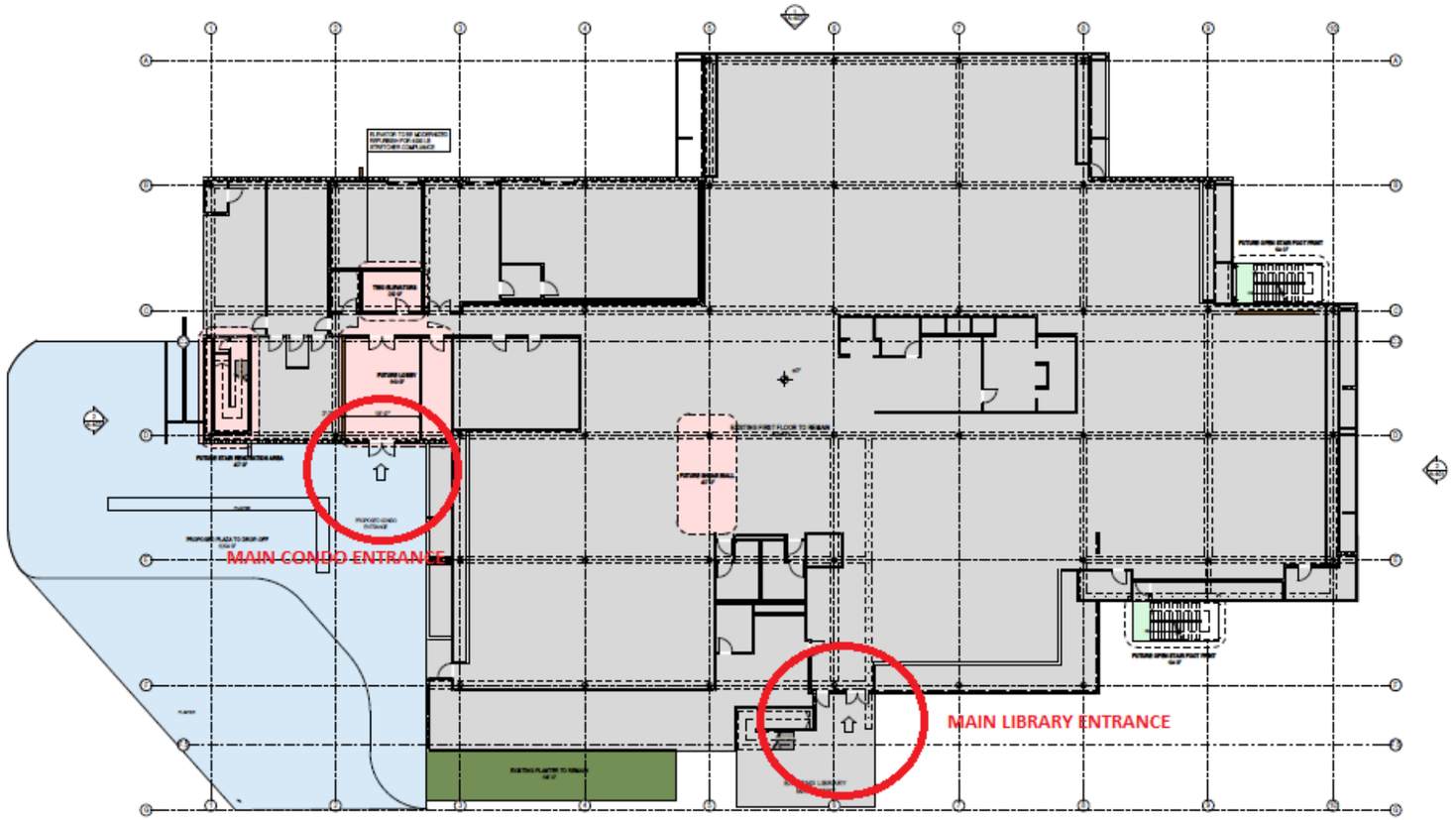
revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

4.0 Architectural Concept:

The intent of this feasibility study is to maintain as much open space as possible and to design a new affordable housing structure on top of the existing West Dade Regional library structure.

The proposed design utilizes the air rights above the existing library while attempting to minimize the impact to the active library. It is critical to note up front that the full impact of the addition on the library will not be will not be definitively quantifiable in terms of duration of time and scope of area until the design progresses.

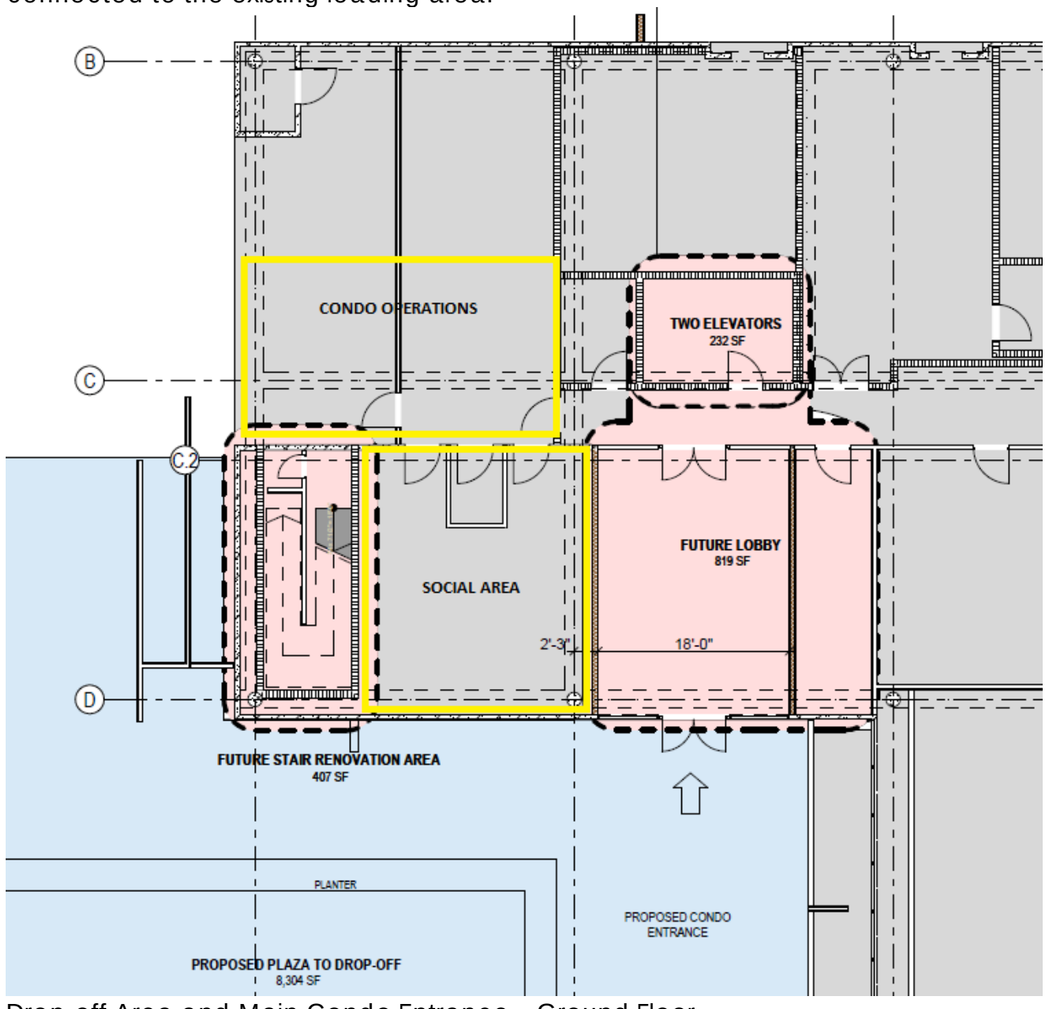
It is important to separate the main entrance of the residences from the existing library entry to allow for two distinct nodes for drop-off areas to reduce potential congestion. The proposed residential entry utilizes a portion of the existing structure where there are currently back of house functions rather than impacting main library uses. While there is currently extensive on-site parking, we are proposing to supplement the on-site parking with the allowable surface parking on the FPL easement. It is preferable to dedicate the parking closest to the proposed entry for the elderly affordable housing occupants. The new surface parking can supplement the libraries parking needs.



Existing Ground Floor Plan – Proposed Separate Entrances

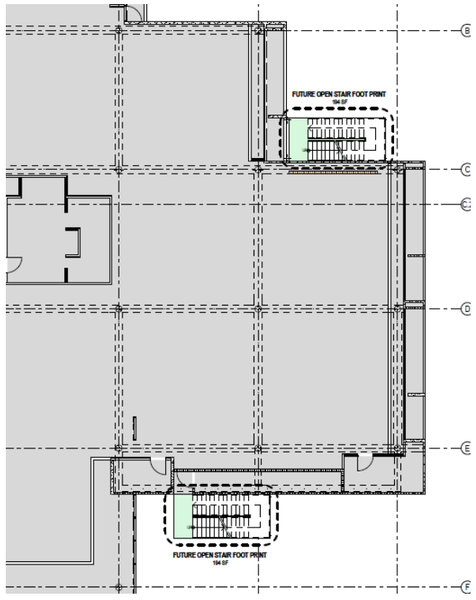
revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

Adjacent to the building entry, the support rooms for the housing complex will include a social room, management office, main laundry, and mailroom. Trash is proposed to be connected to the existing loading area.



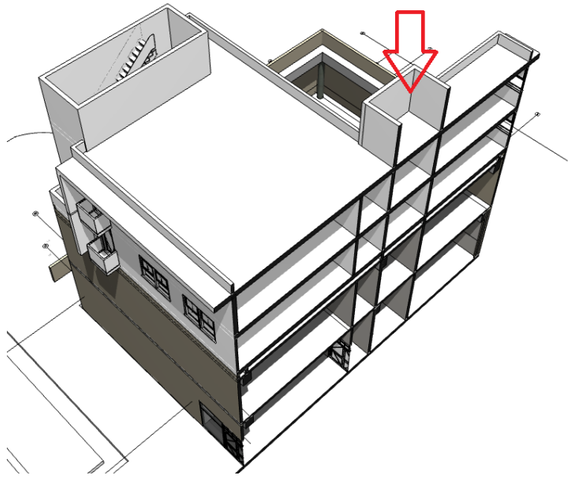
Drop-off Area and Main Condo Entrance – Ground Floor

There are additional impacts on the lower level of the building for new stairways for means of egress and conveying systems for required accessibility.



New Stairs to be added at north facade.

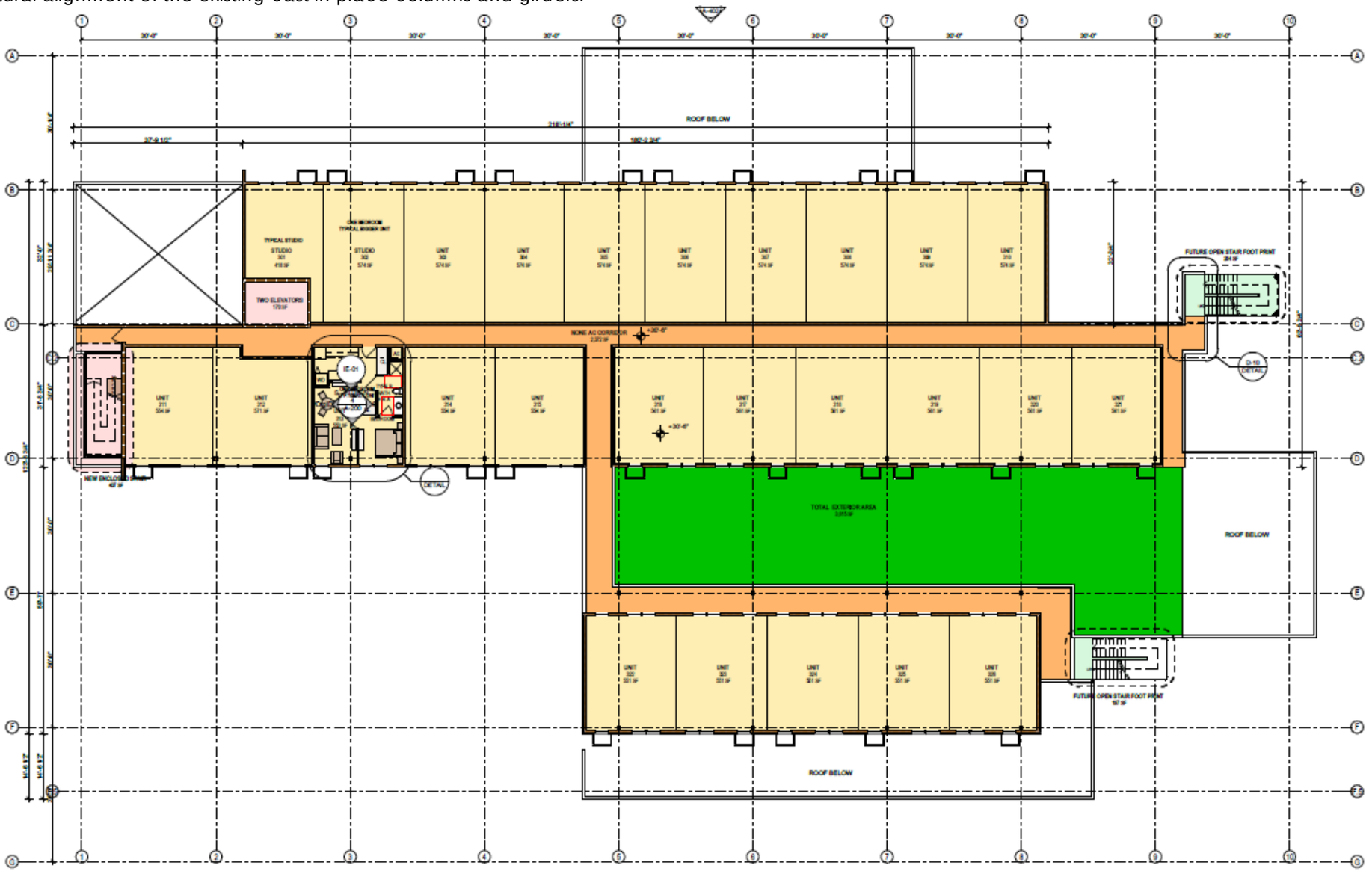
The existing elevator in the south bock of house area will be shut down and replaced by two new 4000 lbs stretcher compliant elevators. A single could be provided, but is not recommended due to concerns for redundancy in elderly housing.



Existing elevator footprint to be rearranged.
Existing south stair to be continued to roof.

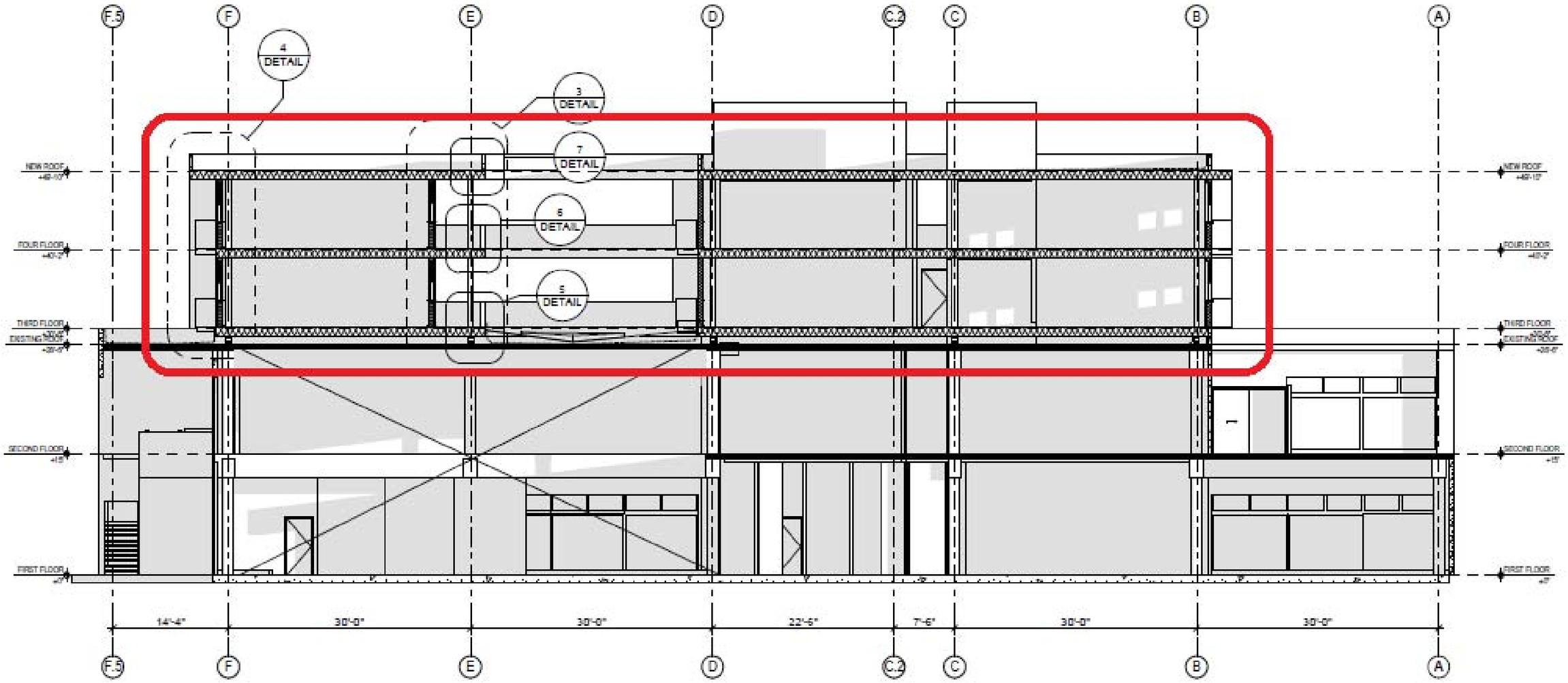
revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

We have proposed two residential floors arranged in two masses that are connected by an interior corridor. The placement and sizing of these masses is predicated by two key components. The first being the structural alignment of the existing cast in place columns and girders.



Typical Floor Plan Shows 26 Units per Floor for a total of 56 units developed in two floors.

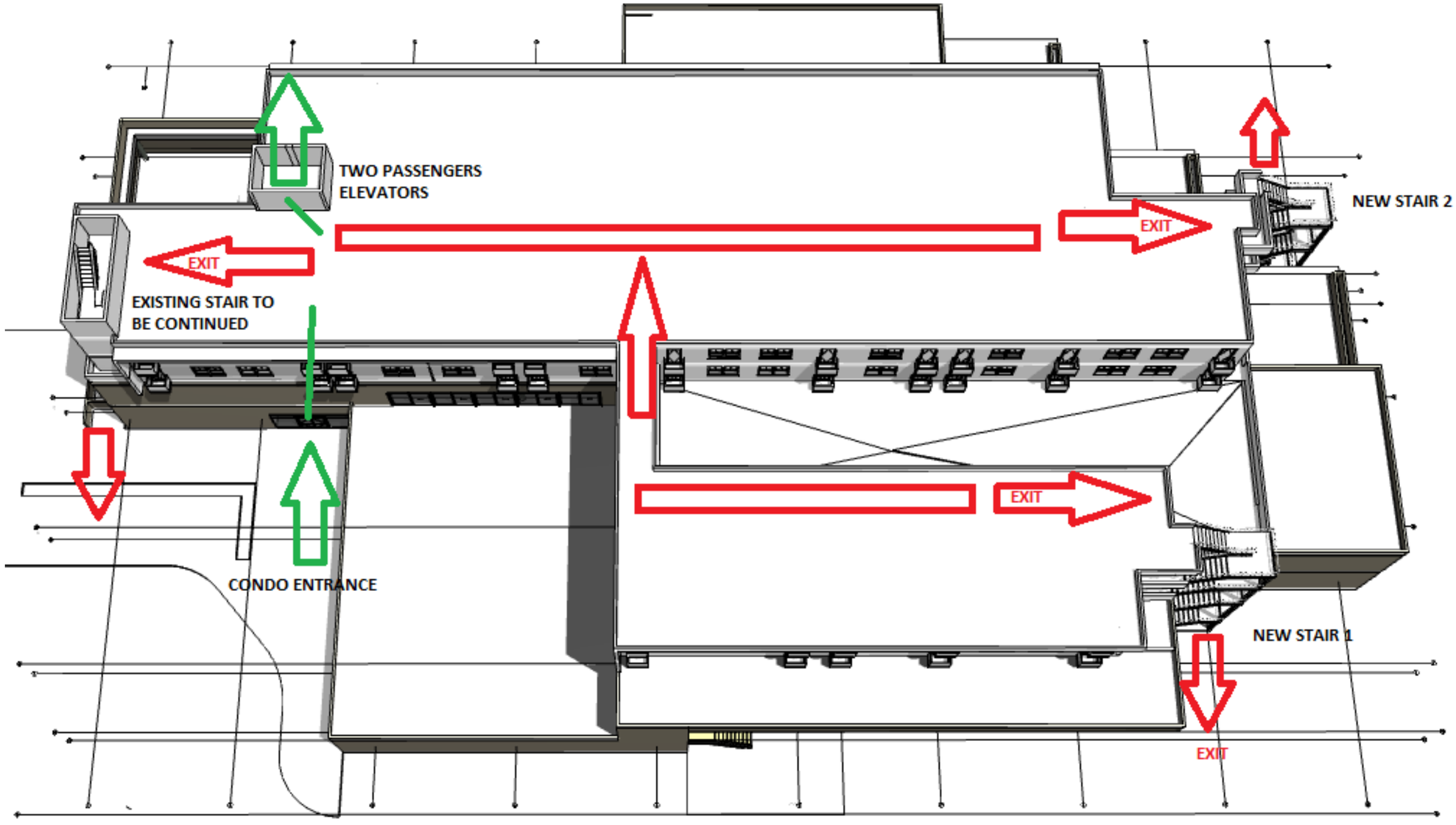
revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133



Typical building section shows the addition of two floors on top of existing library.

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

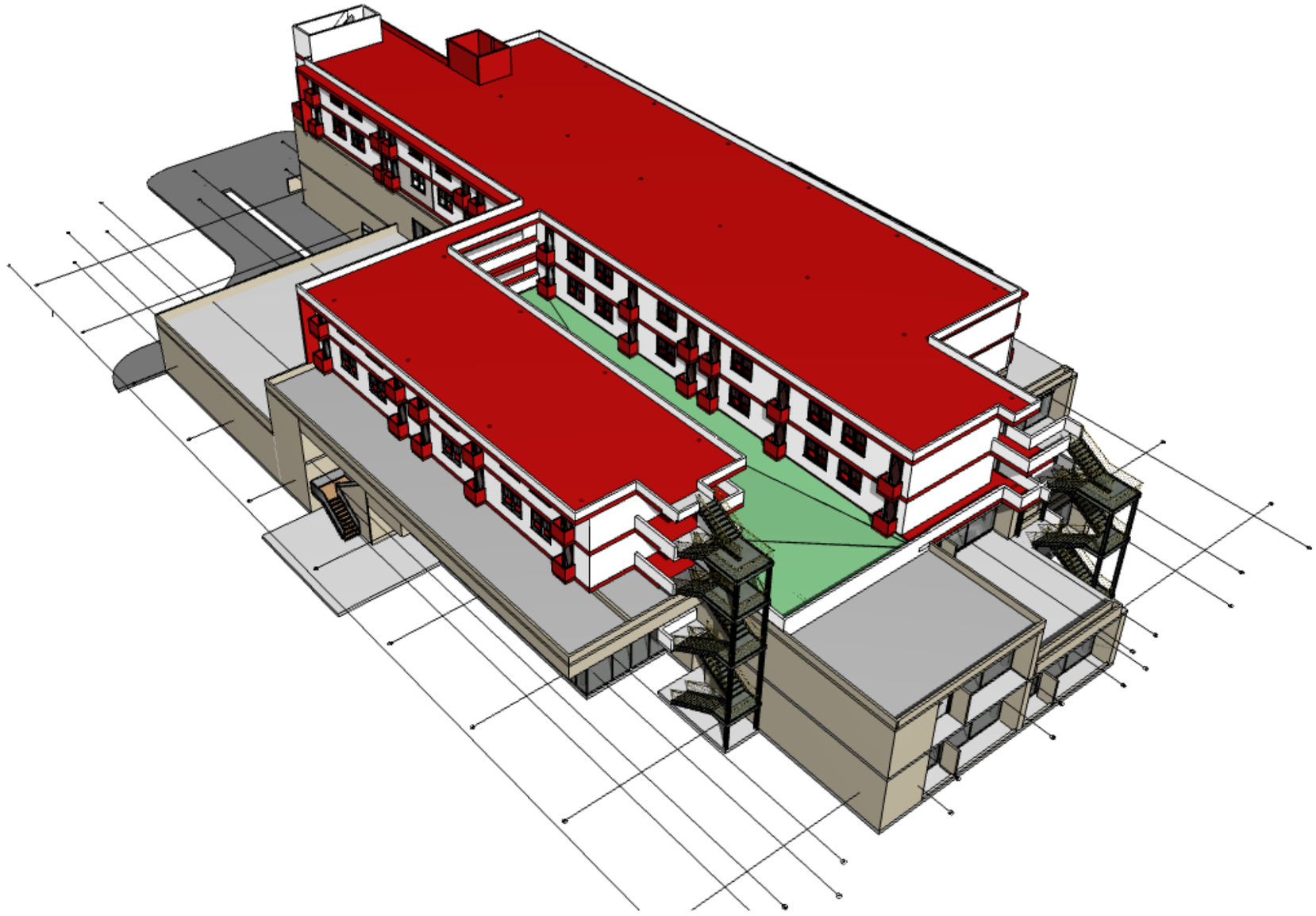
The second key component is life safety requirements for means of egress which determined stair locations and quantities.



Means of Egress Diagram and Accessible Route

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

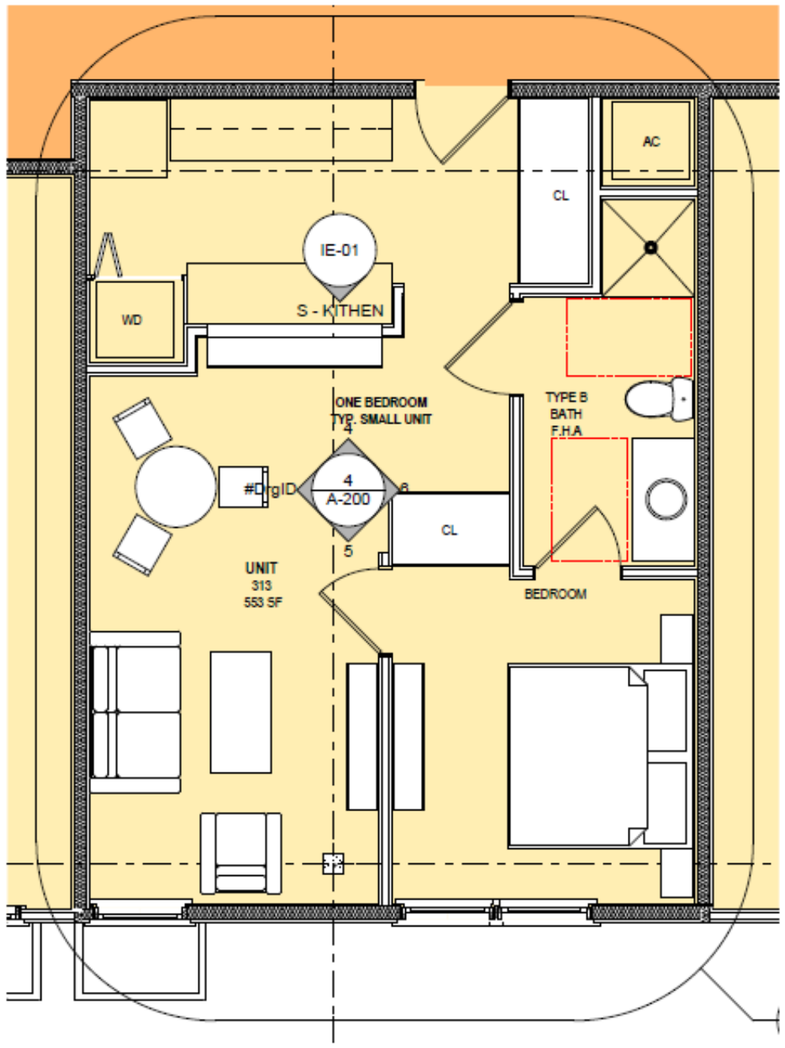
The conclusion of the massing studies along with these structural considerations permit a maximum of 26 residential units per level for a total of 50 one bedroom units and 2 studio units.

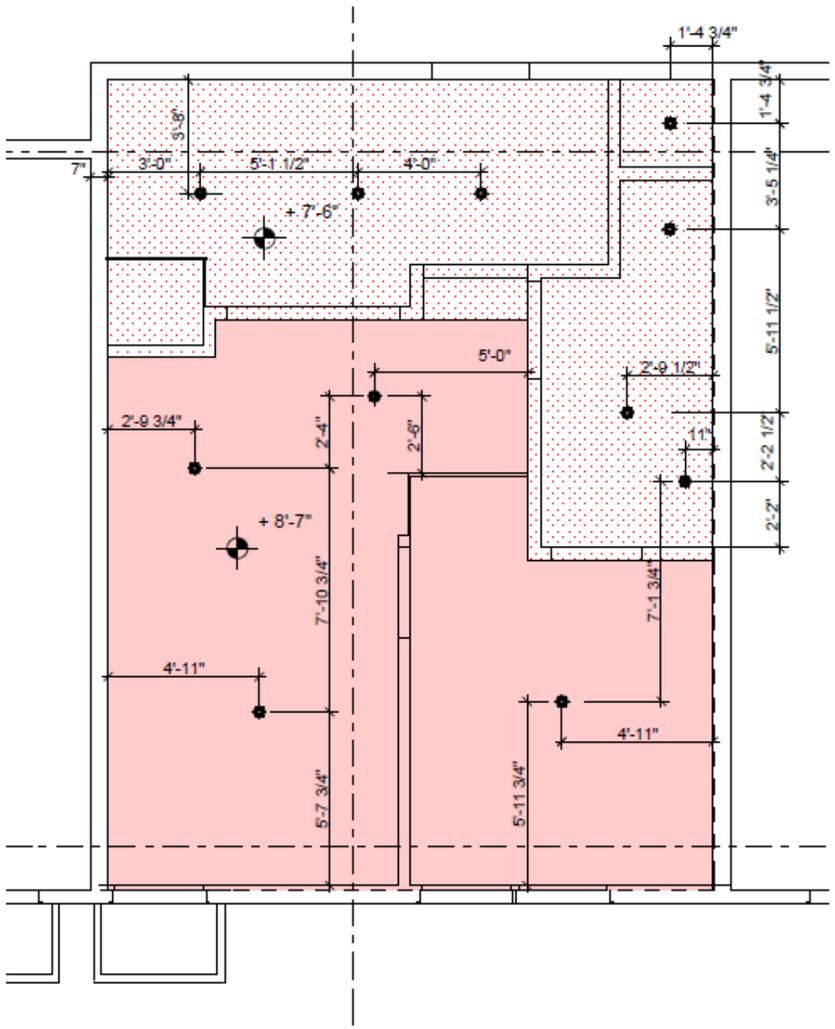


Colored axonometric to show the separation between floors only. Final architectural detailing will differ.

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

The minimum unit size per Miami-Dade Zoning is 550 SF for a one-bedroom unit. The studios provided in this study are approximately 400 SF and one-bedroom units of approximately 550 SF. Each unit would have minimum headroom of 7'-6" at unit entries, 7'-0" at kitchens and bathrooms, and 8'-4" at living and bedrooms. The head rooms were limited to the minimum required by code and are based on the premise of lowering the building to limit wind loads and impact on the structural loads transferred to the existing structure.

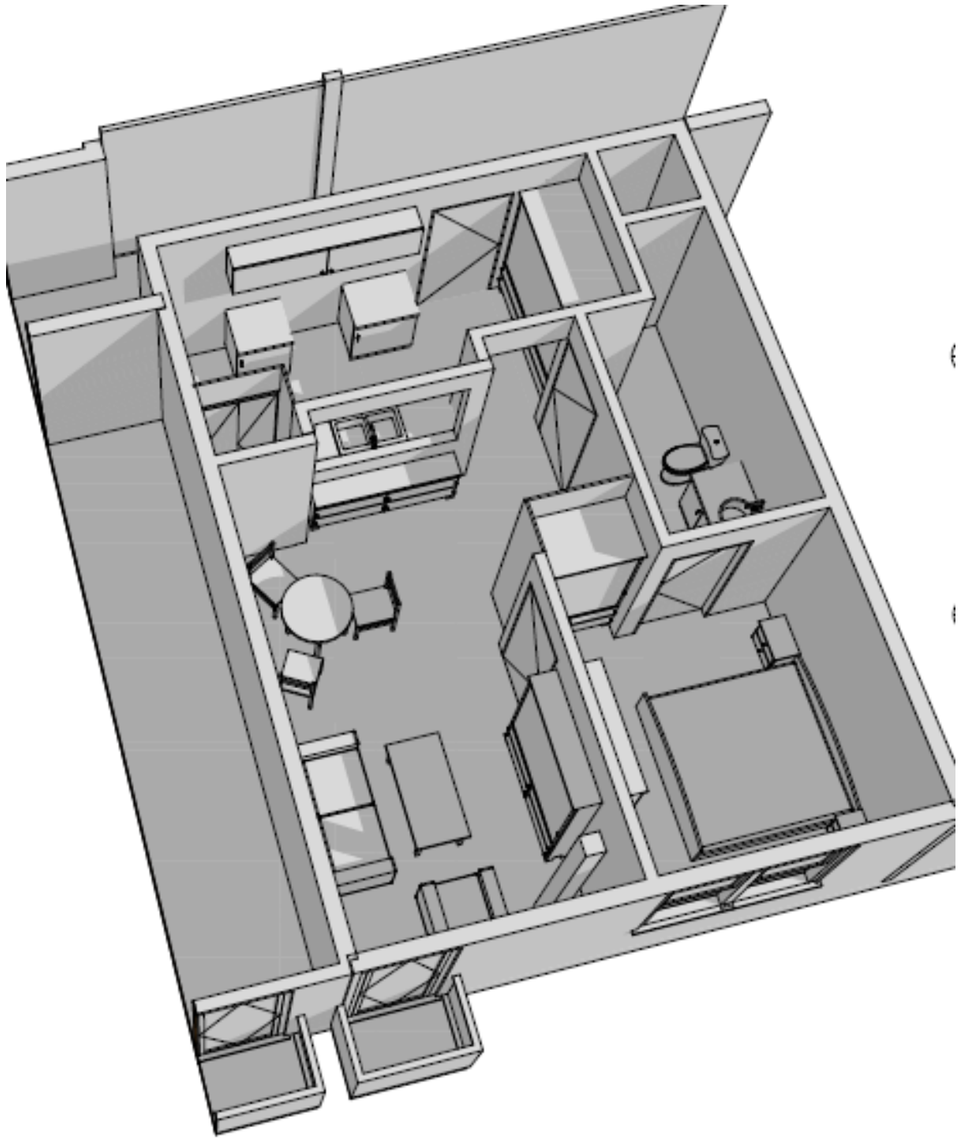


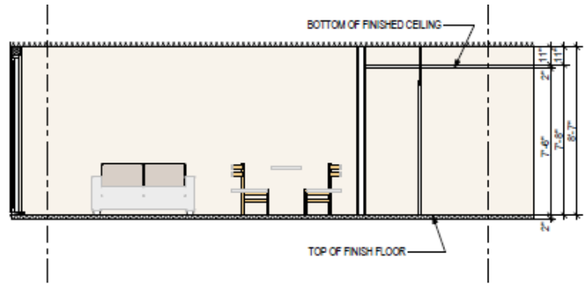


Typical One Bedroom Unit Apartment (Floor and Ceiling Plan) to comply with Residential Building Chapter from FBC 2010 and Fair Housing Act as required by the State of Florida.

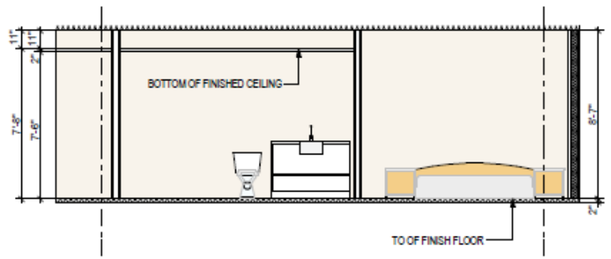
revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

Typical Unit Axonometric and Interior Elevations.

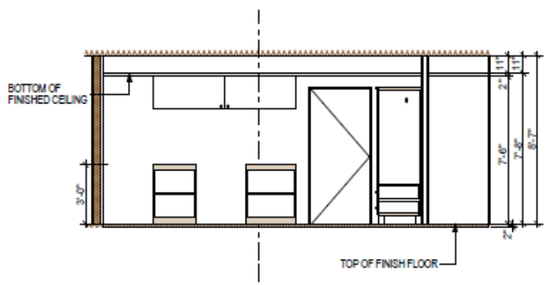


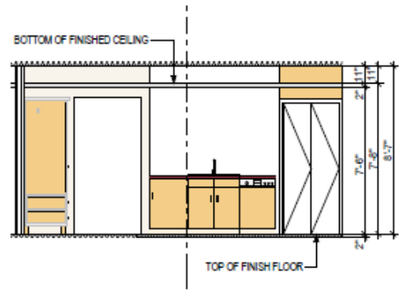


5 A-200 E - ROOM ELEVATION
SCALE: 1/4" = 1'-0"

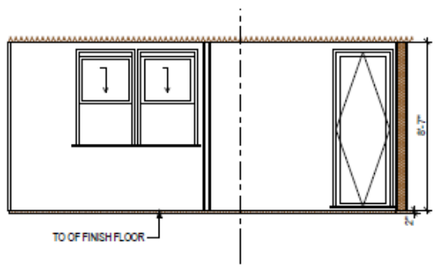


6 A-200 W - ROOM ELEVATION
SCALE: 1/4" = 1'-0"





7 A-200 E - KITCHEN
SCALE: 1/4" = 1'-0"

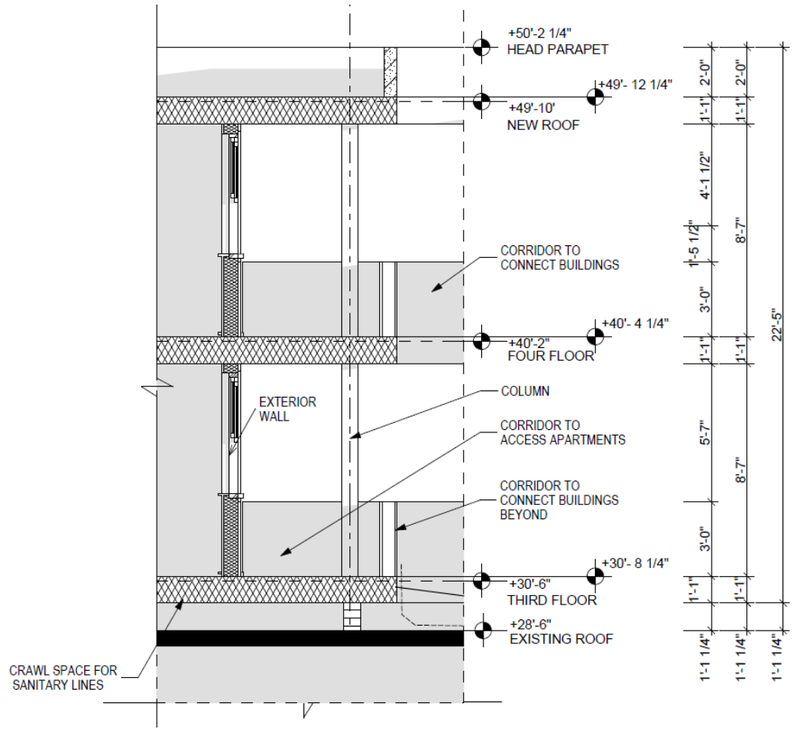


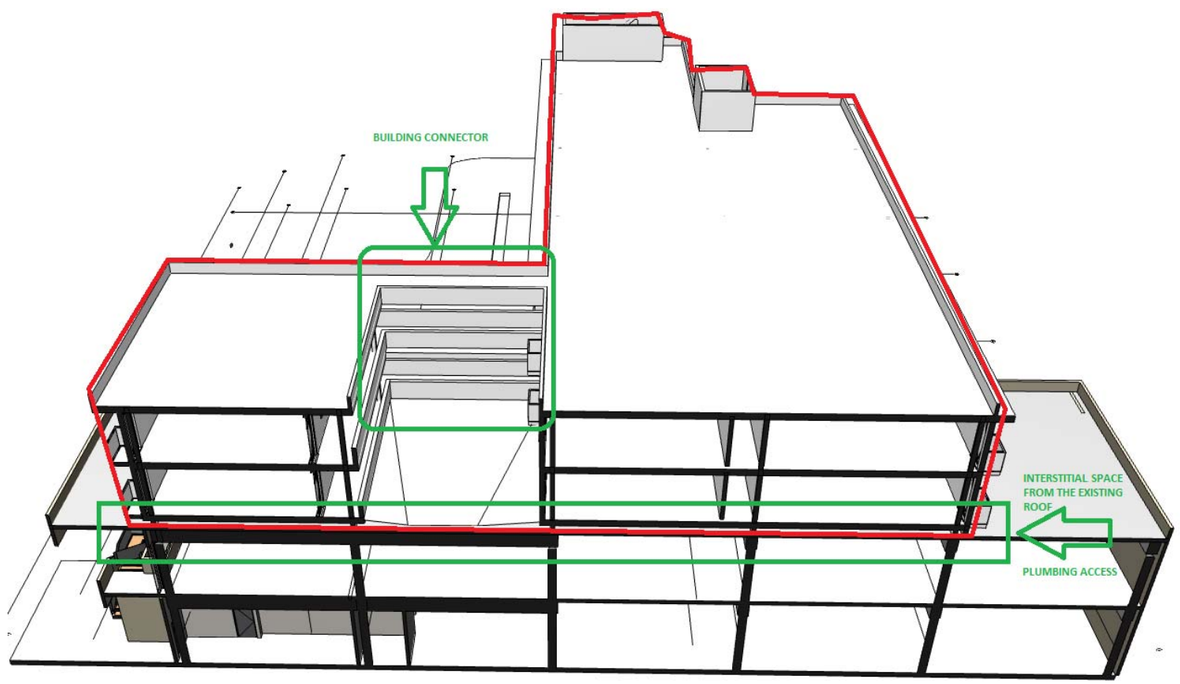
revuelta architecture international, pa
http://www.revuelta-architecture.com
t. (305) 590-5000
f. (305) 590-5040
2950 sw 27th ave
miami, fl – 33133

5.0 Building Construction Type:

Typical construction assemblies of cast-in-place (CIP) concrete and concrete masonry units (CMU) were producing loads that would require extensive structural modifications to the existing building and foundations. Therefore, alternative construction assemblies had to be considered. This resulted in the proposed light gauge metal, wood sheathing and stucco assembly for perimeter walls. Wood joist construction is proposed for floor and roof framing.

This construction methodology is type IIIA sprinklered building construction. The main occupancy for the residential addition is R-2 which requires a 2 hour fire rating but allows for 1 hour fire rating as we have proposed a fully sprinklered building.





Interstitial Space to accommodate new plumbing and utility lines for new addition.

This system minimizes the impact of penetrations on the existing roof and structure, creating an interstitial space between the floor of the proposed residences and the libraries roof. The interstitial space provides an area for utility lines to be run and maintain separate systems for the library and the proposed housing.

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

6.0 Impact on Existing Library:

The concept is predicated upon attempting to limit the impact of construction on the public areas of the library. The existing roof has limited utilities. The proposed structure does not impact the existing cooling tower and the proposed construction assembly allows for the majority of the existing roof drains to be maintained. However, some of the roof drains may need to be relocated based upon field verification. In addition, we recommend that the entire roof membrane be replaced due to impacts of the construction. Some of the operational rooms, such as the existing Extension Department will be shutdown permanently and reutilized for the residential entry, social room and management office.

An alternative means of egress will be required during construction for the second floor as the existing stair is proposed to be reconfigured. The alternative would be to limit capacity to less than 50 people on the second floor during construction. These means and methods will need to be discussed in greater detail with the county and contractor.

Per the structural report, the piles and pile caps along gridline “C” will need to be improved by the addition of 1 to 2 piles to each column. In addition, columns within the existing library will need to be strengthened. The strengthening of the columns can be accomplished by a fiber wrap, concrete collar or steel collar. Due to the scope of work and the intensity of construction (noise, dust, and equipment), we recommend that the library does NOT remain operational to the public during this stage of construction. The duration of the closure is difficult to pinpoint at this time, but this will be a matter of months rather than weeks.

It is realistic, as per any renovation\addition, that as the project progresses through design and construction, unforeseen conditions will extend the scope and time that the library is impacted.

The Florida Building Code establishes Levels of Alterations. Initially, the goal was to provide the County with a feasible option to limit the Level of Alteration to a Level II which would allow for many of the existing parameters to be maintained. However, based on the estimated cost of construction and the scope of work required in the existing building for structural remediation, the proposal will most likely be a Level III Alteration which will require that all existing components be brought up to code. Based on the County’s appraisal information for the property, the market value of the building and land as per the 2013 Assessment Information is $5,058,052.

Beyond the physical impacts, there will also be negative impacts to the level of comfort. During construction, users of the library will experience additional noise, vibrations, construction dust, construction staging, etc.

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

7.0 Structural Analysis.

See the following structural report provided by YH Engineering dated July 11, 2014. See also structural appendices for additional calculations and graphics.

STRUCTURAL FEASIBILTY STUDY
Two Story Apartments Addition
MDC Regional Library
9445 SW 24 St
Miami, Florida 33165

Prepared for
Revuelta Architecture International
2950 SW 27 Ave, Suite 110
Miami, Florida 33133

July 11, 2014

PREPARED BY

www.yhengineering.com
12151 SW 128 Ct., Suite 104, Miami, FL. 33186, (305) 969-9423, Fax (305) 969-945
Youssef Hachem Consulting Engineering

TABLE OF CONTENTS

I. Introduction Page 3
II. Feasibility Methodology Page 4
III. Preliminary Design Analysis Page 4
IV. Conclusions Page 6

Appendix A - Building plans
Appendix B - Columns and Pile Caps loads and calculations
Appendix C - Wind Loads
Appendix D - photos

STRUCTURAL Feasibility Study for
9445 SW 24 St
Miami, Florida 33165

I. INTRODUCTION

General

Per the request of Revuelta Architects International (RAI), we have conducted a visual structural condition assessment on the existing structure located at 9445 SW 24 Street. Moreover, we had reviewed the Structural "As-Built" plans of the building. The purpose of this study is to determine the feasibility of adding two floors for a total 52 living units above the existing building. This study is based on RAI's layouts for the new floors.

Existing Structural System

The Structure is a two story concrete building with double height lobby. The building was built in 1978-1979. The Building Structural System is as follows:

- Foundations:
  - Multiple size pile caps (from 2 pile cap to 8 pile cap)
  - Piles are 14"x14" with 35 Tons capacity
- First Floor:
  - 4" slab on grade
- Second Floor:
  - 4 ½" slab on 12" Pre-stressed Precast Concrete Joist (PCJ).
  - 12" PCJ spaced at 3'-6" and 4'-6".
  - PCJ are supported by Pre-stressed Soffit concrete beams, and cast in place (CIP) beams.
  - Beams are supported by concrete CIP columns mostly 18" diameter that extend down to the pile caps. The columns grid is mainly 30'x30'.
- Roof:
  - Same composition as the 2nd floor.

The walls of the structure are precast concrete wall panels.

New Structural System

The proposed two floors addition is proposed to be light gage steel stud construction that will provide the needed structural capacity with minimal impact on the existing structure. The added 3rd floor will have its floor plate above the existing roof to allow of plumbing, with light gage metal framed walls supporting the floor above. Similarly, the fourth floor walls will be supporting the roof of the new addition. The loads transmitted through the existing building will be through the columns system of the building, avoiding any loading of floor joists and beams. The loads carry through the columns down to the pile caps and piles of the existing building.

II. FEASIBILITY METHODOLOGY

We visually inspected the site to determine existing conditions. Moreover, we reviewed the As-built plans of the building as provided to us by RAI's office. The As-built plans are by the Architects office Ferendino/Grafton/Spillis/Candela and dated 3/5/1979.

We calculated the existing loads of the building, Live loads and Dead loads. Then we calculated the additional live and dead loads from the 2 floor addition. The total loads of the structure were compared to the capacity of the existing piles to determine if they are capable of carrying the additional loads.

Wind loads were calculated based on the existing building alone, and with the additional floors.

III. PRELIMINARY DESIGN ANALYSIS

This analysis is preliminary in nature, and is for the purpose of the feasibility study. A more rigorous analysis will be required during the design of the addition. As mentioned earlier the loads of the existing structure and new structure were added to determine the capacity of the pile caps

The Design codes used as guidelines are:

- 2010 FBC, Florida Building Code (2010).
- ASCE 7-10, Minimum Design Loads for Buildings and Other Structures, by the American Society of Civil Engineers. (2010).
- ACI-318-08, Building Code Requirements for Structural Concrete and Commentary, by the American Concrete Institute (2008).

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

Gravity Loads

The Existing live and dead loads used are as follows:

Level	Dead + Superimposed Dead Load [PSF]	Live Load [PSF]	Comment
New Roof	35	30	10 DL+ 25 SDL
4th FLR	35	40	Corridors + stairs 100 PSF LL
3rd FLR	35	40	Corridors + stairs 100 PSF LL
Existing roof	86	0	No live load on existing roof
2nd FLR	86	150	
1st FLR	75	150	No load on pilecaps from this flr

The dead loads were calculated based on the structural systems in the As-Built plans, and the live loads are based on FBC 2010. The live and dead loads were calculated and imposed on the columns based on the column spacing in the existing structure which is a 30' square grid.

The column loads on the building is mainly on grid lines (GL) B,C,D,E (see Appendix A), and GL 1 through 9. The Columns and pile cap loads table in Appendix B summarizes the loads on the columns. Moreover, it summarizes the loads on the pile caps.

The table compares the loads on the pile caps versus the capacity based on the As-Built plans. The table shows that pile caps on GL C-3, C-4, C-5, C-6, C-7, C-8, and D-7 are loaded beyond their capacity. Additional two piles are needed for each pile cap, except for D-7, which requires additional one pile.

Based on the As-builts the concrete used for the columns is 4000 PSI concrete, and 60 KSI reinforcing steel. Moreover, based on the column schedule on sheet S-7, there are 18 types of columns that are loaded by the new addition. Mostly the columns are 18" diameter columns that are braced at the second level. However, there are some columns that are not braced at the second level and are supporting the roof (lobby columns). Moreover, there are some square columns in the office areas. The reinforcing rebars vary in the columns from 6#6 to 10#11.

The table in Appendix B details all the column types, unbraced length, reinforcing rebars, superimposed loads, and if the columns are adequate to support the additional loads. Moreover, each column analysis is included in Appendix B.

It is noteworthy to mention that although there is 30'x30' grid, GL E/7 does not have a column or pile cap due to the lobby architectural configuration.

Mostly, all the columns are capable of carrying the additional loads except for columns C-2 through C-8, F-4, F-5, and F-7.

Column and Foundation Capacity Plan in Appendix B (Marked up As-Built sheet S-1) shows the columns and pile caps that need reinforcing, mainly along GL C.

Wind Loads

Wind loads calculations were performed on the existing structure, and on the new structure. Please see Appendix C for wind loads calculations

The calculations are based on FBC 2010 and ASCE 7-10. The parameters are as follows:

- Wind Speed: 175 MPH
- Category: II
- Exposure: C

We need to transfer the additional lateral load exerted on the structure due to the wind loads from the top floor down to the foundations. We will use the vertical circulation elements of the building (North Stair Case, South Stair Case, and the elevator shaft). However due to the size of the building, we most probably need to add a shear wall along GL 5 between GL's C and D.

IV. CONCLUSION

In conclusion, for the two stories to be added on top of the existing structure, certain columns and pile caps (specially on GL C) have to be reinforced. Moreover, a shear wall has to be added along GL 5. The existing structure have to be upgraded to current building code, as this addition would be Level III alteration under the existing structures code.

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

8.0 MEP Analysis:

The proposed residential building provides AC units in the exterior access corridors to allow for an ease of maintenance personnel and to optimize the unit's square footage. See the following MEP report provided by PJV Engineering Inc. dated July 11, 2014.

PJV ENGINEERING, INC.
Mechanical & Electrical Engineers

July14, 2014

West Regional Library Narrative
9445 SW 24th St., Miami, FL

Introduction:

The following preliminary narrative outlines the existing and proposed MEP/FP systems and estimated infrastructure requirements for the new 52 living units above the existing two story library; it will be distributed in two stories, 26 units each on the third and fourth floors. Note that this report is based on a preliminary site visit, limited as-built (Plumbing), preliminary schematic plans provided by Revuelta and Associates and limited knowledge of the program for the building; no ME/FP as builts were available. As such, the intention of this document is to provide a general idea rather than specifics on the MEP/FP design of the future addition.

General Overview:

All mechanical and electrical future work shall conform to the applicable requirements of the following:

- Florida Building Code 2010.
- National Electric Code, 2008
- American National Standards Institute
- American Society of Heating, Refrigeration and Air Conditioning Engineers (Handbooks, Standards 15, 55, 62.1, 90.1 current editions)
- National Fire Protection Association, Current Edition
- Sheet Metal and Air Conditioning Contractors National Association

MECHANICAL SYSTEMS

The existing 2-story building is equipped with a chiller plant consisting of three chillers, chilled and condenser water pumps and one cooling tower. Existing chiller plant was designed for the library building, as per maintenance personnel it is operating at full capacity.

The main existing mechanical chiller plant and A/C system will not be affected under this remodeling, however, the existing exhaust system will be affected, it will require replacing (9) existing roof exhaust fans serving the building with in-line fans in the second floor ceiling space, exhaust ductwork to be re-routed to discharge on the facades with new side wall openings and louvers. In addition, there is one DX rooftop unit on the south west corner serving that area which will require to be removed and replaced with an horizontal AHU within the second floor ceiling space to serve this area. These modifications will have to be done before the construction for the above floors take place. Estimated cost for these modifications is $70,000.

For the new third and fourth floor apartment units, new DX split air conditioning systems are proposed, Air Handler Units in apartments and condensing units on roof, estimated size of 1.5ton for each A/C system. Corridors to be open ventilated non a/c.

8300 NW 53rd St, Suite 350, Doral, FL 33166 Ph: 305-742-2112 Fax: 305-884-1611 info@pjveng.com www.pjveng.com

Ductwork to be fiberglass for the apartment units. A new DX mini-split system for the elevator machine room as required. Elevator shaft will require a vent opening on top of the shaft. The power usage of the air conditioning system will be metered individually for each apartment. It is assumed that each apartment will have at least 3% of window area to avoid ducting outside air directly in to the apartment units.

Exhaust ducts from toilets to be discharged on wall with wall caps, avoiding rated chases and roof penetrations. Soffits may be required to run the exhaust duct to the exterior walls. Kitchen to be equipped with re-circulating range hoods.

Refrigerant lines to be copper piping from Air Handler Units in apartments to the condensing units on roof. Condensing units to be mounted in pre-fabricated aluminum stand with approved MDC NOA.

ELECTRICAL SYSTEMS

Electric Service:

The existing electric service for the library is a 3,000 amps @ 480-3P service, this service is being fed from an existing FPL vault located on the ground floor south west corner. Existing switchgear located in the existing electrical room north of the FPL vault, this service is feeding the existing library and is estimated to be full.

For the additional two floors with 52 living units the following electrical load is estimated:

Apt Units 3rd Floor	30kva x 26apts =780kva x 0.34 (demand as per NEC220.84)	= 265.2 kva
Apt Units 4th Floor	30kva x 26apts =780kva x 0.34 (demand as per NEC220.84)	= 265.2 kva
Common areas/House panel	20.0 kva	= 20.0 kva

Total Load = 550.4 kva = 1,527 amps @ 208v-3P

The main feeders would have to be coordinated with FPL for voltage and size availability from existing FPL vault to provide a 1,600amp @ 208v-3P service. For the distribution, a new 1,600amp switchgear panel with three main breakers for services above would be required. In each floor one electrical room is required to locate the main disconnect and meters, 27 meters (26 apt + house) in third floor, 26 meters in fourth floor for apt. units.

The existing main electrical service serving the library will not be affected during the new construction; the new addition will require a new service and main panel from the existing FPL vault as described above. Only modifications required will be to re-connect the (9) relocated exhaust fans and (1) rooftop A/C as described in the mechanical section above.

The elevator to be replaced to serve the whole building, including the library, power upgrade will be required re-using same ckt and panel.

8300 NW 53rd St, Suite 350, Doral, FL 33166 Ph: 305-742-2112 Fax: 305-884-1611 info@pjveng.com www.pjveng.com

Panelboards:

Distribution panel boards for each apt. units and house panel, estimated size 100amps @ 208-1P, 24ckts. Panel boards will be mounted flush for the apt. units, house panel surface mounted in third floor electrical room.

Raceway:

EMT with compression fittings or set screw fittings will be the raceway system generally employed. Set screw fittings will only be allowed when the branch circuits has a ground conductor routed with the circuit conductors.

Galvanized Rigid Steel (GRS) will be employed below ground floor or grade and Intermediate Metallic Conduit (IMC) above floor for classified locations.

Pull and junction boxes will be provided where needed. Outlet boxes will be 4" or 4-11/16" square. All boxes will be steel.

For telephone communications and computer data cables systems PVC will be employed below ground floor or grade and electric metallic tubing above floor.

Wiring:

Copper conductors will be used throughout. Insulation will be NEC type THHN or THWN for most locations. Conductors installed underground or in wet locations will be THWN or XHHW.

The minimum size wire for power circuits will be #12 AWG. For control circuits, #14 may be used. The wiring size and types for various other systems such as for fire alarm will be as required by those systems and will comply with code and manufacturers recommendations.

Wiring less than #8 AWG will use solid conductors. Wiring #8 or greater will use stranded conductors.

Wiring Devices:

Switches will be 20A, 120v, quiet operating type, white. Receptacles will be duplex in general 20 amps, 120 volts, white. GFI type will be used in wet locations and where required by code. Special purpose receptacles will be of ampere and voltage ratings and configuration as required by the appliance or load they must serve.

Plates will be unbreakable thermoplastic and colored to match device. Switches will be mounted vertically at 48" above the finished floor. Receptacles will be mounted with the long dimension vertical and the 'U' slot at the top and will be mounted at 18" above the finished floor, except in such cases as above counter tops, etc.

Lighting:

In general for interior will utilize fluorescent fixtures. Lighting will be controlled by room switches. Lighting will employ 120 volt circuitry. It is considered that the existing parking lighting is adequate for the new addition, it may have to be verified and upgraded as required.

8300 NW 53rd St, Suite 350, Doral, FL 33166 Ph: 305-742-2112 Fax: 305-884-1611 info@pjveng.com www.pjveng.com

Telephone and Data:

Telephone and data outlets will consist of a 4" or a 4-11/16" square box with a ¾" (or as noted) empty conduit stubbed into an accessible ceiling. Cat 6 will be provided by the contractor to all telephone and data outlets. A minimum of 2 CAT 6 cables will be provided from each outlet. The contractor will also provide the jacks and plates and patch panels.

Telephone service will consist of 2-4" conduits originating in utility manholes, will require coordination with tel/data utility company.

Fire Alarm:

The fire alarm system will need to be upgraded to add devices and annunciation for the third and fourth floors, these devices to be connected to the library fire alarm system, system to be addressable type. Existing Fire Alarm system will not be affected during the new construction, the new sub-panel and devices for the new construction to be connected to the library system when ready; this cost to be part of the new construction. Automatic fire and smoke detectors, sprinkler flow and tamper connections, manual stations, speakers, etc., all to the extent required by code. The system to comply with the requirements of the Florida Building Code, NFPA72 and the local fire authorities.

Wiring will be NEC type PFLP installed in hung accessible ceilings. In other areas the wiring will be in conduit. The risers will be in conduit and the floor closets will contain terminal cabinets and power supply cabinets for the required strobes.

Lightning Protection:

A lightning protection system in accordance with NFPA 780 will be provided for the new addition unless determined unnecessary by Miami-Dade County. Conductor system will be protecting the structure, consisting of air terminals on roofs, roof-mounted mechanical equipment, parapets, bonding of structure and other metal objects; grounding electrodes; and interconnecting conductors, as per NFPA780, LPI.

Intrusion detection/Secured Access:

There will be junction boxes, empty conduits with pull string provide in the rough-in stated for the users to install their own intrusion detection and secured access system.

PLUMBING SYSTEMS

Sanitary System:

The existing sanitary line serving the existing building is 6"(253fu), as per as-builts available; it leaves at the east side of the building. For the new apartment floors the estimated additional fixtures are:

Each apartment unit: bathroom (5fu)+csk(2)+dw(2)+wm(2) = 11 fu.
Total new fixtures: 52 apt. units x 11 fu/each = 572 fu.

8300 NW 53rd St, Suite 350, Doral, FL 33166 Ph: 305-742-2112 Fax: 305-884-1611 info@pjveng.com www.pjveng.com

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

The total new fixture units for the whole building is 253fu + 572fu = 825 fu, it requires a 8" sanitary line to handle the whole building, existing 6"san will require to be upgraded to 8". For the apartment levels, the 572 fu could collect on the second floor ceiling space with a 6" and go down underground to the east side to connect to an upgraded 8" sanitary service.

The second floor of the library will be affected partially by zones when connecting the sanitary lines from the new construction above in the second floor ceiling space. The cost of connecting these lines and sanitary line upgrade will be part of the new construction. The plumbing roof vent on roof will have to be temporarily re-routed as required to maintain their operation, estimated cost is $30,000.

Sanitary lines shall be PVC schedule 40 underground and cast iron above ground.

Water System:

The existing domestic water service for the existing building is 3", as per as-builts available, it enters the building on the south east corner to serve existing 253fu. The additional 572 fu for the new floors will require minimum 2-1/2", total new fixture units for the whole building is 825 fu, the existing 3"cw service would be adequate to handle this addition.
For metering purposes it could be individual sub-metered, meter in each apartment. Each apartment could have an individual instant hot or tank type to provide hot water.

The second floor of the library will be affected partially by zones when connecting the water lines from the new construction above in the second floor ceiling space. The cost of connecting these lines will be part of the new construction.

Water lines shall be copper piping.

Storm Water Drainage System:

The existing storm drainage system service for the existing building is 12", as per as-builts available, it leaves the building on the east side to serve 25,742 sqft of roof area. Current code allows a 12"SD @ 1/8" LF slope to handle up to 26,650 sqft., final area needs to be confirmed during the design, if area is higher it may need to be upgraded to 14"SD.

The addition will have similar roof area, new storm drainage piping will have to be run collecting the new roof drains going down to the first floor ceiling space to connect to existing/upgraded lines through the floors. The first and second floor of the library will be affected partially by zones when connecting the storm water lines from the new construction above. The existing roof drains may not be affected during the construction, the cost of relocating to the new roof and connecting these lines will be part of the new construction.

Storm water lines shall be PVC schedule 40 underground and cast iron above ground.

Condensate Drainage System:

In the as-builts available could not identify any condensate lines. The new AHUs in the new floors will need condensate risers going down, collecting in the second floor ceiling space, going down to underground to a existing catch basin or new drywells in grassy areas. Condensate lines to be PVC schedule 40 insulated with plenum rated armaflex or copper piping.

The existing condensate lines will not be affected during the construction.

FIRE PROTECTION SYSTEM:

Existing building is equipped with a wet fire protection system, main line size could not be identified during the visit or as-builts. The addition on the upper floors may require fire protection line to be at least 6", if existing line is not 6" it may need to be upgraded during the design. It is estimated that a new 4" service line is required for each of the new third and fourth floors and one 1-1/2" line for each apartment.

During the construction the fire protection system will not be affected, it will require partial interruption when upgrading the main service line for the new construction above; service line upgrade estimated cost is $60,000, including backflow preventer, underground line and line upgrade within the entrance of the building up to the second floor. The cost of this upgrade can be part of the new construction since it will only be required for the new construction.

Fire protection lines to be black steel schedule 40. If approved by MDC, 2" and smaller pipes to be XL pipe.

Cost Estimate:

Overall estimated cost for the MEP/FP system modifications of the existing building is $160,000 as described above.

Overall estimated cost for the MEP/FP systems for the new addition is $ 2,500,000. This includes the upgrade for the main sanitary and storm water lines as described above.

Prepared and submitted by

Pablo Viteri, PE, LEED AP.
Principal

8300 NW 53rd St, Suite 350, Doral, FL 33166 Ph: 305-742-2112 Fax: 305-884-1611 info@pjveng.com www.pjveng.com

8300 NW 53rd St, Suite 350, Doral, FL 33166 Ph: 305-742-2112 Fax: 305-884-1611 info@pjveng.com www.pjveng.com

9.0 Estimated Cost:

The budget currently proposed by Miami Dade County is $4.5 million*. The complexity of the project by developing one structure on top of another existing structure that was not designed with the intent to have additional floors amplifies the cost of a relatively simple program.

To put this in perspective, the program of 50 units (average of 400 SF per unit) provides a total of 20,000 SF. Providing an allowance of an 80% efficiency for habitable spaces, provides a rough estimate of 5,000 SF for circulation and supporting spaces. This means that there would be a rough starting point of 25,000 SF. An assumption based on current market conditions would be that 25,000 SF low-rise structure could be constructed for roughly $150/SF for a total construction cost of $3.75 million*.

The complexity of the proposed structure being built on top of an existing 30+ year old existing building, required modifications to the existing structure, greater site complexities, and atypical systems creates a premium for construction cost. It is estimated that the structural modifications to the existing structure are approximately $15,000 per column and $15,000 per pile cap. There are additional costs at the existing building for the new stairs, elevator shafts, shear walls, shoring etc. PJV engineers estimates the cost of construction for the modifications to the existing MEP services will be approximately $160,000.

It is very difficult to break down the cost of each item at this schematic stage. However, based on the scope, square footage, end use, complexity of building, and prior experience, we can estimate an anticipated cost per square foot for construction. Therefore, the estimated price per square foot of construction is $300/SF. As the proposed project has a program of approximately 36,000 SF for the 52 residential units, the estimated cost of construction alone is $10.8 million. There will be additional budget costs for site and utilities that could increase the construction cost to approximately $12 million*. It must be noted that the construction market is experiencing very high levels of work at this time. Other projects in our office have seen construction costs rise by as much as 20% in the past 6 months.

* Costs are estimated construction costs only. This cost does not include architectural\engineering design fees, development fees, permit fees, testing fees, FF+E fees, data and communication fees, and project management fees. This is an only an opinion of probable cost by the design professionals that should be substantiated with the local market when the project moves forward.

10.0 Conclusion

This feasibility study brought to light several critical criteria:

A. While trying to limit the impact on the existing building, only the minimal number of requested residential units can be achieved.

B. The building construction type is not what would typically be recommended. While the proposed building is a code compliant structure, the lifetime of the structure will be less than a cast-in-place concrete\concrete masonry structure. In addition, there will be greater maintenance costs over the lifetime of the structure.

C. While every attempt was made to limit the impact on the existing library, certain portions of the library will need to be closed. The duration and extent of this impact can not be accurately defined at this time and would need to be discussed directly with a general contractor to discuss phasing of construction and means and methods. The recommended solution would be to close the library for several months to perform the required improvements to the piles, pile caps, columns, improvements to life safety systems, and the addition of elevators and stairs.

The budget of this project is substantially higher than is reasonable. With an estimated construction cost of $12 million dollars, the cost of construction per unit is approximately $230,000 or $418 per SF of unit area. The price per square foot of unit area (the equivalent of dollar per saleable square foot in the private market) is similar or exceeds the cost of luxury high rise residential projects in downtown Miami at current market rates.

It is our office's recommendation that the most reasonable use of County funds would be best allocated for a standalone structure that does not impact the existing Regional Library. This option is entirely feasible by subdividing the property as described in section 3.0 Zoning. By pursuing a standalone alternative, the library can remain operational and the quantity and quality of elderly affordable housing can be maximized.

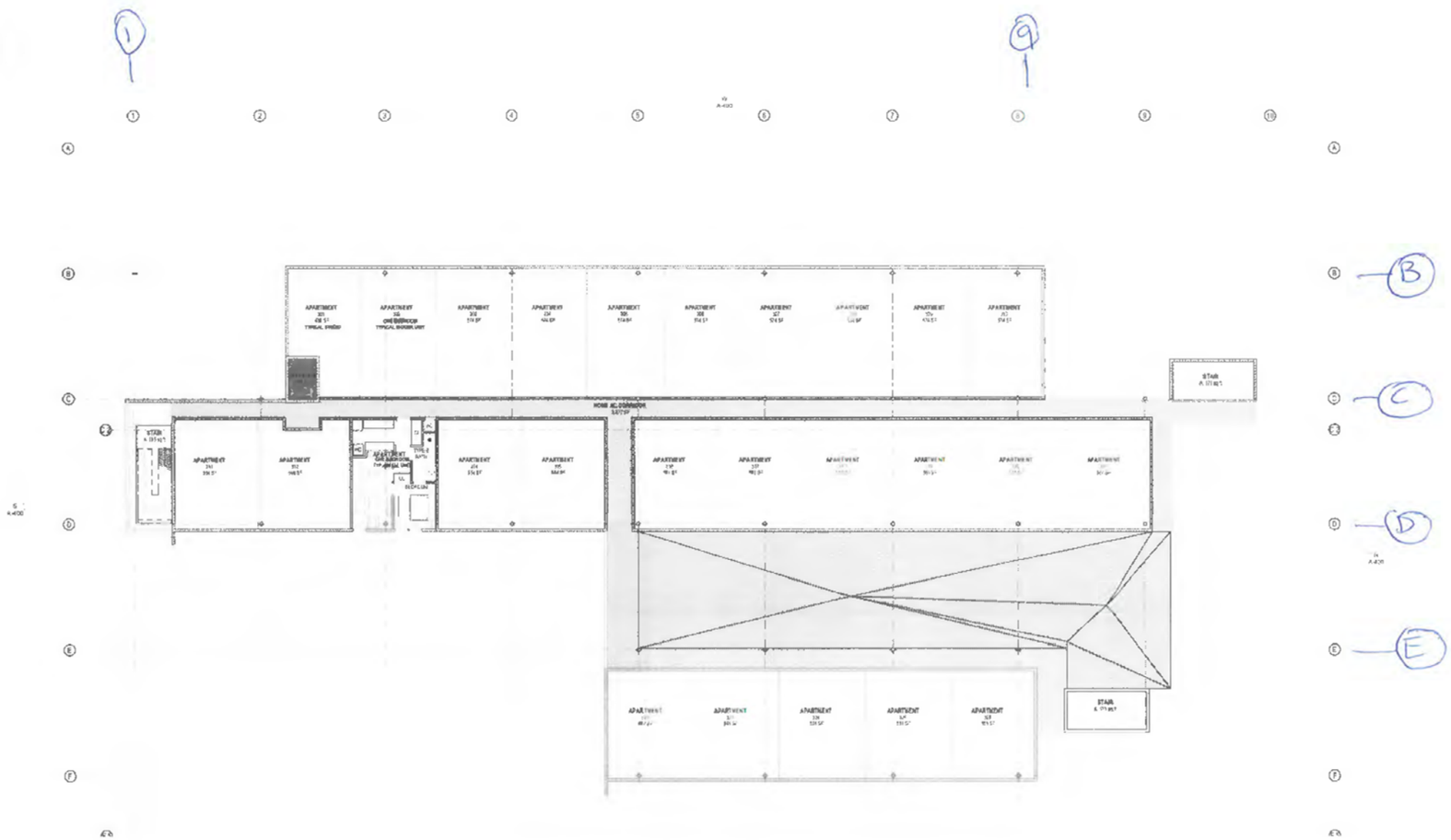
revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

11.0 Structural Appendices

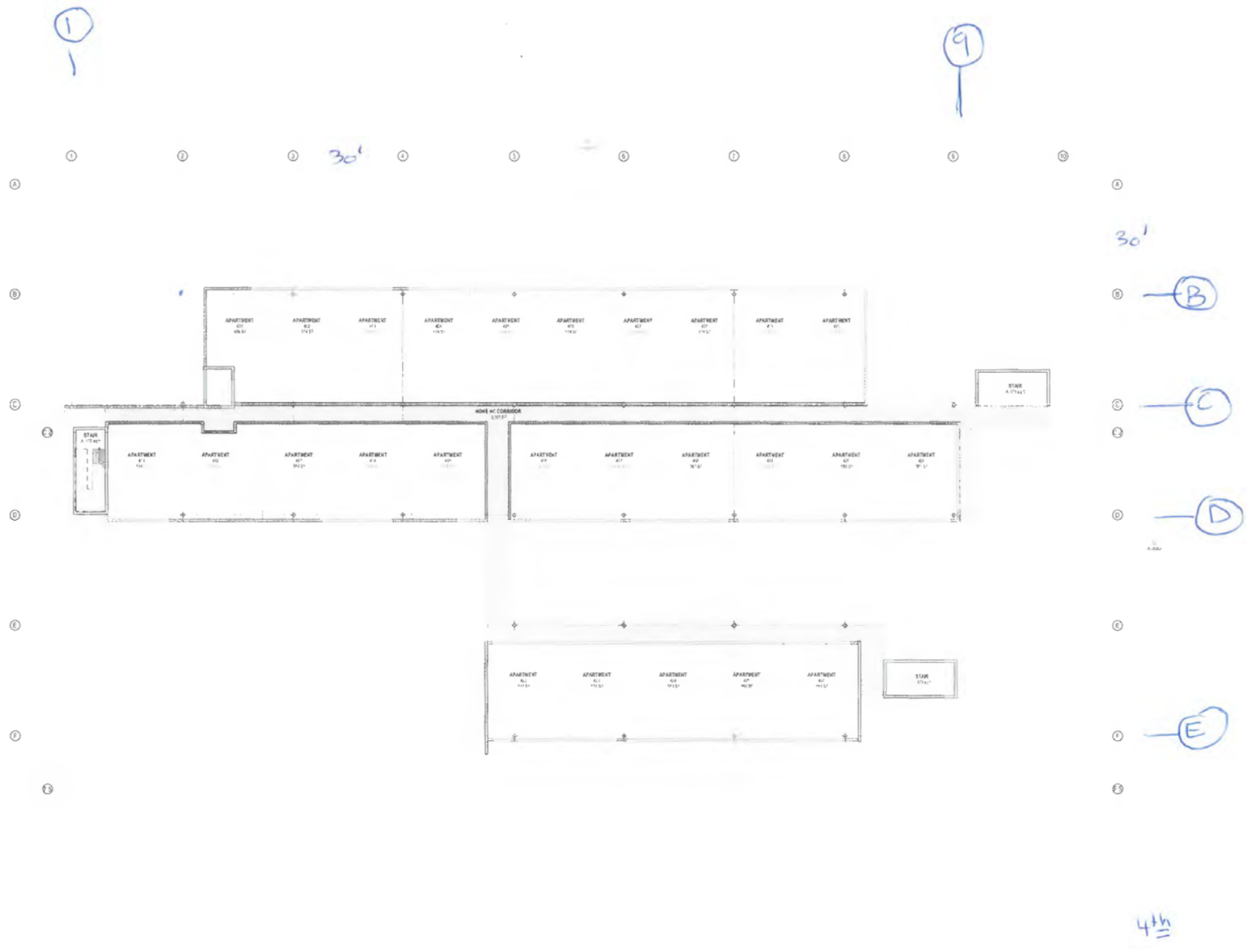
APPENDIX A

BUILDING PLAN

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133



revuelta architecture international, pa
http://www.revuelta-architecture.com
t. (305) 590-5000
f. (305) 590-5040
2950 sw 27th ave
miami, fl – 33133



revuelta architecture international, pa
http://www.revuelta-architecture.com
t. (305) 590-5000
f. (305) 590-5040
2950 sw 27th ave
miami, fl – 33133

MDC Regional Library
2 Floor addition - Columns and Pile Cap Loads

	LL [PSF]	DL [PSF]	PILE CAPACITY =	35 TONS
NEW ROOF	30	35		
3&4 FLR	50	35		
EXISTING ROOF	0	86		
2ND FLR	150	86		

Column	B--2	B-3	B-4	B-5	B-6	B-7	B-8	B-9	C-1	C-2	C-3	C-4	C-5	C-6	C-7	C-8	C-9	C-10	D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8	D-9	E-4	E-5	E-6	E-7	E-8	E-9	F-4	F-5	F-6	F-7	F-8
NEW AREAS [SF]	225	450	450	450	450	450	450	225	225	450	900	900	900	900	900	900	450	450	225	450	450	450	450	450	450	450	225	450	450	450	450	450	225	450	450	450	450	450
Loads																																						
ROOF LL [lbs]	6750	13500	13500	13500	13500	13500	13500	6750	6750	13500	27000	27000	27000	27000	27000	27000	13500	13500	6750	13500	13500	13500	13500	13500	13500	13500	6750	13500	13500	13500	13500	13500	6750	13500	13500	13500	13500	13500
ROOF DL [lbs]	7875	15750	15750	15750	15750	15750	15750	7875	7875	15750	31500	31500	31500	31500	31500	31500	15750	15750	7875	15750	15750	15750	15750	15750	15750	15750	7875	15750	15750	15750	15750	15750	7875	15750	15750	15750	15750	15750
4 FLR LL [lbs]	11250	22500	22500	22500	22500	22500	22500	11250	11250	22500	45000	45000	45000	45000	45000	45000	22500	22500	11250	22500	22500	22500	22500	22500	22500	22500	11250	22500	22500	22500	22500	22500	11250	22500	22500	22500	22500	22500
4 FLR DL [lbs]	7875	15750	15750	15750	15750	15750	15750	7875	7875	15750	31500	31500	31500	31500	31500	31500	15750	15750	7875	15750	15750	15750	15750	15750	15750	15750	7875	15750	15750	15750	15750	15750	7875	15750	15750	15750	15750	15750
4 FLR LL [lbs]	11250	22500	22500	22500	22500	22500	22500	11250	11250	22500	45000	45000	45000	45000	45000	45000	22500	22500	11250	22500	22500	22500	22500	22500	22500	22500	11250	22500	22500	22500	22500	22500	11250	22500	22500	22500	22500	22500
4 FLR DL [lbs]	7875	15750	15750	15750	15750	15750	15750	7875	7875	15750	31500	31500	31500	31500	31500	31500	15750	15750	7875	15750	15750	15750	15750	15750	15750	15750	7875	15750	15750	15750	15750	15750	7875	15750	15750	15750	15750	15750
NEW TOTAL [K]	52.9	105.8	105.8	105.8	105.8	105.8	105.8	52.9	52.9	105.8	211.5	211.5	211.5	211.5	211.5	211.5	105.8	105.8	52.9	105.8	105.8	105.8	105.8	105.8	105.8	105.8	52.9	105.8	105.8	105.8	105.8	105.8	52.9	105.8	105.8	105.8	105.8	105.8
EXISTING																																						
ROOF AREAS [SF]	450	450	450	675	900	900	225	225	450	900	900	900	900	900	900	900	675	225	225	450	675	900	900	900	900	900	900	900	900	900	675	450	900	900	450	900	225
ROOF LL [lbs]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROOF DL [lbs]	38700	38700	38700	58050	77400	77400	19350	19350	38700	77400	77400	77400	77400	77400	77400	77400	58050	19350	19350	38700	58050	77400	77400	77400	77400	77400	77400	77400	77400	77400	58050	38700	77400	77400	38700	77400	19350
2ND FLR AREAS [SF]	450	450	450	675	900	900	900	225	450	900	900	900	900	900	900	900	675	225	225	450	675	900	900	675	450	675	900	900	900	450	0	225	450	900	900	0	0	0
2 ND FLR LL [lbs]	67500	67500	67500	101250	135000	135000	135000	33750	67500	135000	135000	135000	135000	135000	135000	135000	101250	33750	33750	67500	101250	135000	135000	101250	67500	101250	135000	135000	135000	67500	0	33750	67500	135000	135000	0	0	0
2 ND FLR DL [lbs]	38700	38700	38700	58050	77400	77400	77400	19350	38700	77400	77400	77400	77400	77400	77400	77400	58050	19350	19350	38700	58050	77400	77400	58050	38700	58050	77400	77400	77400	38700	0	19350	38700	77400	77400	0	0	0
EXIST. TOTAL [K]	144.9	144.9	144.9	217.4	289.8	289.8	231.8	72.5	144.9	289.8	289.8	289.8	289.8	289.8	289.8	289.8	217.4	72.5	72.5	144.9	217.4	289.8	289.8	236.7	183.6	236.7	289.8	289.8	289.8	183.6	77.4	111.2	144.9	289.8	289.8	38.7	77.4	19.4
COL+ CAP DL [K]	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8
TOTAL LOAD [K]	210.5	263.4	263.4	335.9	408.3	408.3	350.3	138.1	210.5	408.3	514.1	514.1	514.1	514.1	514.1	514.1	335.9	191.0	138.1	263.4	335.9	408.3	408.3	355.2	302.1	355.2	355.4	408.3	408.3	302.1	195.9	229.7	210.5	408.3	408.3	157.2	195.9	137.9
PILE COUNT	5	5	5	6	6	6	7	5	6	6	6	6	6	6	6	6	7	5	3	5	7	7	7	7	4	6	6	7	7	8	0	6	5	7	7	7	4	7
PILE CAP [K]	350	350	350	420	420	420	490	350	420	420	420	420	420	420	420	420	490	350	210	350	490	490	490	490	280	420	420	490	490	560	0	470	350	490	490	490	280	490
PILE LOADING	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	NOT OK	NOT OK	NOT OK	NOT OK	NOT OK	NOT OK	OK	OK	OK	OK	OK	OK	OK	OK	NOT OK	OK	OK	OK	OK	OK		OK	OK	OK	OK	OK	OK	OK	OK
DIFFERENCE [K]	139.5	86.6	86.6	84.1	11.7	11.7	139.7	211.9	209.5	11.7	-94.1	-94.1	-94.1	-94.1	-94.1	-94.1	154.1	159.0	71.9	86.6	154.1	81.7	81.7	134.8	-22.1	64.8	64.6	81.7	81.7	257.9		190.3	139.5	81.7	81.7	332.8	84.1	352.1
COLUMNS																																						
Dia / size [IN]	18	18	18	18	18	18	18	18	18	16X16	16X16	16X16	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18		18	18	18	18	18	18	18
2 ND FLR REINF	6#9	6#6	6#6	6#6	6#6	6#6	6#6	6#6	6#11	4#8	4#8	4#8	6#6	6#6	6#6	6#6	6#6	8#10	6#11	6#6	6#6	6#6	6#6	6#6	6#11	6#6	10#11	6#6	8#11			6#11	6#6	6#8	6#6	8#11	6#8	6#10
1ST FLR REINF	6#9	6#6	6#6	6#7	6#9	6#10	6#11	8#10	6#11	4#10	4#10	4#10	6#9	6#9	6#9	6#11	6#11	8#10	6#11	6#6	6#9	6#10	6#11	6#9	6#6	6#11	6#11	10#11	10#11	10#11		8#11	6#8	6#8	6#8	10#11	6#8	6#10
TYPE	II	I	I	III	IV	V	VI	VII		VIII	VIII	VIII	IV	IV	IV	V	VI	VII	IX	I	IV	V	VI	IV	I	X	VI		XI	XII		XIV	XV	XVI	XV	XII	XVII	XVIII
UNBRACED LENGTH	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'		28'6"	15'	15'	15'	15'	28'6"	28'6"
Column Capacity	OK	OK	OK	OK	OK	OK	OK	OK	OK	NOT OK	NOT OK	NOT OK	NOT OK	NOT OK	NOT OK	NOT OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK		OK	OK	NOT OK	NOT OK	OK	NOT OK	OK

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

APPENDIX B

Columns and Pile Caps loads and calculations

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

Title : **Job #**
Dsgnr: **Date:** 4:11PM, 12 JUL 14
Description :

Scope :

Rev: 580001
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Circular Concrete Column

Page 1
west dade library aew Calculations

Description TYPE I (1st & 2nd)

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Diameter	18.000 in	f'c	4,000.0 psi	Total Height	15.000 ft
Number of Bars	6	Fy	60,000.0 psi	Unbraced Length	15.000 ft
Bar Size	6	Seismic Zone	0	Eff. Length Factor	1.000
Total Rebar Area	2.640 in2	LL & ST Loads Act Separate		Column is BRACED	
Rebar Percent	1.037 %	Spiral Ties Used			
Bar Cover	1.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	151.000 k	151.000 k	k	in

Summary

Column is OK

Column Diameter= 18.00in, with 6 #6 Bars

	ACI C-1	ACI C-2	ACI C-3
Applied Pu : Max Factored	**468.10** k	**158.55** k	**135.90** k
Allowable Pn * Phi @ Design Ecc.	**573.12** k	**619.67** k	**623.99** k
M-critical	44.47 k-ft	15.06 k-ft	12.91 k-ft
Combined Eccentricity	1.1400 in	1.1400 in	1.1400 in
Magnification Factor	1.67	1.23	1.19
Design Eccentricity	1.9008 in	1.4019 in	1.3573 in
Magnified Design Moment	74.15 k-ft	18.52 k-ft	15.37 k-ft
Po * .80	862.43 k	862.43 k	862.43 k
P : Balanced	354.51 k	354.51 k	354.51 k
Ecc : Balanced	6.4162 in	6.4162 in	6.4162 in

Slenderness *per ACI 318-02 Section 10.12 & 10.13*

Actual k Lu / r 40.000 Elastic Modulus 3,605.0 ksi Beta 0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	15.6790 in	16.8990 in	17.0190 in
Phi	0.7500	0.7500	0.7500
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	1.0000	1.0000	1.0000
EI / 1000	5,118.87	3,715.31	3,715.31
Pc : pi^2 E I / (k Lu)^2	1,559.30	1,131.75	1,131.75
alpha: MaxPu / (.75 Pc)	0.4003	0.1868	0.1601
Delta	1.6674	1.2297	1.1906
Ecc: Ecc Loads + Moments	1.1400	1.1400	1.1400 in
Design Ecc = Ecc * Delta	**0.0000**	**0.0000**	**0.0000** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add'l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add'l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Spiral Tie Requirements *per 97 UBC 1910.9.3*

Spiral Tie Bar Size #	3	Min. Spiral Reinforcement Ratio	**0.013**
Gross Area of Column	**254.47** in2		
Core Area Within Spirals	**176.71** in2	Max Spiral Tie Spacing	**2.222** in

Title : **Job #**
Dsgnr: **Date:** 4:11PM, 12 JUL 14
Description :

Scope :

Rev: 580001
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Circular Concrete Column

Page 1
west dade library aew Calculations

Description TYPE II (1st fl)

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Diameter	18.000 in	f'c	4,000.0 psi	Total Height	15.000 ft
Number of Bars	6	Fy	60,000.0 psi	Unbraced Length	15.000 ft
Bar Size	9	Seismic Zone	0	Eff. Length Factor	1.000
Total Rebar Area	6.000 in2	LL & ST Loads Act Separate		Column is BRACED	
Rebar Percent	2.358 %	Spiral Ties Used			
Bar Cover	1.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	106.000 k	106.000 k	k	in

Summary

Column is OK

Column Diameter= 18.00in, with 6 #9 Bars

	ACI C-1	ACI C-2	ACI C-3
Applied Pu : Max Factored	**328.60** k	**111.30** k	**95.40** k
Allowable Pn * Phi @ Design Ecc.	**716.77** k	**740.22** k	**742.90** k
M-critical	31.22 k-ft	10.57 k-ft	9.06 k-ft
Combined Eccentricity	1.1400 in	1.1400 in	1.1400 in
Magnification Factor	1.32	1.13	1.11
Design Eccentricity	1.5050 in	1.2855 in	1.2625 in
Magnified Design Moment	41.21 k-ft	11.92 k-ft	10.04 k-ft
Po * .80	1,024.08 k	1,024.08 k	1,024.08 k
P : Balanced	348.71 k	348.71 k	348.71 k
Ecc : Balanced	8.9554 in	8.9554 in	8.9554 in

Slenderness *per ACI 318-02 Section 10.12 & 10.13*

Actual k Lu / r 40.000 Elastic Modulus 3,605.0 ksi Beta 0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	17.2590 in	17.8490 in	17.9190 in
Phi	0.7500	0.7500	0.7500
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	1.0000	1.0000	1.0000
EI / 1000	5,930.68	4,304.53	4,304.53
Pc : pi^2 E I / (k Lu)^2	1,806.59	1,311.23	1,311.23
alpha: MaxPu / (.75 Pc)	0.2425	0.1132	0.0970
Delta	1.3202	1.1276	1.1074
Ecc: Ecc Loads + Moments	1.1400	1.1400	1.1400 in
Design Ecc = Ecc * Delta	**0.0000**	**0.0000**	**0.0000** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add'l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add'l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Spiral Tie Requirements *per 97 UBC 1910.9.3*

Spiral Tie Bar Size #	3	Min. Spiral Reinforcement Ratio	**0.013**
Gross Area of Column	**254.47** in2		
Core Area Within Spirals	**176.71** in2	Max Spiral Tie Spacing	**2.222** in

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

Title : **Job #**
Dsgnr: **Date:** 4:11PM, 12 JUL 14
Description :

Scope :

Rev: 560001
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Circular Concrete Column

Page 1
west dade library.ecw:Calculations

Description TYPE III (1st fl)

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Diameter	18.000 in	f'c	4,000.0psi	Total Height	15.000 ft
Number of Bars	6	Fy	60,000.0 psi	Unbraced Length	15.000 ft
Bar Size	7	Seismic Zone	0	Eff. Length Factor	1.000
Total Rebar Area	3.600 in2	LL & ST Loads Act Separate		Column is BRACED	
Rebar Percent	1.415 %	Spiral Ties Used			
Bar Cover	1.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	168.000 k	168.000 k	k	in

Summary

Column is OK

Column Diameter= 18.00in, with 6 #7 Bars

	ACI C-1	ACI C-2	ACI C-3
Applied Pu : Max Factored	**520.80** k	**176.40** k	**151.20** k
Allowable Pn * Phi @ Design Ecc.	**586.68** k	**646.90** k	**652.14** k
M-critical	49.48 k-ft	16.76 k-ft	14.36 k-ft
Combined Eccentricity	1.1400 in	1.1400 in	1.1400 in
Magnification Factor	1.80	1.26	1.22
Design Eccentricity	2.0553 in	1.4391 in	1.3871 in
Magnified Design Moment	89.20 k-ft	21.15 k-ft	17.48 k-ft
Po * .80	908.61 k	908.61 k	908.61 k
P : Balanced	352.86 k	352.86 k	352.86 k
Ecc : Balanced	7.1331 in	7.1331 in	7.1331 in

Slenderness *per ACI 318-02 Section 10.12 & 10.13*

Actual k Lu / r 40.000 Elastic Modulus 3,605.0 ksi Beta 0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	15.4290 in	16.9990 in	17.1390 in
Phi	0.7500	0.7500	0.7500
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	1.0000	1.0000	1.0000
EI / 1000	5,118.87	3,715.31	3,715.31
Pc : pi^2 E I / (k Lu)^2	1,559.30	1,131.75	1,131.75
alpha: MaxPu / (.75 Pc)	0.4453	0.2078	0.1781
Delta	1.8029	1.2623	1.2167
Ecc: Ecc Loads + Moments	1.1400	1.1400	1.1400 in
Design Ecc = Ecc * Delta	**0.0000**	**0.0000**	**0.0000** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add'l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add'l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Spiral Tie Requirements *per 97 UBC 1910.9.3*

Spiral Tie Bar Size #	3	Min. Spiral Reinforcement Ratio	**0.013**
Gross Area of Column	**254.47** in2		
Core Area Within Spirals	**176.71** in2	Max Spiral Tie Spacing	**2.222** in

Title : **Job #**
Dsgnr: **Date:** 4:11PM, 12 JUL 14
Description :

Scope :

Rev: 560001
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Circular Concrete Column

Page 1
west dade library.ecw:Calculations

Description TYPE IV (1st fl) B-6

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Diameter	18.000 in	f'c	4,000.0psi	Total Height	15.000 ft
Number of Bars	6	Fy	60,000.0 psi	Unbraced Length	15.000 ft
Bar Size	9	Seismic Zone	0	Eff. Length Factor	1.000
Total Rebar Area	6.000 in2	LL & ST Loads Act Separate		Column is BRACED	
Rebar Percent	2.358 %	Spiral Ties Used			
Bar Cover	1.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	204.000 k	204.000 k	k	in

Summary

Column is OK

Column Diameter= 18.00in, with 6 #9 Bars

	ACI C-1	ACI C-2	ACI C-3
Applied Pu : Max Factored	**632.40** k	**214.20** k	**183.60** k
Allowable Pn * Phi @ Design Ecc.	**651.18** k	**722.07** k	**727.69** k
M-critical	60.08 k-ft	20.35 k-ft	17.44 k-ft
Combined Eccentricity	1.1400 in	1.1400 in	1.1400 in
Magnification Factor	1.88	1.28	1.23
Design Eccentricity	2.1378 in	1.4574 in	1.4017 in
Magnified Design Moment	112.66 k-ft	26.02 k-ft	21.45 k-ft
Po * .80	1,024.08 k	1,024.08 k	1,024.08 k
P : Balanced	348.71 k	348.71 k	348.71 k
Ecc : Balanced	8.9554 in	8.9554 in	8.9554 in

Slenderness *per ACI 318-02 Section 10.12 & 10.13*

Actual k Lu / r 40.000 Elastic Modulus 3,605.0 ksi Beta 0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	15.7690 in	17.3890 in	17.5290 in
Phi	0.7500	0.7500	0.7500
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	1.0000	1.0000	1.0000
EI / 1000	5,930.68	4,304.53	4,304.53
Pc : pi^2 E I / (k Lu)^2	1,806.59	1,311.23	1,311.23
alpha: MaxPu / (.75 Pc)	0.4667	0.2178	0.1867
Delta	1.8752	1.2785	1.2296
Ecc: Ecc Loads + Moments	1.1400	1.1400	1.1400 in
Design Ecc = Ecc * Delta	**0.0000**	**0.0000**	**0.0000** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add'l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add'l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Spiral Tie Requirements *per 97 UBC 1910.9.3*

Spiral Tie Bar Size #	3	Min. Spiral Reinforcement Ratio	**0.013**
Gross Area of Column	**254.47** in2		
Core Area Within Spirals	**176.71** in2	Max Spiral Tie Spacing	**2.222** in

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

Title : Job #
Dsgnr: Date: 4:11PM, 12 JUL 14
Description :

Scope :

Rev: 580001
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Circular Concrete Column

Page 1
west dade library.ecw:Calculations

Description TYPE IV (1st fl) C5,6,7

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Diameter	18.000 in	f'c	4,000.0psi	Total Height	15.000 ft
Number of Bars	6	Fy	60,000.0 psi	Unbraced Length	15.000 ft
Bar Size	9	Seismic Zone	0	Eff. Length Factor	1.000
Total Rebar Area	6.000 in2	LL & ST Loads Act Separate		Column is BRACED	
Rebar Percent	2.358 %	Spiral Ties Used			
Bar Cover	1.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design. Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	257.000 k	257.000 k	k	in

Summary

Column Overstressed !

Column Diameter= 18.00in, with 6 #9 Bars

	ACI C-1	ACI C-2	ACI C-3
Applied Pu : Max Factored	**796.70** k	**269.85** k	**231.30** k
Allowable Pn * Phi @ Design Ecc.	**588.13** k	**709.73** k	**718.41** k
M-critical	75.69 k-ft	25.64 k-ft	21.97 k-ft
Combined Eccentricity	1.1400 in	1.1400 in	1.1400 in
Magnification Factor	2.43	1.38	1.31
Design Eccentricity	2.7670 in	1.5711 in	1.4906 in
Magnified Design Moment	183.70 k-ft	35.33 k-ft	28.73 k-ft
Po * .80	1,024.08 k	1,024.08 k	1,024.08 k
P : Balanced	348.71 k	348.71 k	348.71 k
Ecc : Balanced	8.9554 in	8.9554 in	8.9554 in

Slenderness *per ACI 318-02 Section 10.12 & 10.13*

Actual k Lu / r 40.000 | Elastic Modulus 3,605.0 ksi | Beta 0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	14.3890 in	17.0890 in	17.2990 in
Phi	0.7500	0.7500	0.7500
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	1.0000	1.0000	1.0000
EI / 1000	5,930.68	4,304.53	4,304.53
Pc : pi^2 E I / (k Lu)^2	1,806.59	1,311.23	1,311.23
alpha: MaxPu / (.75 Pc)	0.5880	0.2744	0.2352
Delta	2.4272	1.3782	1.3075
Ecc: Ecc Loads + Moments	1.1400	1.1400	1.1400 in
Design Ecc = Ecc * Delta	**0.0000**	**0.0000**	**0.0000** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add"l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add"l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Spiral Tie Requirements *per 97 UBC 1910.9.3*

Spiral Tie Bar Size #	3	Min. Spiral Reinforcement Ratio	**0.013**
Gross Area of Column	**254.47** in2		
Core Area Within Spirals	**176.71** in2	Max Spiral Tie Spacing	**2.222** in

Title : Job #
Dsgnr: Date: 4:11PM, 12 JUL 14
Description :

Scope :

Rev: 580001
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Circular Concrete Column

Page 1
west dade library.ecw:Calculations

Description TYPE V (1st fl)

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Diameter	18.000 in	f'c	4,000.0psi	Total Height	15.000 ft
Number of Bars	6	Fy	60,000.0 psi	Unbraced Length	15.000 ft
Bar Size	10	Seismic Zone	0	Eff. Length Factor	1.000
Total Rebar Area	7.620 in2	LL & ST Loads Act Separate		Column is BRACED	
Rebar Percent	2.994 %	Spiral Ties Used			
Bar Cover	1.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design. Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	204.000 k	204.000 k	k	in

Summary

Column is OK

Column Diameter= 18.00in, with 6 #10 Bars

	ACI C-1	ACI C-2	ACI C-3
Applied Pu : Max Factored	**632.40** k	**214.20** k	**183.60** k
Allowable Pn * Phi @ Design Ecc.	**723.20** k	**779.61** k	**784.56** k
M-critical	60.08 k-ft	20.35 k-ft	17.44 k-ft
Combined Eccentricity	1.1400 in	1.1400 in	1.1400 in
Magnification Factor	1.68	1.23	1.19
Design Eccentricity	1.9148 in	1.4054 in	1.3601 in
Magnified Design Moment	100.91 k-ft	25.09 k-ft	20.81 k-ft
Po * .80	1,102.01 k	1,102.01 k	1,102.01 k
P : Balanced	345.91 k	345.91 k	345.91 k
Ecc : Balanced	10.2101 in	10.2101 in	10.2101 in

Slenderness *per ACI 318-02 Section 10.12 & 10.13*

Actual k Lu / r 40.000 | Elastic Modulus 3,605.0 ksi | Beta 0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	16.5090 in	17.7790 in	17.8990 in
Phi	0.7500	0.7500	0.7500
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	1.0000	1.0000	1.0000
EI / 1000	6,840.92	4,965.18	4,965.18
Pc : pi^2 E I / (k Lu)^2	2,083.86	1,512.48	1,512.48
alpha: MaxPu / (.75 Pc)	0.4046	0.1888	0.1619
Delta	1.6796	1.2328	1.1931
Ecc: Ecc Loads + Moments	1.1400	1.1400	1.1400 in
Design Ecc = Ecc * Delta	**0.0000**	**0.0000**	**0.0000** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add"l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add"l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Spiral Tie Requirements *per 97 UBC 1910.9.3*

Spiral Tie Bar Size #	3	Min. Spiral Reinforcement Ratio	**0.013**
Gross Area of Column	**254.47** in2		
Core Area Within Spirals	**176.71** in2	Max Spiral Tie Spacing	**2.222** in

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

Title : **Job #**
Dsgnr: **Date:** 4:11PM, 12 JUL 14
Description :

Scope :

Rev: 580001
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Circular Concrete Column

Page 1
west dade library.ecw:Calculations

Description TYPE V (1st fl) C-8

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Diameter	18.000 in	f'c	4,000.0 psi	Total Height	15.000 ft
Number of Bars	6	Fy	60,000.0 psi	Unbraced Length	15.000 ft
Bar Size	10	Seismic Zone	0	Eff. Length Factor	1.000
Total Rebar Area	7.620 in2	LL & ST Loads Act Separate		Column is BRACED	
Rebar Percent	2.994 %	Spiral Ties Used			
Bar Cover	1.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	257.000 k	257.000 k	k	in

Summary

Column Overstressed !

Column Diameter= 18.00in, with 6 #10 Bars

	ACI C-1	ACI C-2	ACI C-3
Applied Pu : Max Factored	**796.70** k	**269.85** k	**231.30** k
Allowable Pn * Phi @ Design Ecc.	**677.24** k	**769.52** k	**776.70** k
M-critical	75.69 k-ft	25.64 k-ft	21.97 k-ft
Combined Eccentricity	1.1400 in	1.1400 in	1.1400 in
Magnification Factor	2.04	1.31	1.26
Design Eccentricity	2.3254 in	1.4958 in	1.4320 in
Magnified Design Moment	154.39 k-ft	33.64 k-ft	27.60 k-ft
Po * .80	1,102.01 k	1,102.01 k	1,102.01 k
P : Balanced	345.91 k	345.91 k	345.91 k
Ecc : Balanced	10.2101 in	10.2101 in	10.2101 in

Slenderness *per ACI 318-02 Section 10.12 & 10.13*

Actual k Lu / r 40.000 | Elastic Modulus 3,605.0 ksi | Beta 0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	15.4490 in	17.5390 in	17.7090 in
Phi	0.7500	0.7500	0.7500
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	1.0000	1.0000	1.0000
EI / 1000	6,840.92	4,965.18	4,965.18
Pc : pi^2 E I / (k Lu)^2	2,083.86	1,512.48	1,512.48
alpha: MaxPu / (.75 Pc)	0.5098	0.2379	0.2039
Delta	2.0398	1.3121	1.2561
Ecc: Ecc Loads + Moments	1.1400	1.1400	1.1400 in
Design Ecc = Ecc * Delta	**0.0000**	**0.0000**	**0.0000** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add"l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add"l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Spiral Tie Requirements *per 97 UBC 1910.9.3*

Spiral Tie Bar Size #	3	Min. Spiral Reinforcement Ratio	**0.013**
Gross Area of Column	**254.47** in2		
Core Area Within Spirals	**176.71** in2	Max Spiral Tie Spacing	**2.222** in

Title : **Job #**
Dsgnr: **Date:** 4:11PM, 12 JUL 14
Description :

Scope :

Rev: 580001
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Circular Concrete Column

Page 1
west dade library.ecw:Calculations

Description TYPE VI (1st fl)

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Diameter	18.000 in	f'c	4,000.0 psi	Total Height	15.000 ft
Number of Bars	6	Fy	60,000.0 psi	Unbraced Length	15.000 ft
Bar Size	11	Seismic Zone	0	Eff. Length Factor	1.000
Total Rebar Area	9.360 in2	LL & ST Loads Act Separate		Column is BRACED	
Rebar Percent	3.678 %	Spiral Ties Used			
Bar Cover	1.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	204.000 k	204.000 k	k	in

Summary

Column is OK

Column Diameter= 18.00in, with 6 #11 Bars

	ACI C-1	ACI C-2	ACI C-3
Applied Pu : Max Factored	**632.40** k	**214.20** k	**183.60** k
Allowable Pn * Phi @ Design Ecc.	**792.97** k	**840.47** k	**845.12** k
M-critical	60.08 k-ft	20.35 k-ft	17.44 k-ft
Combined Eccentricity	1.1400 in	1.1400 in	1.1400 in
Magnification Factor	1.55	1.20	1.16
Design Eccentricity	1.7648 in	1.3656 in	1.3281 in
Magnified Design Moment	93.01 k-ft	24.38 k-ft	20.32 k-ft
Po * .80	1,185.73 k	1,185.73 k	1,185.73 k
P : Balanced	342.91 k	342.91 k	342.91 k
Ecc : Balanced	11.5806 in	11.5806 in	11.5806 in

Slenderness *per ACI 318-02 Section 10.12 & 10.13*

Actual k Lu / r 40.000 | Elastic Modulus 3,605.0 ksi | Beta 0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	17.0890 in	18.1390 in	18.2490 in
Phi	0.7500	0.7500	0.7500
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	1.0000	1.0000	1.0000
EI / 1000	7,818.58	5,674.78	5,674.78
Pc : pi^2 E I / (k Lu)^2	2,381.68	1,728.64	1,728.64
alpha: MaxPu / (.75 Pc)	0.3540	0.1652	0.1416
Delta	1.5481	1.1979	1.1650
Ecc: Ecc Loads + Moments	1.1400	1.1400	1.1400 in
Design Ecc = Ecc * Delta	**0.0000**	**0.0000**	**0.0000** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add"l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add"l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Spiral Tie Requirements *per 97 UBC 1910.9.3*

Spiral Tie Bar Size #	3	Min. Spiral Reinforcement Ratio	**0.013**
Gross Area of Column	**254.47** in2		
Core Area Within Spirals	**176.71** in2	Max Spiral Tie Spacing	**2.222** in

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

Title : Job #
Dsgnr: Date: 4:11PM, 12 JUL 14
Description :

Scope :

Rev: 580001
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Circular Concrete Column

Page 1
west dade library.ecw:Calculations

Description TYPE VII (1st fl)

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Diameter	18.000 in	f'c	4,000.0psi	Total Height	15.000 ft
Number of Bars	8	Fy	60,000.0 psi	Unbraced Length	15.000 ft
Bar Size	9	Seismic Zone	0	Eff. Length Factor	1.000
Total Rebar Area	8.000 in2	LL & ST Loads Act Separate		Column is BRACED	
Rebar Percent	3.144 %	Spiral Ties Used			
Bar Cover	1.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	100.000 k	100.000 k	k	in

Summary

Column is OK

Column Diameter= 18.00in, with 8 #9 Bars

	ACI C-1	ACI C-2	ACI C-3
Applied Pu : Max Factored	**310.00** k	**105.00** k	**90.00** k
Allowable Pn * Phi @ Design Ecc.	**793.77** k	**811.85** k	**813.80** k
M-critical	29.45 k-ft	9.97 k-ft	8.55 k-ft
Combined Eccentricity	1.1400 in	1.1400 in	1.1400 in
Magnification Factor	1.24	1.10	1.08
Design Eccentricity	1.4115 in	1.2524 in	1.2350 in
Magnified Design Moment	36.46 k-ft	10.96 k-ft	9.26 k-ft
Po * .80	1,120.30 k	1,120.30 k	1,120.30 k
P : Balanced	413.74 k	413.74 k	413.74 k
Ecc : Balanced	8.4066 in	8.4066 in	8.4066 in

Slenderness *per ACI 318-02 Section 10.12 & 10.13*

Actual k Lu / r 40.000 | Elastic Modulus 3,605.0 ksi | Beta 0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	17.8490 in	18.2990 in	18.3490 in
Phi	0.7500	0.7500	0.7500
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	1.0000	1.0000	1.0000
EI / 1000	7,054.43	5,120.15	5,120.15
Pc : pi^2 E I / (k Lu)^2	2,148.90	1,559.69	1,559.69
alpha: MaxPu / (.75 Pc)	0.1923	0.0898	0.0769
Delta	1.2382	1.0986	1.0834
Ecc: Ecc Loads + Moments	1.1400	1.1400	1.1400 in
Design Ecc = Ecc * Delta	**0.0000**	**0.0000**	**0.0000** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add'l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add'l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Spiral Tie Requirements *per 97 UBC 1910.9.3*

Spiral Tie Bar Size #	**3**	Min. Spiral Reinforcement Ratio	**0.013**
Gross Area of Column	**254.47** in2		
Core Area Within Spirals	**176.71** in2	Max Spiral Tie Spacing	**2.222** in

Title : Job #
Dsgnr: Date: 4:11PM, 12 JUL 14
Description :

Scope :

Rev: 580002
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Rectangular Concrete Column

Page 1
west dade library.ecw:Calculations

Description TYPE VIII C2

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Width	16.000 in	f'c	4,000.0 psi	Total Height	15.000 ft
Depth	16.000 in	Fy	60,000.0 psi	Unbraced Length	15.000 ft
Rebar:		Seismic Zone	0	Eff. Length Factor	1.000
2- # 10 d =	1.500 in	LL & ST Loads Act Separately		Column is BRACED	
2- # 10 d =	14.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	204.000 k	204.000 k	k	in

Summary

Column is OK

16.00 x 16.00in Column, Rebar: 2-#10 @ 1.50in, 2-#10 @ 14.50in

	ACI C-1	ACI C-2	ACI C-3
Applied : Pu : Max Factored	**632.40** k	**214.20** k	**183.60** k
Allowable : Pn * Phi @ Design Ecc.	**648.44** k	**648.44** k	**648.44** k
M-critical	56.92 k-ft	19.28 k-ft	16.52 k-ft
Combined Eccentricity	1.080 in	1.080 in	1.080 in
Magnification Factor	1.00	1.00	1.00
Design Eccentricity	1.080 in	1.080 in	1.080 in
Magnified Design Moment	56.92 k-ft	19.28 k-ft	16.52 k-ft
Po * .80	926.34 k	926.34 k	926.34 k
P : Balanced	388.18 k	388.18 k	388.18 k
Ecc : Balanced	9.409 in	9.409 in	9.409 in

Slenderness *per ACI 318-95 Section 10.12 & 10.13*

Actual k Lu / r 37.500 | Elastic Modulus 3,605.0 ksi | Beta 0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	17.8100 in	17.8100 in	17.8100 in
Phi	0.7000	0.7000	0.7000
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	0.6000	0.6000	0.6000
EI / 1000	7,000.41	5,080.94	5,080.94
Pc : pi^2 E I / (k Lu)^2	2,132.45	1,547.74	1,547.74
alpha: MaxPu / (.75 Pc)	0.3954	0.1845	0.1582
Delta	1.0000	1.0000	1.0000
Ecc: Ecc Loads + Moments	1.080	1.080	1.080 in
Design Ecc = Ecc * Delta	**1.080**	**1.080**	**1.080** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add'l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add'l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

Title : Job #
Dsgnr: Date: 4:11PM, 12 JUL 14
Description :

Scope :

Rev: 580002
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Rectangular Concrete Column

Page 1
west dade library.ecw:Calculations

Description TYPE VIII C3,4

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Width	16.000 in	f'c	4,000.0 psi	Total Height	15.000 ft
Depth	16.000 in	Fy	60,000.0 psi	Unbraced Length	15.000 ft
Rebar:		Seismic Zone	0	Eff. Length Factor	1.000
2- # 10 d =	1.500 in	LL & ST Loads Act Separately		Column is BRACED	
2- # 10 d =	14.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	257.000 k	257.000 k	k	in

Summary

Column Overstressed !

16.00 x 16.00in Column, Rebar: 2-#10 @ 1.50in, 2-#10 @ 14.50in

	ACI C-1	ACI C-2	ACI C-3
Applied : Pu : Max Factored	**796.70** k	**269.85** k	**231.30** k
Allowable : Pn * Phi @ Design Ecc.	**648.44** k	**648.44** k	**648.44** k
M-critical	71.70 k-ft	24.29 k-ft	20.82 k-ft
Combined Eccentricity	1.080 in	1.080 in	1.080 in
Magnification Factor	1.20	1.00	1.00
Design Eccentricity	1.291 in	1.080 in	1.080 in
Magnified Design Moment	85.73 k-ft	24.29 k-ft	20.82 k-ft
Po * .80	926.34 k	926.34 k	926.34 k
P : Balanced	388.18 k	388.18 k	388.18 k
Ecc : Balanced	9.409 in	9.409 in	9.409 in

Slenderness *per ACI 318-95 Section 10.12 & 10.13*

Actual k Lu / r	37.500	Elastic Modulus	3,605.0 ksi	Beta	0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	17.3500 in	17.8100 in	17.8100 in
Phi	0.7000	0.7000	0.7000
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	0.6000	0.6000	0.6000
EI / 1000	7,000.41	5,080.94	5,080.94
Pc : pi^2 E I / (k Lu)^2	2,132.45	1,547.74	1,547.74
alpha: MaxPu / (.75 Pc)	0.4981	0.2325	0.1993
Delta	1.1956	1.0000	1.0000
Ecc: Ecc Loads + Moments	1.080	1.080	1.080 in
Design Ecc = Ecc * Delta	**1.291**	**1.080**	**1.080** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add'l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add'l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Title : Job #
Dsgnr: Date: 4:11PM, 12 JUL 14
Description :

Scope :

Rev: 580001
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Circular Concrete Column

Page 1
west dade library.ecw:Calculations

Description TYPE IX (1st fl)

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Diameter	18.000 in	f'c	4,000.0 psi	Total Height	15.000 ft
Number of Bars	6	Fy	60,000.0 psi	Unbraced Length	15.000 ft
Bar Size	11	Seismic Zone	0	Eff. Length Factor	1.000
Total Rebar Area	9.360 in2	LL & ST Loads Act Separate		Column is BRACED	
Rebar Percent	3.678 %	Spiral Ties Used			
Bar Cover	1.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	70.000 k	70.000 k	k	in

Summary

Column is OK

Column Diameter= 18.00in, with 6 #11 Bars

	ACI C-1	ACI C-2	ACI C-3
Applied Pu : Max Factored	**217.00** k	**73.50** k	**63.00** k
Allowable Pn * Phi @ Design Ecc.	**848.86** k	**859.44** k	**860.63** k
M-critical	20.61 k-ft	6.98 k-ft	5.98 k-ft
Combined Eccentricity	1.1400 in	1.1400 in	1.1400 in
Magnification Factor	1.14	1.06	1.05
Design Eccentricity	1.2976 in	1.2085 in	1.1982 in
Magnified Design Moment	23.47 k-ft	7.40 k-ft	6.29 k-ft
Po * .80	1,185.73 k	1,185.73 k	1,185.73 k
P : Balanced	342.91 k	342.91 k	342.91 k
Ecc : Balanced	11.5806 in	11.5806 in	11.5806 in

Slenderness *per ACI 318-02 Section 10.12 & 10.13*

Actual k Lu / r	40.000	Elastic Modulus	3,605.0 ksi	Beta	0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	18.3390 in	18.5990 in	18.6290 in
Phi	0.7500	0.7500	0.7500
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	1.0000	1.0000	1.0000
EI / 1000	7,818.58	5,674.78	5,674.78
Pc : pi^2 E I / (k Lu)^2	2,381.68	1,728.64	1,728.64
alpha: MaxPu / (.75 Pc)	0.1215	0.0567	0.0486
Delta	1.1383	1.0601	1.0511
Ecc: Ecc Loads + Moments	1.1400	1.1400	1.1400 in
Design Ecc = Ecc * Delta	**0.0000**	**0.0000**	**0.0000** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add'l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add'l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Spiral Tie Requirements *per 97 UBC 1910.9.3*

Spiral Tie Bar Size #	3	Min. Spiral Reinforcement Ratio	**0.013**
Gross Area of Column	**254.47** in2		
Core Area Within Spirals	**176.71** in2	Max Spiral Tie Spacing	**2.222** in

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

Title : **Job #**
Dsgnr: **Date:** 4:11PM, 12 JUL 14
Description :

Scope :

Rev: 580001
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Circular Concrete Column

Page 1
west dade library.ecw:Calculations

Description TYPE X (1st fl)

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Diameter	18.000 in	f'c	4,000.0 psi	Total Height	15.000 ft
Number of Bars	6	Fy	60,000.0 psi	Unbraced Length	15.000 ft
Bar Size	11	Seismic Zone	0	Eff. Length Factor	1.000
Total Rebar Area	9.360 in2	LL & ST Loads Act Separate		Column is BRACED	
Rebar Percent	3.678 %	Spiral Ties Used			
Bar Cover	1.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	178.000 k	178.000 k	k	in

Summary

Column is OK

Column Diameter= 18.00in, with 6 #11 Bars

	ACI C-1	ACI C-2	ACI C-3
Applied Pu : Max Factored	**551.80** k	**186.90** k	**160.20** k
Allowable Pn * Phi @ Design Ecc.	**806.65** k	**844.70** k	**848.45** k
M-critical	52.42 k-ft	17.76 k-ft	15.22 k-ft
Combined Eccentricity	1.1400 in	1.1400 in	1.1400 in
Magnification Factor	1.45	1.17	1.14
Design Eccentricity	1.6496 in	1.3320 in	1.3007 in
Magnified Design Moment	75.85 k-ft	20.75 k-ft	17.36 k-ft
Po * .80	1,185.73 k	1,185.73 k	1,185.73 k
P : Balanced	342.91 k	342.91 k	342.91 k
Ecc : Balanced	11.5806 in	11.5806 in	11.5806 in

Slenderness *per ACI 318-02 Section 10.12 & 10.13*

Actual k Lu / r 40.000 Elastic Modulus 3,605.0 ksi Beta 0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	17.3790 in	18.2390 in	18.3290 in
Phi	0.7500	0.7500	0.7500
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	1.0000	1.0000	1.0000
EI / 1000	7,818.58	5,674.78	5,674.78
Pc : pi^2 E I / (k Lu)^2	2,381.68	1,728.64	1,728.64
alpha: MaxPu / (.75 Pc)	0.3089	0.1442	0.1236
Delta	1.4470	1.1684	1.1410
Ecc: Ecc Loads + Moments	1.1400	1.1400	1.1400 in
Design Ecc = Ecc * Delta	**0.0000**	**0.0000**	**0.0000** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add"l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add"l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Spiral Tie Requirements *per 97 UBC 1910.9.3*

Spiral Tie Bar Size #	3	Min. Spiral Reinforcement Ratio	**0.013**
Gross Area of Column	**254.47** in2		
Core Area Within Spirals	**176.71** in2	Max Spiral Tie Spacing	**2.222** in

Title : **Job #**
Dsgnr: **Date:** 4:11PM, 12 JUL 14
Description :

Scope :

Rev: 580001
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Circular Concrete Column

Page 1
west dade library.ecw:Calculations

Description TYPE XI (1st fl)

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Diameter	18.000 in	f'c	4,000.0 psi	Total Height	15.000 ft
Number of Bars	10	Fy	60,000.0 psi	Unbraced Length	15.000 ft
Bar Size	11	Seismic Zone	0	Eff. Length Factor	1.000
Total Rebar Area	15.600 in2	LL & ST Loads Act Separate		Column is BRACED	
Rebar Percent	6.130 %	Spiral Ties Used			
Bar Cover	1.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	204.000 k	204.000 k	k	in

Summary

Column is OK

Column Diameter= 18.00in, with 10 #11 Bars

	ACI C-1	ACI C-2	ACI C-3
Applied Pu : Max Factored	**632.40** k	**214.20** k	**183.60** k
Allowable Pn * Phi @ Design Ecc.	**1,029.44** k	**1,063.13** k	**1,066.76** k
M-critical	60.08 k-ft	20.35 k-ft	17.44 k-ft
Combined Eccentricity	1.1400 in	1.1400 in	1.1400 in
Magnification Factor	1.32	1.13	1.11
Design Eccentricity	1.5088 in	1.2868 in	1.2635 in
Magnified Design Moment	79.51 k-ft	22.97 k-ft	19.33 k-ft
Po * .80	1,485.93 k	1,485.93 k	1,485.93 k
P : Balanced	445.67 k	445.67 k	445.67 k
Ecc : Balanced	11.7608 in	11.7608 in	11.7608 in

Slenderness *per ACI 318-02 Section 10.12 & 10.13*

Actual k Lu / r 40.000 Elastic Modulus 3,605.0 ksi Beta 0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	18.4890 in	19.1890 in	19.2690 in
Phi	0.7500	0.7500	0.7500
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	1.0000	1.0000	1.0000
EI / 1000	11,324.68	8,219.53	8,219.53
Pc : pi^2 E I / (k Lu)^2	3,449.70	2,503.81	2,503.81
alpha: MaxPu / (.75 Pc)	0.2444	0.1141	0.0978
Delta	1.3235	1.1288	1.1084
Ecc: Ecc Loads + Moments	1.1400	1.1400	1.1400 in
Design Ecc = Ecc * Delta	**0.0000**	**0.0000**	**0.0000** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add"l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add"l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Spiral Tie Requirements *per 97 UBC 1910.9.3*

Spiral Tie Bar Size #	3	Min. Spiral Reinforcement Ratio	**0.013**
Gross Area of Column	**254.47** in2		
Core Area Within Spirals	**176.71** in2	Max Spiral Tie Spacing	**2.222** in

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

Title : **Job #**
Dsgnr: **Date:** 4:11PM, 12 JUL 14
Description :

Scope :

Rev: 580001
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Circular Concrete Column

Page 1
west dade library.ecw:Calculations

Description TYPE XII (1st fl)

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Diameter	18.000 in	f'c	4,000.0psi	Total Height	15.000 ft
Number of Bars	10	Fy	60,000.0 psi	Unbraced Length	15.000 ft
Bar Size	11	Seismic Zone	0	Eff. Length Factor	1.000
Total Rebar Area	15.600 in2	LL & ST Loads Act Separate		Column is BRACED	
Rebar Percent	6.130 %	Spiral Ties Used			
Bar Cover	1.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	204.000 k	204.000 k	k	in

Summary

Column is OK

Column Diameter= 18.00in, with 10 #11 Bars

	ACI C-1	ACI C-2	ACI C-3
Applied Pu : Max Factored	**632.40** k	**214.20** k	**183.60** k
Allowable Pn * Phi @ Design Ecc.	**1,029.44** k	**1,063.13** k	**1,066.76** k
M-critical	60.08 k-ft	20.35 k-ft	17.44 k-ft
Combined Eccentricity	1.1400 in	1.1400 in	1.1400 in
Magnification Factor	1.32	1.13	1.11
Design Eccentricity	1.5088 in	1.2868 in	1.2635 in
Magnified Design Moment	79.51 k-ft	22.97 k-ft	19.33 k-ft
Po * .80	1,485.93 k	1,485.93 k	1,485.93 k
P : Balanced	445.67 k	445.67 k	445.67 k
Ecc : Balanced	11.7608 in	11.7608 in	11.7608 in

Slenderness *per ACI 318-02 Section 10.12 & 10.13*

Actual k Lu / r 40.000 | Elastic Modulus 3,605.0 ksi | Beta 0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	18.4890 in	19.1890 in	19.2690 in
Phi	0.7500	0.7500	0.7500
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	1.0000	1.0000	1.0000
EI / 1000	11,324.68	8,219.53	8,219.53
Pc : pi^2 E I / (k Lu)^2	3,449.70	2,503.81	2,503.81
alpha: MaxPu / (.75 Pc)	0.2444	0.1141	0.0978
Delta	1.3235	1.1288	1.1084
Ecc: Ecc Loads + Moments	1.1400	1.1400	1.1400 in
Design Ecc = Ecc * Delta	**0.0000**	**0.0000**	**0.0000** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add"l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add"l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Spiral Tie Requirements *per 97 UBC 1910.9.3*

Spiral Tie Bar Size #	3	Min. Spiral Reinforcement Ratio	**0.013**
Gross Area of Column	**254.47** in2		
Core Area Within Spirals	**176.71** in2	Max Spiral Tie Spacing	**2.222** in

Title : **Job #**
Dsgnr: **Date:** 4:11PM, 12 JUL 14
Description :

Scope :

Rev: 580001
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Circular Concrete Column

Page 1
west dade library.ecw:Calculations

Description TYPE XIII (1st fl)

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Diameter	18.000 in	f'c	4,000.0psi	Total Height	15.000 ft
Number of Bars	10	Fy	60,000.0 psi	Unbraced Length	15.000 ft
Bar Size	11	Seismic Zone	0	Eff. Length Factor	1.000
Total Rebar Area	15.600 in2	LL & ST Loads Act Separate		Column is BRACED	
Rebar Percent	6.130 %	Spiral Ties Used			
Bar Cover	1.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	204.000 k	204.000 k	k	in

Summary

Column is OK

Column Diameter= 18.00in, with 10 #11 Bars

	ACI C-1	ACI C-2	ACI C-3
Applied Pu : Max Factored	**632.40** k	**214.20** k	**183.60** k
Allowable Pn * Phi @ Design Ecc.	**1,029.44** k	**1,063.13** k	**1,066.76** k
M-critical	60.08 k-ft	20.35 k-ft	17.44 k-ft
Combined Eccentricity	1.1400 in	1.1400 in	1.1400 in
Magnification Factor	1.32	1.13	1.11
Design Eccentricity	1.5088 in	1.2868 in	1.2635 in
Magnified Design Moment	79.51 k-ft	22.97 k-ft	19.33 k-ft
Po * .80	1,485.93 k	1,485.93 k	1,485.93 k
P : Balanced	445.67 k	445.67 k	445.67 k
Ecc : Balanced	11.7608 in	11.7608 in	11.7608 in

Slenderness *per ACI 318-02 Section 10.12 & 10.13*

Actual k Lu / r 40.000 | Elastic Modulus 3,605.0 ksi | Beta 0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	18.4890 in	19.1890 in	19.2690 in
Phi	0.7500	0.7500	0.7500
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	1.0000	1.0000	1.0000
EI / 1000	11,324.68	8,219.53	8,219.53
Pc : pi^2 E I / (k Lu)^2	3,449.70	2,503.81	2,503.81
alpha: MaxPu / (.75 Pc)	0.2444	0.1141	0.0978
Delta	1.3235	1.1288	1.1084
Ecc: Ecc Loads + Moments	1.1400	1.1400	1.1400 in
Design Ecc = Ecc * Delta	**0.0000**	**0.0000**	**0.0000** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add"l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add"l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Spiral Tie Requirements *per 97 UBC 1910.9.3*

Spiral Tie Bar Size #	3	Min. Spiral Reinforcement Ratio	**0.013**
Gross Area of Column	**254.47** in2		
Core Area Within Spirals	**176.71** in2	Max Spiral Tie Spacing	**2.222** in

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

Title : **Job #**
Dsgnr: **Date:** 4:11PM, 12 JUL 14
Description :

Scope :

Rev. 580001
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Circular Concrete Column

Page 1
west dade library.ecw:Calculations

Description TYPE XV (1st fl)

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Diameter	18.000 in	f'c	4,000.0psi	Total Height	15.000 ft
Number of Bars	6	Fy	60,000.0 psi	Unbraced Length	15.000 ft
Bar Size	8	Seismic Zone	0	Eff. Length Factor	1.000
Total Rebar Area	4.740 in2	LL & ST Loads Act Separate		Column is BRACED	
Rebar Percent	1.863 %	Spiral Ties Used			
Bar Cover	1.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design. Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	204.000 k	204.000 k	k	in

Summary

Column Overstressed !

Column Diameter= 18.00in, with 6 #8 Bars

	ACI C-1	ACI C-2	ACI C-3
Applied Pu : Max Factored	**632.40** k	**214.20** k	**183.60** k
Allowable Pn * Phi @ Design Ecc.	**584.77** k	**675.75** k	**682.83** k
M-critical	60.08 k-ft	20.35 k-ft	17.44 k-ft
Combined Eccentricity	1.1400 in	1.1400 in	1.1400 in
Magnification Factor	2.13	1.33	1.27
Design Eccentricity	2.4256 in	1.5146 in	1.4467 in
Magnified Design Moment	127.83 k-ft	27.04 k-ft	22.13 k-ft
Po * .80	963.46 k	963.46 k	963.46 k
P : Balanced	350.89 k	350.89 k	350.89 k
Ecc : Balanced	7.9933 in	7.9933 in	7.9933 in

Slenderness *per ACI 318-02 Section 10.12 & 10.13*

Actual k Lu / r 40.000 Elastic Modulus 3,605.0 ksi Beta 0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	14.8390 in	17.0190 in	17.1990 in
Phi	0.7500	0.7500	0.7500
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	1.0000	1.0000	1.0000
EI / 1000	5,222.72	3,790.68	3,790.68
Pc : pi^2 E I / (k Lu)^2	1,590.93	1,154.71	1,154.71
alpha: MaxPu / (.75 Pc)	0.5300	0.2473	0.2120
Delta	2.1277	1.3286	1.2690
Ecc: Ecc Loads + Moments	1.1400	1.1400	1.1400 in
Design Ecc = Ecc * Delta	**0.0000**	**0.0000**	**0.0000** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add'l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add'l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Spiral Tie Requirements *per 97 UBC 1910.9.3*

Spiral Tie Bar Size #	3	Min. Spiral Reinforcement Ratio	**0.013**
Gross Area of Column	**254.47** in2		
Core Area Within Spirals	**176.71** in2	Max Spiral Tie Spacing	**2.222** in

Title : **Job #**
Dsgnr: **Date:** 4:11PM, 12 JUL 14
Description :

Scope :

Rev. 580001
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Circular Concrete Column

Page 1
west dade library.ecw:Calculations

Description TYPE XV (1st fl)

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Diameter	18.000 in	f'c	4,000.0psi	Total Height	15.000 ft
Number of Bars	6	Fy	60,000.0 psi	Unbraced Length	15.000 ft
Bar Size	8	Seismic Zone	0	Eff. Length Factor	1.000
Total Rebar Area	4.740 in2	LL & ST Loads Act Separate		Column is BRACED	
Rebar Percent	1.863 %	Spiral Ties Used			
Bar Cover	1.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design. Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	204.000 k	204.000 k	k	in

Summary

Column Overstressed !

Column Diameter= 18.00in, with 6 #8 Bars

	ACI C-1	ACI C-2	ACI C-3
Applied Pu : Max Factored	**632.40** k	**214.20** k	**183.60** k
Allowable Pn * Phi @ Design Ecc.	**584.77** k	**675.75** k	**682.83** k
M-critical	60.08 k-ft	20.35 k-ft	17.44 k-ft
Combined Eccentricity	1.1400 in	1.1400 in	1.1400 in
Magnification Factor	2.13	1.33	1.27
Design Eccentricity	2.4256 in	1.5146 in	1.4467 in
Magnified Design Moment	127.83 k-ft	27.04 k-ft	22.13 k-ft
Po * .80	963.46 k	963.46 k	963.46 k
P : Balanced	350.89 k	350.89 k	350.89 k
Ecc : Balanced	7.9933 in	7.9933 in	7.9933 in

Slenderness *per ACI 318-02 Section 10.12 & 10.13*

Actual k Lu / r 40.000 Elastic Modulus 3,605.0 ksi Beta 0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	14.8390 in	17.0190 in	17.1990 in
Phi	0.7500	0.7500	0.7500
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	1.0000	1.0000	1.0000
EI / 1000	5,222.72	3,790.68	3,790.68
Pc : pi^2 E I / (k Lu)^2	1,590.93	1,154.71	1,154.71
alpha: MaxPu / (.75 Pc)	0.5300	0.2473	0.2120
Delta	2.1277	1.3286	1.2690
Ecc: Ecc Loads + Moments	1.1400	1.1400	1.1400 in
Design Ecc = Ecc * Delta	**0.0000**	**0.0000**	**0.0000** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add'l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add'l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Spiral Tie Requirements *per 97 UBC 1910.9.3*

Spiral Tie Bar Size #	3	Min. Spiral Reinforcement Ratio	**0.013**
Gross Area of Column	**254.47** in2		
Core Area Within Spirals	**176.71** in2	Max Spiral Tie Spacing	**2.222** in

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

Title :
Dsgnr:
Description :

Job #
Date: 4:11PM, 12 JUL 14

Scope :

Rev: 580001
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Circular Concrete Column

Page 1
west dade library.ecw:Calculations

Description TYPE XVI (1st fl)

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Diameter	18.000 in	f'c	4,000.0 psi	Total Height	15.000 ft
Number of Bars	6	Fy	60,000.0 psi	Unbraced Length	15.000 ft
Bar Size	8	Seismic Zone	0	Eff. Length Factor	1.000
Total Rebar Area	4.740 in2	LL & ST Loads Act Separate		Column is BRACED	
Rebar Percent	1.863 %	Spiral Ties Used			
Bar Cover	1.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	204.000 k	204.000 k	k	in

Summary

Column Overstressed !

Column Diameter= 18.00in, with 6 #8 Bars

	ACI C-1	ACI C-2	ACI C-3
Applied Pu : Max Factored	**632.40** k	**214.20** k	**183.60** k
Allowable Pn * Phi @ Design Ecc.	**584.77** k	**675.75** k	**682.83** k
M-critical	60.08 k-ft	20.35 k-ft	17.44 k-ft
Combined Eccentricity	1.1400 in	1.1400 in	1.1400 in
Magnification Factor	2.13	1.33	1.27
Design Eccentricity	2.4256 in	1.5146 in	1.4467 in
Magnified Design Moment	127.83 k-ft	27.04 k-ft	22.13 k-ft
Po * .80	963.46 k	963.46 k	963.46 k
P : Balanced	350.89 k	350.89 k	350.89 k
Ecc : Balanced	7.9933 in	7.9933 in	7.9933 in

Slenderness *per ACI 318-02 Section 10.12 & 10.13*

Actual k Lu / r 40.000 — Elastic Modulus 3,605.0 ksi — Beta 0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	14.8390 in	17.0190 in	17.1990 in
Phi	0.7500	0.7500	0.7500
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	1.0000	1.0000	1.0000
EI / 1000	5,222.72	3,790.68	3,790.68
Pc : pi^2 E I / (k Lu)^2	1,590.93	1,154.71	1,154.71
alpha: MaxPu / (.75 Pc)	0.5300	0.2473	0.2120
Delta	2.1277	1.3286	1.2690
Ecc: Ecc Loads + Moments	1.1400	1.1400	1.1400 in
Design Ecc = Ecc * Delta	**0.0000**	**0.0000**	**0.0000** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add"l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add"l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Spiral Tie Requirements *per 97 UBC 1910.9.3*

Spiral Tie Bar Size #	3	Min. Spiral Reinforcement Ratio	**0.013**
Gross Area of Column	**254.47** in2		
Core Area Within Spirals	**176.71** in2	Max Spiral Tie Spacing	**2.222** in

Title :
Dsgnr:
Description :

Job #
Date: 4:11PM, 12 JUL 14

Scope :

Rev: 580001
User: KW-0606355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Circular Concrete Column

Page 1
west dade library.ecw:Calculations

Description TYPE XVII (1st fl)

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Diameter	18.000 in	f'c	4,000.0 psi	Total Height	28.500 ft
Number of Bars	6	Fy	60,000.0 psi	Unbraced Length	28.500 ft
Bar Size	8	Seismic Zone	0	Eff. Length Factor	1.000
Total Rebar Area	4.740 in2	LL & ST Loads Act Separate		Column is BRACED	
Rebar Percent	1.863 %	Spiral Ties Used			
Bar Cover	1.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	98.000 k	98.000 k	k	in

Summary

Column Overstressed !

Column Diameter= 18.00in, with 6 #8 Bars

	ACI C-1	ACI C-2	ACI C-3
Applied Pu : Max Factored	**303.80** k	**102.90** k	**88.20** k
Allowable Pn * Phi @ Design Ecc.	**132.08** k	**628.09** k	**647.03** k
M-critical	28.86 k-ft	9.78 k-ft	8.38 k-ft
Combined Eccentricity	1.1400 in	1.1400 in	1.1400 in
Magnification Factor	12.37	1.75	1.58
Design Eccentricity	14.0986 in	1.9963 in	1.8028 in
Magnified Design Moment	356.93 k-ft	17.12 k-ft	13.25 k-ft
Po * .80	963.46 k	963.46 k	963.46 k
P : Balanced	350.89 k	350.89 k	350.89 k
Ecc : Balanced	7.9933 in	7.9933 in	7.9933 in

Slenderness *per ACI 318-02 Section 10.12 & 10.13*

Actual k Lu / r 76.000 — Elastic Modulus 3,605.0 ksi — Beta 0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	6.7290 in	15.8790 in	16.3190 in
Phi	0.7500	0.7500	0.7500
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	1.0000	1.0000	1.0000
EI / 1000	5,222.72	3,790.68	3,790.68
Pc : pi^2 E I / (k Lu)^2	440.70	319.86	319.86
alpha: MaxPu / (.75 Pc)	0.9191	0.4289	0.3677
Delta	12.3672	1.7511	1.5814
Ecc: Ecc Loads + Moments	1.1400	1.1400	1.1400 in
Design Ecc = Ecc * Delta	**0.0000**	**0.0000**	**0.0000** in

ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add"l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add"l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Spiral Tie Requirements *per 97 UBC 1910.9.3*

Spiral Tie Bar Size #	3	Min. Spiral Reinforcement Ratio	**0.013**
Gross Area of Column	**254.47** in2		
Core Area Within Spirals	**176.71** in2	Max Spiral Tie Spacing	**2.222** in

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

Title : **Job #**
Dsgnr: **Date:** 4:11PM, 12 JUL 14
Description :

Scope :

Rev: 560001
User: KW-0605355, Ver 5.8.0, 1-Dec-2003
(c)1983-2003 ENERCALC Engineering Software

Circular Concrete Column

Page 1
west dade library ecw Calculations

Description TYPE XVIII (1st fl)

General Information

Code Ref: ACI 318-02, 1997 UBC, 2003 IBC, 2003 NFPA 5000

Diameter	18.000 in	f'c	4,000.0psi	Total Height	28.500 ft
Number of Bars	6	Fy	60,000.0 psi	Unbraced Length	28.500 ft
Bar Size	10	Seismic Zone	0	Eff. Length Factor	1.000
Total Rebar Area	7.620 in2	LL & ST Loads Act Separate		Column is BRACED	
Rebar Percent	2.994 %	Spiral Ties Used			
Bar Cover	1.500 in				

Loads

Note: Load factoring supports 2003 IBC and 2003 NFPA 5000 by virtue of their references to ACI 318-02 for concrete design.
Factoring of entered loads to ultimate loads within this program is according to ACI 318-02 C.2

	Dead Load	Live Load	Short Term	Eccentricity
Axial Loads	98.000 k	98.000 k	k	in

Summary

Column is OK

Column Diameter= 18.00in, with 6 #10 Bars

	ACI C-1	ACI C-2	ACI C-3
Applied Pu : Max Factored	**303.80** k	**102.90** k	**88.20** k
Allowable Pn * Phi @ Design Ecc.	**537.57** k	**747.18** k	**759.59** k
M-critical	28.86 k-ft	9.78 k-ft	8.38 k-ft
Combined Eccentricity	1.1400 in	1.1400 in	1.1400 in
Magnification Factor	3.35	1.49	1.39
Design Eccentricity	3.8219 in	1.6951 in	1.5848 in
Magnified Design Moment	96.76 k-ft	14.54 k-ft	11.65 k-ft
Po * .80	1,102.01 k	1,102.01 k	1,102.01 k
P : Balanced	345.91 k	345.91 k	345.91 k
Ecc : Balanced	10.2101 in	10.2101 in	10.2101 in

Slenderness *per ACI 318-02 Section 10.12 & 10.13*

Actual k Lu / r 76.000 Elastic Modulus 3,605.0 ksi Beta 0.850

	ACI Eq. C-1	ACI Eq. C-2	ACI Eq. C-3
Neutral Axis Distance	12.9890 in	17.0290 in	17.3090 in
Phi	0.7500	0.7500	0.7500
Max Limit kl/r	34.0000	34.0000	34.0000
Beta = M:sustained/M:max	0.4516	1.0000	1.0000
Cm	1.0000	1.0000	1.0000
EI / 1000	6,840.92	4,965.18	4,965.18
Pc : pi^2 E I / (k Lu)^2	577.25	418.97	418.97
alpha: MaxPu / (.75 Pc)	0.7017	0.3275	0.2807
Delta	3.3526	1.4869	1.3902
Ecc: Ecc Loads + Moments	1.1400	1.1400	1.1400 in
Design Ecc = Ecc * Delta	**0.0000**	**0.0000**	**0.0000** in

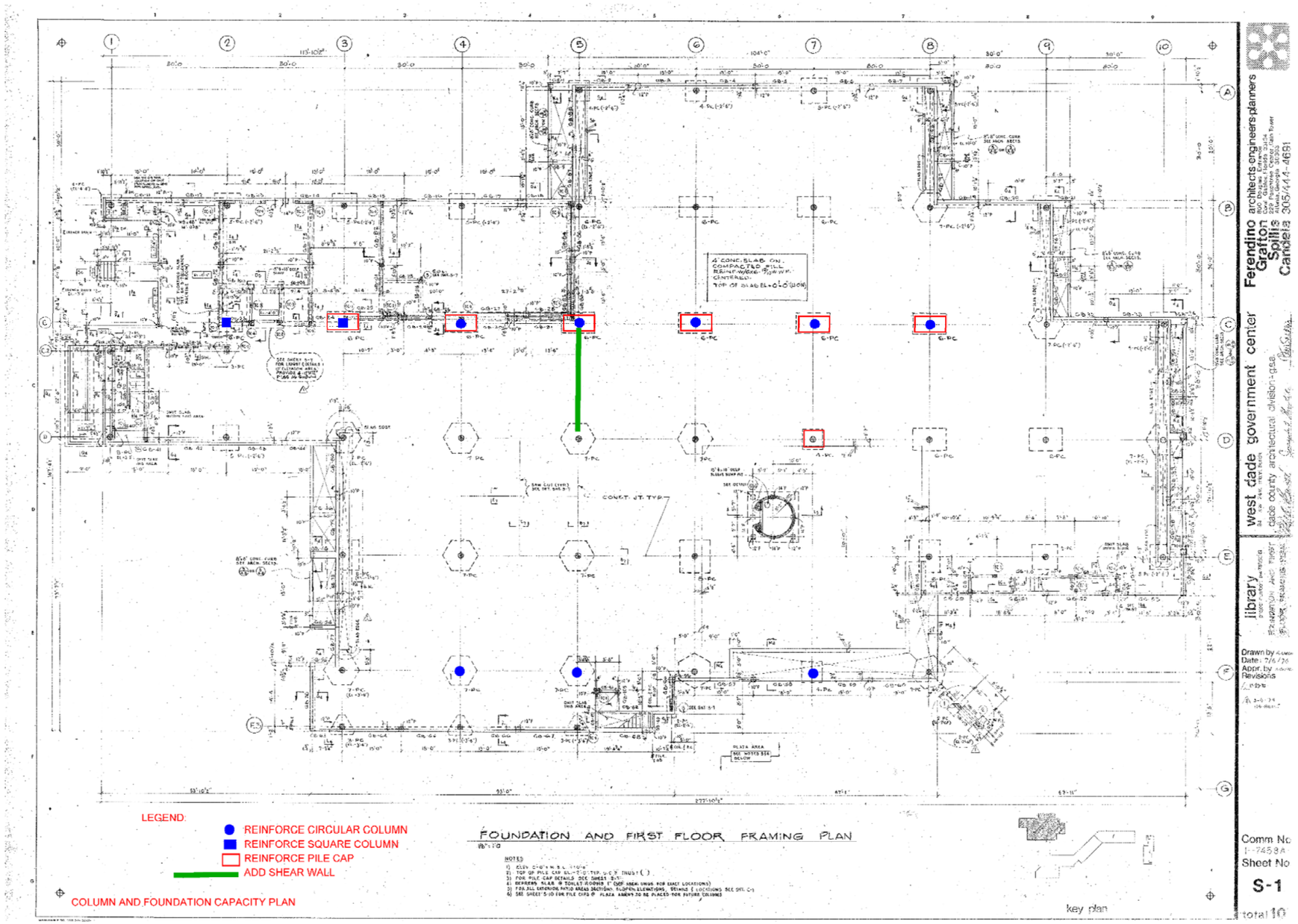
ACI Factors (per ACI 318-02, applied internally to entered loads)

ACI C-1 & C-2 DL	1.400	ACI C-2 Group Factor	0.750	Add'l "1.4" Factor for Seismic	1.400
ACI C-1 & C-2 LL	1.700	ACI C-3 Dead Load Factor	0.900	Add'l "0.9" Factor for Seismic	0.900
ACI C-1 & C-2 ST	1.700	ACI C-3 Short Term Factor	1.300		
....seismic = ST * :	1.100				

Spiral Tie Requirements *per 97 UBC 1910.9.3*

Spiral Tie Bar Size #	**3**	Min. Spiral Reinforcement Ratio	**0.013**
Gross Area of Column	**254.47** in2		
Core Area Within Spirals	**176.71** in2	Max Spiral Tie Spacing	**2.222** in

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133



revuelta architecture international, pa
http://www.revuelta-architecture.com
t. (305) 590-5000
f. (305) 590-5040
2950 sw 27th ave
miami, fl – 33133

APPENDIX C

WIND LOADS

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

MecaWind Pro v2.2.3.9 per ASCE 7-10

Developed by MECA Enterprises, Inc. Copyright www.mecaenterprises.com

Date	: 7/13/2014	Project No.	: H141520
Company Name	: YHCE	Designed By	: YH
Address	: 12151 SW 128 court, Suite 104	Description	: MDC West Regional Library
City	: Miami	Customer Name	: Revuelta
State	: Florida	Proj Location	: 9445 SW 24 st

File Location: V:\2014\MISC\H141520 (West Dade Library)\DESIGN PHASE\Calculations\WIND CALC'S\Existing Building.wnd

Input Parameters: Directional Procedure All Heights Building (Ch 27 Part 1)

Basic Wind Speed(V)	= 175.00 mph		
Structural Category	= II	Exposure Category	= C
Natural Frequency	= N/A	Flexible Structure	= No
Importance Factor	= 1.00	Kd Directional Factor	= 0.85
Alpha	= 9.50	Zg	= 900.00 ft
At	= 0.11	Bt	= 1.00
Am	= 0.15	Bm	= 0.65
Cc	= 0.20	l	= 500.00 ft
Epsilon	= 0.20	Zmin	= 15.00 ft
Slope of Roof	= 0 : 12	Slope of Roof(Theta)	= .00 Deg
Ht: Mean Roof Ht	= 29.00 ft	Type of Roof	= MONOSLOPE
RHt: Ridge Ht	= 29.00 ft	Eht: Eave Height	= 29.00 ft
OH: Roof Overhang at Eave	= .00 ft	Overhead Type	= Overhang
Bldg Length Along Ridge	= 270.00 ft	Bldg Width Across Ridge	= 180.00 ft

Gust Factor Calculations

Gust Factor Category I Rigid Structures - Simplified Method

Gust1: For Rigid Structures (Nat. Freq.>1 Hz) use 0.85 = 0.85

Gust Factor Category II Rigid Structures - Complete Analysis

Zm:	0.6*Ht	= 17.40 ft
lzm:	Cc*(33/Zm)^0.167	= 0.22
Lzm:	l*(Zm/33)^Epsilon	= 439.92 ft
Q:	(1/(1+0.63*((B+Ht)/Lzm)^0.63))^0.5	= 0.85
Gust2:	0.925*((1+1.7*Izm*3.4*Q)/(1+1.7*3.4*Izm))	= 0.85

Gust Factor Summary

Not a Flexible Structure use the Lessor of Gust1 or Gust2 = 0.85

Table 26.11-1 Internal Pressure Coefficients for Buildings, GCpi

GCPi : Internal Pressure Coefficient = +/-0.18

Wind Pressurs Main Wind Force Resisting System (MWFRS) - Ref Figure 27.4-1

Kh:	2.01*(Ht/Zg)^(2/Alpha)	= 0.98
Kht:	Topographic Factor (Figure 6-4)	= 1.00
Qh:	.00256*(V)^2*I*Kh*Kht*Kd	= 64.99 psf
Cpww:	Windward Wall Cp(Ref Fig 6-6)	= 0.80
Roof Area		= 48600.00 ft^2
Reduction Factor based on Roof Area		= 0.80

MWFRS-Wall Pressures for Wind Normal to 270 ft Wall (Normal to Ridge)

All pressures shown are based upon STRENGTH Design, with a Load Factor of 1

Wall	Cp	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Leeward Wall	-0.50	-39.17	-15.77
Side Walls	-0.70	-50.16	-26.76

Wall	Elev ft	Kz	Kzt	Cp	qz psf	Press +GCpi	Press -GCpi	Total +/-GCpi
Windward	29.00	0.98	1.00	0.80	64.99	32.25	55.65	71.42
Windward	19.00	0.89	1.00	0.80	59.46	28.51	51.91	67.68
Windward	9.00	0.85	1.00	0.80	56.57	26.56	49.95	65.73

Roof - Dist from Windward Edge	Cp	Pressure +GCpi(psf)	Pressure -GCpi(psf)
Roof: 0.0 ft to 14.5 ft	-0.90	-61.14	-37.75
Roof: 14.5 ft to 29.0 ft	-0.90	-61.14	-37.75
Roof: 29.0 ft to 58.0 ft	-0.50	-39.17	-15.77
Roof: 58.0 ft to 180.0ft	-0.30	-28.18	-4.78

Normal to Ridge - Base Reactions - Walls+Roof +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-39.17	7830	.00	306.69	.00	4447.0	.0	.0
Side Wall	-50.16	5220	-261.81	.00	.00	.0	3796.3	.0
Side Wall	-50.16	5220	261.81	.00	.00	.0	-3796.3	.0
Windward Wall	32.25	2700	.00	87.08	.00	2090.0	.0	.0
Windward Wall	28.51	2700	.00	76.98	.00	1077.7	.0	.0
Windward Wall	26.56	2430	.00	64.53	.00	290.4	.0	.0
Roof (0 to h/2)	-61.14	3915	.00	.00	239.38	19808.6	.0	.0
Roof (h/2 to h)	-61.14	3915	.00	.00	239.38	16337.6	.0	.0
Roof (h to 2h)	-39.17	7830	.00	.00	306.69	14261.0	.0	.0
Roof (>2h)	-28.18	32940	.00	.00	928.26	-26919.6	.0	.0
Total	.00	74700	.00	535.28	1713.71	31392.6	.0	.0

Normal to Ridge - Base Reactions - Walls Only +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-39.17	7830	.00	306.69	.00	4447.0	.0	.0
Side Wall	-50.16	5220	-261.81	.00	.00	.0	3796.3	.0
Side Wall	-50.16	5220	261.81	.00	.00	.0	-3796.3	.0
Windward Wall	32.25	2700	.00	87.08	.00	2090.0	.0	.0
Windward Wall	28.51	2700	.00	76.98	.00	1077.7	.0	.0
Windward Wall	26.56	2430	.00	64.53	.00	290.4	.0	.0
Total	.00	26100	.00	535.28	.00	7905.0	.0	.0

Normal to Ridge - Base Reactions - Walls+Roof -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-15.77	7830	.00	123.49	.00	1790.6	.0	.0
Side Wall	-26.76	5220	-139.68	.00	.00	.0	2025.4	.0
Side Wall	-26.76	5220	139.68	.00	.00	.0	-2025.4	.0
Windward Wall	55.65	2700	.00	150.26	.00	3606.1	.0	.0
Windward Wall	51.91	2700	.00	140.15	.00	1962.1	.0	.0
Windward Wall	49.95	2430	.00	121.39	.00	546.3	.0	.0
Roof (0 to h/2)	-37.75	3915	.00	.00	147.78	12228.7	.0	.0
Roof (h/2 to h)	-37.75	3915	.00	.00	147.78	10085.9	.0	.0
Roof (h to 2h)	-15.77	7830	.00	.00	123.49	5742.2	.0	.0
Roof (>2h)	-4.78	32940	.00	.00	157.56	-4569.3	.0	.0
Total	.00	74700	.00	535.28	576.61	31392.6	.0	.0

Normal to Ridge - Base Reactions - Walls Only -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-15.77	7830	.00	123.49	.00	1790.6	.0	.0
Side Wall	-26.76	5220	-139.68	.00	.00	.0	2025.4	.0
Side Wall	-26.76	5220	139.68	.00	.00	.0	-2025.4	.0
Windward Wall	55.65	2700	.00	150.26	.00	3606.1	.0	.0
Windward Wall	51.91	2700	.00	140.15	.00	1962.1	.0	.0
Windward Wall	49.95	2430	.00	121.39	.00	546.3	.0	.0
Total	.00	26100	.00	535.28	.00	7905.0	.0	.0

Normal to Ridge - Base Reactions - Walls+Roof MIN

Description	Press psf	Area* ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Windward Wall	16.00	2700	.00	43.20	.00	1036.8	.0	.0
Windward Wall	16.00	2700	.00	43.20	.00	604.8	.0	.0
Windward Wall	16.00	2430	.00	38.88	.00	175.0	.0	.0
Roof (0 to h/2)	8.00	0	.00	.00	.00	.0	.0	.0
Roof (h/2 to h)	8.00	0	.00	.00	.00	.0	.0	.0

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

Roof (h to 2h)	8.00	0	.00	.00	.00	.0	.0	.0
Roof (>2h)	8.00	0	.00	.00	.00	.0	.0	.0
Total	.00	7830	.00	125.28	.00	1816.6	.0	.0

Notes - Normal to Ridge

Note (1) Per Fig 27.4-1 Note 7, Since Theta<= 10 Deg base calcs on Eave Ht
Note (2) Wall & Roof Pressures = Qh*(G*Cp - GCPi)
Note (3) +GCpi = Positive Internal Bldg Press, -GCPi = Negative Internal Bldg Press
Note (4) Total Pressure = Leeward Press + Windward Press (For + or - GCPi)
Note (5) Ref Fig 27.4-1, Normal to Ridge (Theta<10), Theta= .0 Deg, h/l= 0.16
Note (6) X= Along Building ridge, Y = Normal to Building Ridge, Z = Vertical
Note (7) MIN = Minimum pressures on Walls = 16 psf and Roof = 8 psf
Note (8) Area* = Area of the surface projected onto a vertical plane normal to wind.

MWFRS-Wall Pressures for Wind Normal to 180 ft wall (Along Ridge)

All pressures shown are based upon STRENGTH Design, with a Load Factor of 1

Wall	Cp	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Leeward Wall	-0.40	-33.67	-10.28
Side Walls	-0.70	-50.16	-26.76

Wall	Elev ft	Kz	Kzt	Cp	qz psf	Press +GCpi	Press -GCpi	Total +/-GCpi
Windward	29.00	0.98	1.00	0.80	64.99	32.25	55.65	65.93
Windward	19.00	0.89	1.00	0.80	59.46	28.51	51.91	62.18
Windward	9.00	0.85	1.00	0.80	56.57	26.56	49.95	60.23

Roof - Dist from Windward Edge	Cp	Pressure +GCpi(psf)	Pressure -GCpi(psf)
Roof: 0.0 ft to 14.5 ft	-0.90	-61.14	-37.75
Roof: 14.5 ft to 29.0 ft	-0.90	-61.14	-37.75
Roof: 29.0 ft to 58.0 ft	-0.50	-39.17	-15.77
Roof: 58.0 ft to 270.0 ft	-0.30	-28.18	-4.78
OH Top : 0.0 ft to 14.5 ft	-0.90	-72.84	-72.84
OH Top : 14.5 ft to 29.0 ft	-0.90	-72.84	-72.84
OH Top : 29.0 ft to 58.0 ft	-0.50	-50.87	-50.87
OH Top : 58.0 ft to 270.0 ft	-0.30	-39.88	-39.88

Along Ridge - Base Reactions - Walls+Roof +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-33.67	5220	175.78	.00	.00	.0	-2548.8	.0
Side Wall	-50.16	7830	.00	392.72	.00	5694.5	.0	.0
Side Wall	-50.16	7830	.00	-392.72	.00	-5694.5	.0	.0
Windward Wall	32.25	1800	58.06	.00	.00	.0	-1393.3	.0
Windward Wall	28.51	1800	51.32	.00	.00	.0	-718.4	.0
Windward Wall	26.56	1620	43.02	.00	.00	.0	-193.6	.0
Roof	-61.14	2610	.00	.00	159.59	.0	-20387.1	.0
Roof	-61.14	2610	.00	.00	159.59	.0	-18073.1	.0
Roof	-39.17	5220	.00	.00	204.46	.0	-18707.9	.0
Roof	-28.18	38160	.00	.00	1075.36	.0	31185.5	.0
Total	.00	74700	328.18	.00	1598.99	.0	-30836.8	.0

Along Ridge - Base Reactions - Walls Only +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-33.67	5220	175.78	.00	.00	.0	-2548.8	.0
Side Wall	-50.16	7830	.00	392.72	.00	5694.5	.0	.0
Side Wall	-50.16	7830	.00	-392.72	.00	-5694.5	.0	.0
Windward Wall	32.25	1800	58.06	.00	.00	.0	-1393.3	.0
Windward Wall	28.51	1800	51.32	.00	.00	.0	-718.4	.0
Windward Wall	26.56	1620	43.02	.00	.00	.0	-193.6	.0
Total	.00	26100	328.18	.00	.00	.0	-4854.2	.0

Along Ridge - Base Reactions - Walls+Roof -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-10.28	5220	53.65	.00	.00	.0	-777.9	.0
Side Wall	-26.76	7830	.00	209.52	.00	3038.1	.0	.0
Side Wall	-26.76	7830	.00	-209.52	.00	-3038.1	.0	.0
Windward Wall	55.65	1800	100.17	.00	.00	.0	-2404.1	.0
Windward Wall	51.91	1800	93.43	.00	.00	.0	-1308.0	.0
Windward Wall	49.95	1620	80.93	.00	.00	.0	-364.2	.0
Roof	-37.75	2610	.00	.00	98.52	.0	-12585.9	.0
Roof	-37.75	2610	.00	.00	98.52	.0	-11157.3	.0
Roof	-15.77	5220	.00	.00	82.33	.0	-7532.8	.0
Roof	-4.78	38160	.00	.00	182.53	.0	5293.4	.0
Total	.00	74700	328.18	.00	461.90	.0	-30836.8	.0

Along Ridge - Base Reactions - Walls Only -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-10.28	5220	53.65	.00	.00	.0	-777.9	.0
Side Wall	-26.76	7830	.00	209.52	.00	3038.1	.0	.0
Side Wall	-26.76	7830	.00	-209.52	.00	-3038.1	.0	.0
Windward Wall	55.65	1800	100.17	.00	.00	.0	-2404.1	.0
Windward Wall	51.91	1800	93.43	.00	.00	.0	-1308.0	.0
Windward Wall	49.95	1620	80.93	.00	.00	.0	-364.2	.0
Total	.00	26100	328.18	.00	.00	.0	-4854.2	.0

Along Ridge - Base Reactions - Walls+Roof MIN

Description	Press psf	Area* ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Windward Wall	16.00	1800	28.80	.00	.00	.0	-691.2	.0
Windward Wall	16.00	1800	28.80	.00	.00	.0	-403.2	.0
Windward Wall	16.00	1620	25.92	.00	.00	.0	-116.6	.0
Roof	8.00	0	.00	.00	.00	.0	.0	.0
Roof	8.00	0	.00	.00	.00	.0	.0	.0
Roof	8.00	0	.00	.00	.00	.0	.0	.0
Roof	8.00	0	.00	.00	.00	.0	.0	.0
Total	.00	5220	83.52	.00	.00	.0	-1211.0	.0

Notes - Along Ridge

Note (1) OH = Overhang, no internal pressure considered for Overhang (GCpi=0)
Note (2) Ref Fig 27.4-1, Parallel to Ridge (All), h/l= 0.11
Note (3) X= Along Building ridge, Y = Normal to Building Ridge, Z = Vertical
Note (4) MIN = Minimum pressures on Walls = 16 psf and Roof = 8 psf
Note (5) Area* = Area of the surface projected onto a vertical plane normal to wind.

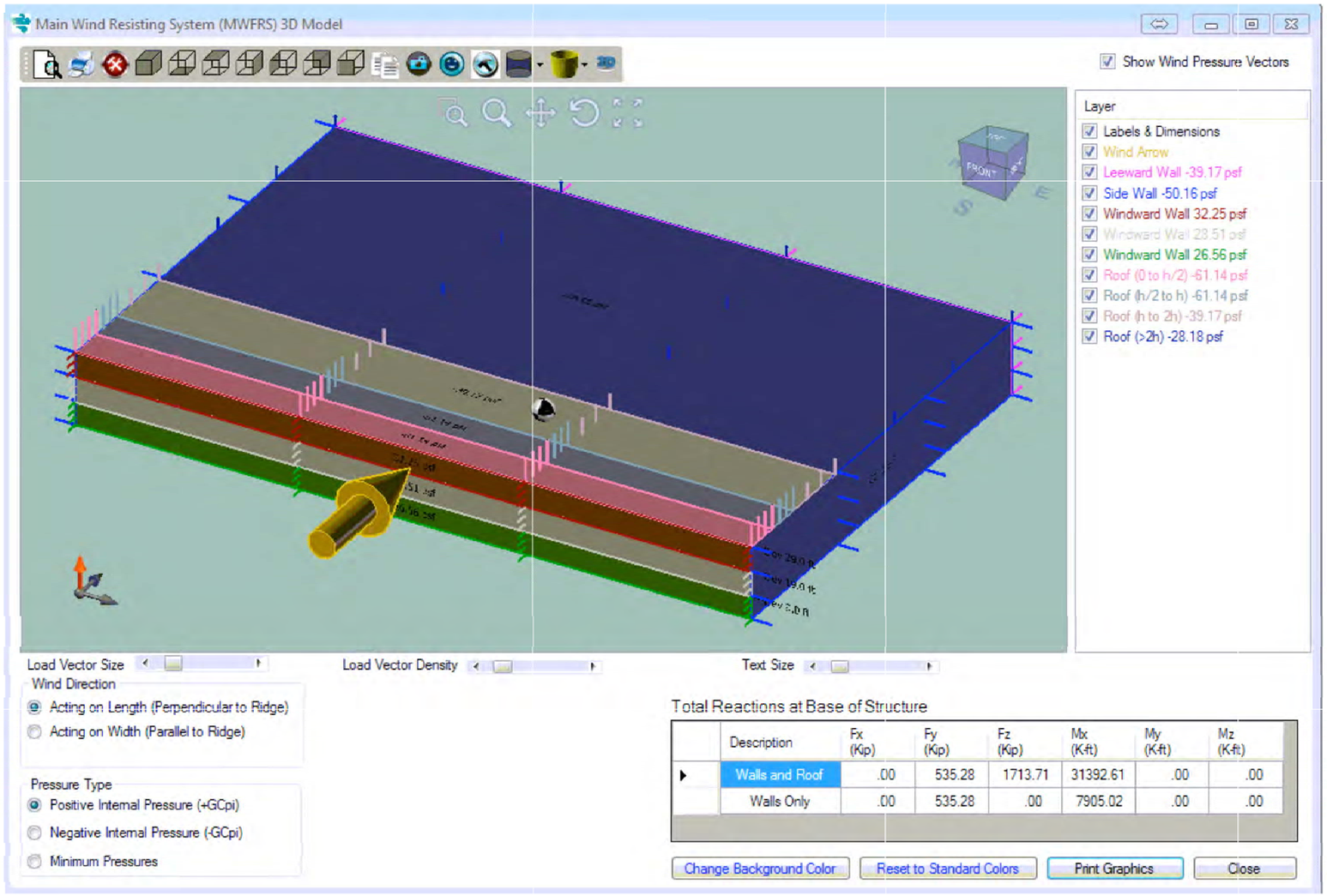
Total Base Reaction Summary

Description	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Normal to Ridge Walls+Roof +GCpi	.0	535.3	1713.7	31392.6	.0	.0
Normal to Ridge Walls Only +GCpi	.0	535.3	.0	7905.0	.0	.0
Normal to Ridge Walls+Roof -GCpi	.0	535.3	576.6	31392.6	.0	.0
Normal to Ridge Walls Only -GCpi	.0	535.3	.0	7905.0	.0	.0
Normal to Ridge Walls+Roof MIN	.0	125.3	.0	1816.6	.0	.0
Along Ridge Walls+Roof +GCpi	328.2	.0	1599.0	.0	-30836.8	.0
Along Ridge Walls Only +GCpi	328.2	.0	.0	.0	-4854.2	.0
Along Ridge Walls+Roof -GCpi	328.2	.0	461.9	.0	-30836.8	.0
Along Ridge Walls Only -GCpi	328.2	.0	.0	.0	-4854.2	.0
Along Ridge Walls+Roof MIN	83.5	.0	.0	.0	-1211.0	.0

Notes Applying to MWFRS Reactions:

Note (1) Per Fig 27.4-1, Note 9, Use greater of Shear calculated with or without roof.
Note (2) X= Along Building ridge, Y = Normal to Building Ridge, Z = Vertical
Note (3) MIN = Minimum pressures on Walls = 16 psf and Roof = 8 psf
Note (4) MIN area is the area of the surface onto a vertical plane normal to wind.
Note (5) Total Roof Area (incl OH Top) = 48600 sq. ft

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133



revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

MecaWind Pro v2.2.3.9 per ASCE 7-10

Developed by MECA Enterprises, Inc. Copyright www.mecaenterprises.com

Date	: 7/13/2014	Project No.	: H141520
Company Name	: YHCE	Designed By	: YH
Address	: 12151 SW 128 court, Suite 104	Description	: MDC West Regional Library
City	: Miami	Customer Name	: Revuelta
State	: Florida	Proj Location	: 9445 SW 24 st

File Location: V:\2014\MISC\H141520 (West Dade Library)\DESIGN PHASE\Calculations\WIND CALC'S\new building.wnd

Input Parameters: Directional Procedure All Heights Building (Ch 27 Part 1)

Basic Wind Speed(V)	= 175.00 mph		
Structural Category	= II	Exposure Category	= C
Natural Frequency	= N/A	Flexible Structure	= No
Importance Factor	= 1.00	Kd Directional Factor	= 0.85
Alpha	= 9.50	Zg	= 900.00 ft
At	= 0.11	Bt	= 1.00
Am	= 0.15	Bm	= 0.65
Cc	= 0.20	l	= 500.00 ft
Epsilon	= 0.20	Zmin	= 15.00 ft
Slope of Roof	= 0 : 12	Slope of Roof(Theta)	= .00 Deg
Ht: Mean Roof Ht	= 50.00 ft	Type of Roof	= MONOSLOPE
RHt: Ridge Ht	= 50.00 ft	Eht: Eave Height	= 50.00 ft
OH: Roof Overhang at Eave	= .00 ft	Overhead Type	= Overhang
Bldg Length Along Ridge	= 270.00 ft	Bldg Width Across Ridge	= 180.00 ft

Gust Factor Calculations

Gust Factor Category I Rigid Structures - Simplified Method

Gust1: For Rigid Structures (Nat. Freq.>1 Hz) use 0.85 = 0.85

Gust Factor Category II Rigid Structures - Complete Analysis

Zm:	0.6*Ht	= 30.00 ft
lzm:	Cc*(33/Zm)^0.167	= 0.20
Lzm:	l*(Zm/33)^Epsilon	= 490.56 ft
Q:	(1/(1+0.63*((B+Ht)/Lzm)^0.63))^0.5	= 0.85
Gust2:	0.925*((1+1.7*lzm*3.4*Q)/(1+1.7*3.4*lzm))	= 0.85

Gust Factor Summary

Not a Flexible Structure use the Lessor of Gust1 or Gust2 = 0.85

Table 26.11-1 Internal Pressure Coefficients for Buildings, GCpi

GCPi : Internal Pressure Coefficient = +/-0.18

Wind Pressurs Main Wind Force Resisting System (MWFRS) - Ref Figure 27.4-1

Kh: 2.01*(Ht/Zg)^(2/Alpha)	= 1.09
Kht: Topographic Factor (Figure 6-4)	= 1.00
Qh: .00256*(V)^2*I*Kh*Kht*Kd	= 72.89 psf
Cpww: Windward Wall Cp(Ref Fig 6-6)	= 0.80
Roof Area	= 48600.00 ft^2
Reduction Factor based on Roof Area	= 0.80

MWFRS-Wall Pressures for Wind Normal to 270 ft Wall (Normal to Ridge)

All pressures shown are based upon STRENGTH Design, with a Load Factor of 1

Wall	Cp	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Leeward Wall	-0.50	-44.06	-17.82
Side Walls	-0.70	-56.44	-30.20

Wall	Elev ft	Kz	Kzt	Cp	qz psf	Press +GCpi	Press -GCpi	Total +/-GCpi
Windward	50.00	1.09	1.00	0.80	72.89	36.39	62.63	80.45
Windward	40.00	1.04	1.00	0.80	69.54	34.11	60.36	78.18
Windward	30.00	0.98	1.00	0.80	65.46	31.34	57.58	75.40
Windward	20.00	0.90	1.00	0.80	60.10	27.70	53.94	71.76
Windward	10.00	0.85	1.00	0.80	56.57	25.30	51.54	69.36

Roof - Dist from Windward Edge	Cp	Pressure +GCpi(psf)	Pressure -GCpi(psf)
Roof: 0.0 ft to 25.0 ft	-0.90	-68.82	-42.58
Roof: 25.0 ft to 50.0 ft	-0.90	-68.82	-42.58
Roof: 50.0 ft to 100.0 ft	-0.50	-44.06	-17.82
Roof: 100.0 ft to 180.0ft	-0.30	-31.69	-5.45

Normal to Ridge - Base Reactions - Walls+Roof +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-44.06	13500	.00	594.84	.00	14870.9	.0	.0
Side Wall	-56.44	9000	-507.95	.00	.00	.0	12698.7	.0
Side Wall	-56.44	9000	507.95	.00	.00	.0	-12698.7	.0
Windward Wall	36.39	2700	.00	98.24	.00	4421.0	.0	.0
Windward Wall	34.11	2700	.00	92.11	.00	3223.9	.0	.0
Windward Wall	31.34	2700	.00	84.62	.00	2115.4	.0	.0
Windward Wall	27.70	2700	.00	74.79	.00	1121.9	.0	.0
Windward Wall	25.30	2700	.00	68.32	.00	341.6	.0	.0
Roof (0 to h/2)	-68.82	6750	.00	.00	464.50	35999.0	.0	.0
Roof (h/2 to h)	-68.82	6750	.00	.00	464.50	24386.5	.0	.0
Roof (h to 2h)	-44.06	13500	.00	.00	594.84	8922.5	.0	.0
Roof (>2h)	-31.69	21600	.00	.00	684.40	-34220.0	.0	.0
Total	.00	93600	.00	1012.92	2208.24	61182.7	.0	.0

Normal to Ridge - Base Reactions - Walls Only +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-44.06	13500	.00	594.84	.00	14870.9	.0	.0
Side Wall	-56.44	9000	-507.95	.00	.00	.0	12698.7	.0
Side Wall	-56.44	9000	507.95	.00	.00	.0	-12698.7	.0
Windward Wall	36.39	2700	.00	98.24	.00	4421.0	.0	.0
Windward Wall	34.11	2700	.00	92.11	.00	3223.9	.0	.0
Windward Wall	31.34	2700	.00	84.62	.00	2115.4	.0	.0
Windward Wall	27.70	2700	.00	74.79	.00	1121.9	.0	.0
Windward Wall	25.30	2700	.00	68.32	.00	341.6	.0	.0
Total	.00	45000	.00	1012.92	.00	26094.7	.0	.0

Normal to Ridge - Base Reactions - Walls+Roof -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-17.82	13500	.00	240.59	.00	6014.9	.0	.0
Side Wall	-30.20	9000	-271.79	.00	.00	.0	6794.7	.0
Side Wall	-30.20	9000	271.79	.00	.00	.0	-6794.7	.0
Windward Wall	62.63	2700	.00	169.09	.00	7609.2	.0	.0
Windward Wall	60.36	2700	.00	162.96	.00	5703.6	.0	.0
Windward Wall	57.58	2700	.00	155.46	.00	3886.6	.0	.0
Windward Wall	53.94	2700	.00	145.64	.00	2184.6	.0	.0
Windward Wall	51.54	2700	.00	139.17	.00	695.8	.0	.0
Roof (0 to h/2)	-42.58	6750	.00	.00	287.38	22272.2	.0	.0
Roof (h/2 to h)	-42.58	6750	.00	.00	287.38	15087.6	.0	.0
Roof (h to 2h)	-17.82	13500	.00	.00	240.59	3608.9	.0	.0
Roof (>2h)	-5.45	21600	.00	.00	117.61	-5880.7	.0	.0
Total	.00	93600	.00	1012.92	932.97	61182.7	.0	.0

Normal to Ridge - Base Reactions - Walls Only -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-17.82	13500	.00	240.59	.00	6014.9	.0	.0
Side Wall	-30.20	9000	-271.79	.00	.00	.0	6794.7	.0
Side Wall	-30.20	9000	271.79	.00	.00	.0	-6794.7	.0
Windward Wall	62.63	2700	.00	169.09	.00	7609.2	.0	.0
Windward Wall	60.36	2700	.00	162.96	.00	5703.6	.0	.0
Windward Wall	57.58	2700	.00	155.46	.00	3886.6	.0	.0
Windward Wall	53.94	2700	.00	145.64	.00	2184.6	.0	.0
Windward Wall	51.54	2700	.00	139.17	.00	695.8	.0	.0
Total	.00	45000	.00	1012.92	.00	26094.7	.0	.0

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

Normal to Ridge - Base Reactions - Walls+Roof MIN

Description	Press psf	Area* ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Windward Wall	16.00	2700	.00	43.20	.00	1944.0	.0	.0
Windward Wall	16.00	2700	.00	43.20	.00	1512.0	.0	.0
Windward Wall	16.00	2700	.00	43.20	.00	1080.0	.0	.0
Windward Wall	16.00	2700	.00	43.20	.00	648.0	.0	.0
Windward Wall	16.00	2700	.00	43.20	.00	216.0	.0	.0
Roof (0 to h/2)	8.00	0	.00	.00	.00	.0	.0	.0
Roof (h/2 to h)	8.00	0	.00	.00	.00	.0	.0	.0
Roof (h to 2h)	8.00	0	.00	.00	.00	.0	.0	.0
Roof (>2h)	8.00	0	.00	.00	.00	.0	.0	.0
Total	.00	13500	.00	216.00	.00	5400.0	.0	.0

Notes - Normal to Ridge

Note (1) Per Fig 27.4-1 Note 7, Since Theta<= 10 Deg base calcs on Eave Ht
Note (2) Wall & Roof Pressures = Qh*(G*Cp - GCPi)
Note (3) +GCpi = Positive Internal Bldg Press, -GCPi = Negative Internal Bldg Press
Note (4) Total Pressure = Leeward Press + Windward Press (For + or - GCPi)
Note (5) Ref Fig 27.4-1, Normal to Ridge (Theta<10), Theta= .0 Deg, h/l= 0.28
Note (6) X= Along Building ridge, Y = Normal to Building Ridge, Z = Vertical
Note (7) MIN = Minimum pressures on Walls = 16 psf and Roof = 8 psf
Note (8) Area* = Area of the surface projected onto a vertical plane normal to wind.

MWFRS-Wall Pressures for Wind Normal to 180 ft wall (Along Ridge)

All pressures shown are based upon STRENGTH Design, with a Load Factor of 1

Wall	Cp	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Leeward Wall	-0.40	-37.87	-11.63
Side Walls	-0.70	-56.44	-30.20

Wall	Elev ft	Kz	Kzt	Cp	qz psf	Press +GCpi	Press -GCpi	Total +/-GCpi
Windward	50.00	1.09	1.00	0.80	72.89	36.39	62.63	74.26
Windward	40.00	1.04	1.00	0.80	69.54	34.11	60.36	71.99
Windward	30.00	0.98	1.00	0.80	65.46	31.34	57.58	69.21
Windward	20.00	0.90	1.00	0.80	60.10	27.70	53.94	65.58
Windward	10.00	0.85	1.00	0.80	56.57	25.30	51.54	63.18

Roof - Dist from Windward Edge	Cp	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Roof: 0.0 ft to 25.0 ft	-0.90	-68.82	-42.58
Roof: 25.0 ft to 50.0 ft	-0.90	-68.82	-42.58
Roof: 50.0 ft to 100.0 ft	-0.50	-44.06	-17.82
Roof: 100.0 ft to 270.0 ft	-0.30	-31.69	-5.45
OH Top : 0.0 ft to 25.0 ft	-0.90	-81.94	-81.94
OH Top : 25.0 ft to 50.0 ft	-0.90	-81.94	-81.94
OH Top : 50.0 ft to 100.0 ft	-0.50	-57.18	-57.18
OH Top : 100.0 ft to 270.0 ft	-0.30	-44.81	-44.81

Along Ridge - Base Reactions - Walls+Roof +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-37.87	9000	340.86	.00	.00	.0	-8521.5	.0
Side Wall	-56.44	13500	.00	761.92	.00	19048.0	.0	.0
Side Wall	-56.44	13500	.00	-761.92	.00	-19048.0	.0	.0
Windward Wall	36.39	1800	65.50	.00	.00	.0	-2947.3	.0
Windward Wall	34.11	1800	61.41	.00	.00	.0	-2149.2	.0
Windward Wall	31.34	1800	56.41	.00	.00	.0	-1410.3	.0
Windward Wall	27.70	1800	49.86	.00	.00	.0	-747.9	.0
Windward Wall	25.30	1800	45.54	.00	.00	.0	-227.7	.0
Roof	-68.82	4500	.00	.00	309.67	.0	-37934.5	.0
Roof	-68.82	4500	.00	.00	309.67	.0	-30192.8	.0
Roof	-44.06	9000	.00	.00	396.56	.0	-23793.4	.0
Roof	-31.69	30600	.00	.00	969.57	.0	48478.3	.0
Total	.00	93600	619.58	.00	1985.46	.0	-59446.4	.0

Along Ridge - Base Reactions - Walls Only +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-37.87	9000	340.86	.00	.00	.0	-8521.5	.0
Side Wall	-56.44	13500	.00	761.92	.00	19048.0	.0	.0
Side Wall	-56.44	13500	.00	-761.92	.00	-19048.0	.0	.0
Windward Wall	36.39	1800	65.50	.00	.00	.0	-2947.3	.0
Windward Wall	34.11	1800	61.41	.00	.00	.0	-2149.2	.0
Windward Wall	31.34	1800	56.41	.00	.00	.0	-1410.3	.0
Windward Wall	27.70	1800	49.86	.00	.00	.0	-747.9	.0
Windward Wall	25.30	1800	45.54	.00	.00	.0	-227.7	.0
Total	.00	45000	619.58	.00	.00	.0	-16004.1	.0

Along Ridge - Base Reactions - Walls+Roof -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-11.63	9000	104.70	.00	.00	.0	-2617.5	.0
Side Wall	-30.20	13500	.00	407.68	.00	10192.0	.0	.0
Side Wall	-30.20	13500	.00	-407.68	.00	-10192.0	.0	.0
Windward Wall	62.63	1800	112.73	.00	.00	.0	-5072.8	.0
Windward Wall	60.36	1800	108.64	.00	.00	.0	-3802.4	.0
Windward Wall	57.58	1800	103.64	.00	.00	.0	-2591.1	.0
Windward Wall	53.94	1800	97.09	.00	.00	.0	-1456.4	.0
Windward Wall	51.54	1800	92.78	.00	.00	.0	-463.9	.0
Roof	-42.58	4500	.00	.00	191.59	.0	-23469.6	.0
Roof	-42.58	4500	.00	.00	191.59	.0	-18679.9	.0
Roof	-17.82	9000	.00	.00	160.40	.0	-9623.8	.0
Roof	-5.45	30600	.00	.00	166.62	.0	8330.9	.0
Total	.00	93600	619.58	.00	710.19	.0	-59446.4	.0

Along Ridge - Base Reactions - Walls Only -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-11.63	9000	104.70	.00	.00	.0	-2617.5	.0
Side Wall	-30.20	13500	.00	407.68	.00	10192.0	.0	.0
Side Wall	-30.20	13500	.00	-407.68	.00	-10192.0	.0	.0
Windward Wall	62.63	1800	112.73	.00	.00	.0	-5072.8	.0
Windward Wall	60.36	1800	108.64	.00	.00	.0	-3802.4	.0
Windward Wall	57.58	1800	103.64	.00	.00	.0	-2591.1	.0
Windward Wall	53.94	1800	97.09	.00	.00	.0	-1456.4	.0
Windward Wall	51.54	1800	92.78	.00	.00	.0	-463.9	.0
Total	.00	45000	619.58	.00	.00	.0	-16004.1	.0

Along Ridge - Base Reactions - Walls+Roof MIN

Description	Press psf	Area* ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Windward Wall	16.00	1800	28.80	.00	.00	.0	-1296.0	.0
Windward Wall	16.00	1800	28.80	.00	.00	.0	-1008.0	.0
Windward Wall	16.00	1800	28.80	.00	.00	.0	-720.0	.0
Windward Wall	16.00	1800	28.80	.00	.00	.0	-432.0	.0
Windward Wall	16.00	1800	28.80	.00	.00	.0	-144.0	.0
Roof	8.00	0	.00	.00	.00	.0	.0	.0
Roof	8.00	0	.00	.00	.00	.0	.0	.0
Roof	8.00	0	.00	.00	.00	.0	.0	.0
Roof	8.00	0	.00	.00	.00	.0	.0	.0
Total	.00	9000	144.00	.00	.00	.0	-3600.0	.0

Notes - Along Ridge

Note (1) OH = Overhang, no internal pressure considered for Overhang (GCpi=0)
Note (2) Ref Fig 27.4-1, Parallel to Ridge (All), h/l= 0.19
Note (3) X= Along Building ridge, Y = Normal to Building Ridge, Z = Vertical
Note (4) MIN = Minimum pressures on Walls = 16 psf and Roof = 8 psf
Note (5) Area* = Area of the surface projected onto a vertical plane normal to wind.

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

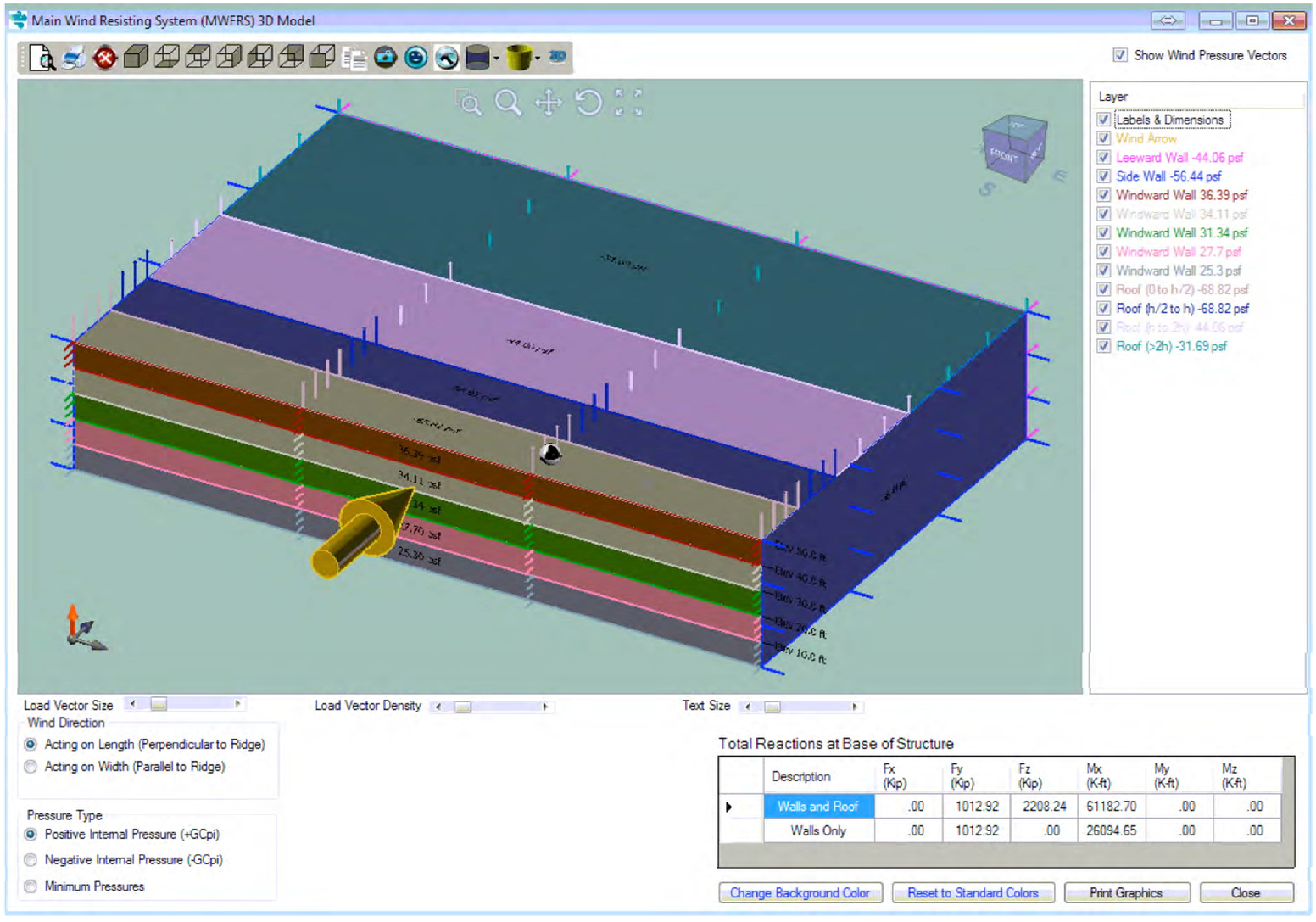
Total Base Reaction Summary

Description	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Normal to Ridge Walls+Roof +GCpi	.0	1012.9	2208.2	61182.7	.0	.0
Normal to Ridge Walls Only +GCpi	.0	1012.9	.0	26094.7	.0	.0
Normal to Ridge Walls+Roof -GCpi	.0	1012.9	933.0	61182.7	.0	.0
Normal to Ridge Walls Only -GCpi	.0	1012.9	.0	26094.7	.0	.0
Normal to Ridge Walls+Roof MIN	.0	216.0	.0	5400.0	.0	.0
Along Ridge Walls+Roof +GCpi	619.6	.0	1985.5	.0	-59446.4	.0
Along Ridge Walls Only +GCpi	619.6	.0	.0	.0	-16004.1	.0
Along Ridge Walls+Roof -GCpi	619.6	.0	710.2	.0	-59446.4	.0
Along Ridge Walls Only -GCpi	619.6	.0	.0	.0	-16004.1	.0
Along Ridge Walls+Roof MIN	144.0	.0	.0	.0	-3600.0	.0

Notes Applying to MWFRS Reactions:

Note (1) Per Fig 27.4-1, Note 9, Use greater of Shear calculated with or without roof.
Note (2) X= Along Building ridge, Y = Normal to Building Ridge, Z = Vertical
Note (3) MIN = Minimum pressures on Walls = 16 psf and Roof = 8 psf
Note (4) MIN area is the area of the surface onto a vertical plane normal to wind.
Note (5) Total Roof Area (incl CH Top) = 48600 sq. ft

revuelta architecture international, pa
http://www.revuelta-architecture.com
t. (305) 590-5000
f. (305) 590-5040
2950 sw 27th ave
miami, fl – 33133



revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

APPENDIX D

Photos

Photo 1- East Elevation - Main Entrance

Photo 2- East Elevation

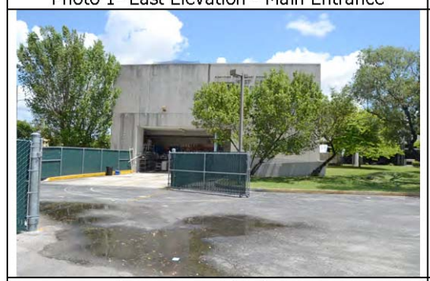


Photo 3 - South Elevation

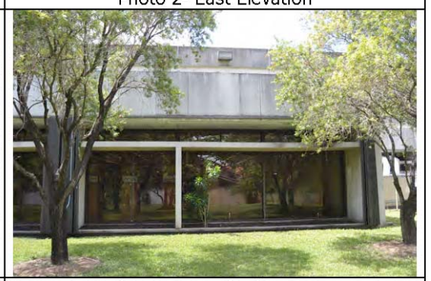


Photo 4 - North Elevation

Photo 5- West Elevation

Photo 6 - North West Elevation

revuelta architecture international, pa t. (305) 590-5000 2950 sw 27th ave
http://www.revuelta-architecture.com f. (305) 590-5040 miami, fl – 33133

12.0 Zoning Email Appendix

Keith Kulynych

From: Rowe, Garett A. (RER) <rowega@miamidade.gov>
Sent: Monday, June 09, 2014 11:04 AM
To: Suarez, Francisco (ISD)
Subject: RE: GOB Project Dist 10 West Dade Regional Library - Elderly Affordable Housing

Frank,

If the property is subdivided, I am not sure of the acreage that would remain after the library with site requirements such as parking and open space is taken out. Whatever acreage would remain could be developed at 6 units per acre. Furthermore, the portion of this acreage within ±450 feet from the SW 24 Street right-of-way could be developed with up to 10 units per acre.

The next CDMP amendment application filing period will be from November 3, to December 1, 2014. Given the site is less than 10 acres the application would be a small-scale, meaning it would go through the small scale review process that would conclude in May 2015 with BCC action. If the application is approved it would then become effective 31 days after the BCC action, if it is not challenged. There is always the possibility of small scale applications being converted to standard applications by the BCC in which case the review process would conclude in October 2015 (BCC final Action). The standard applications would become effective approximately in November/December 2015, if not challenged.

The Low-Medium Density Residential category allows between 6 and 13 units per acre.

From: Suarez, Francisco (ISD)
Sent: Monday, June 09, 2014 9:10 AM
To: Rowe, Garett A. (RER)
Subject: RE: GOB Project Dist 10 West Dade Regional Library - Elderly Affordable Housing

Good morning Garrett,
Could you give us an idea of the time frames and densities involved?

- To subdive the property and density,
- To modify the Land Use Plan and density.

Thank you.

Frank Suarez, R.A., LEED AP
Senior Architect
Miami-Dade County Internal Services Department
111 NW 1st Street, Suite 2410, Miami, Florida 33120-1909
305-375-1112 Phone 305-375-1125 Fax
fsuarez@miamidade.gov
Please consider the environment before printing this email.

From: Rowe, Garett A. (RER)
Sent: Monday, June 09, 2014 8:49 AM
To: Suarez, Francisco (ISD)
Cc: Woerner, Mark (RER); Brown, Kimberly (RER); Blanco, Gilberto (RER); Linn, Jess (RER)
Subject: RE: GOB Project Dist 10 West Dade Regional Library - Elderly Affordable Housing

1

Good morning Frank,

About how can we accomplish residential development on the library property, the following points related to the Comprehensive Development Master Plan (CDMP) are considered:

1. Under the property's current Low Density Residential CDMP land use designation
   - Mixed use development is not allowed (the library and residential on the same property would be a mixed use development)
   - Properties that are already developed, even if underdeveloped as in the case of the library site, cannot be counted as part of the residential area when calculating number of residential units
   - The site could be subdivided into the library and a parcel for residential development but that would be complicated especially when considering the existing park and access/circulation
     - The maximum number of units that could be attained in this case would at best be around 60
2. Amend the Property's land use designation to Low-Medium Density Residential
   - Mixed use development would be allowed
   - Over 100 units would be allowed

From: Suarez, Francisco (ISD)
Sent: Thursday, June 05, 2014 10:34 AM
To: Rowe, Garett A. (RER)
Subject: GOB Project Dist 10 West Dade Regional Library - Elderly Affordable Housing

Hello Garrett,
Just a note to thank you for sitting with us yesterday and to provide you with my information.
Sincerely,

Frank Suarez, R.A., LEED AP
Senior Architect
Miami-Dade County Internal Services Department
111 NW 1st Street, Suite 2410, Miami, Florida 33120-1909
305-375-1112 Phone 305-375-1125 Fax
fsuarez@miamidade.gov
Please consider the environment before printing this email.

2