FAMILY DOLLAR

FOOTINGS, WALLS, & BOND BEAMS

1. Concrete masonry units shall be hollow or solid unit masonry in accordance with ASTM C 90 or C 145 and shall have minimum net area compressive strength of 1900 psi.
2. Mortar shall be either Type M or S in accordance with ASTM C 270.
3. Grout shall have a maximum coarse aggregate size of 3/8 inch placed at a 8 to 11 inch slump and have minimum specified compressive strength of 2000 psi at 28 days when tested in accordance with ASTM C 1019, or shall be in accordance with ASTM C 476.
4. Concrete shall have a minimum specified compressive strength of 3000 psi at 28 days.
5. Reinforcing steel shall be minimum Grade 60 or 40 and identified in accordance with ASTM A 615, A 616, A 617, or A 706.
6. Joint reinforcement, anchors, ties, and wire fabric shall conform to the following standards:
   ASTM A 82 for joint reinforcement and wire anchors and ties.
   ASTM A 36 for plate, headed and bent bar anchors.
   ASTM A 366 for sheet metal anchors and ties.
7. Metal accessories for use in exterior wall construction and not directly exposed to the weather shall be galvanized in accordance with ASTM A 153, Class B–2. Metal accessories for use in interior wall construction shall be mill galvanized in accordance with ASTM A 641, Class 1.
8. All mortar joints for hollow unit masonry shall extend the full width of face shells.
9. Mortar joints for solid masonry shall be full head and bed joints. Bed joints shall be 3/8 inch (ñ 1/8 inch) thick. Head joints shall be 3/8 inch (+ 3/8 inch or – 1/4 inch) thick.
10. The bed joint of the starting course placed over footings shall be permitted to vary in thickness from a minimum of 1/4 inch to a maximum of 3/4 inch.
11. Masonry walls shall be running bond or stack bond construction.
12. When masonry units are laid in stack bond or running bond, 9–gage (minimum) horizontal joint reinforcement, in addition to required vertical reinforcement, shall be placed in bed joints at not more than 16 inches on center.
13. Longitudinal wires of joint reinforcement shall be fully embedded in mortar or grout with minimum cover of 5/8 inch when exposed to earth or weather and 1/2 inch when not exposed to earth or weather.
14. Reinforcing steel shall be No. 5 bars.
15. Splices shall be lap splices.
16. Noncontact lap splices may be used provided reinforcing bars are not spaced farther apart than 5 inches.
17. Splice lengths shall be minimum of 25 inches for No. 5 bars.
18. Reinforcement may be bent in the shop or in the field provided:
    All reinforcement shall be bent cold, and
    The diameter of the bend, measured on the inside of the bar, is not less than six bar diameters, and
    Reinforcement partially embedded in concrete shall not be field bent, except where bending is necessary to align dowel bars with a vertical cell, bars partially embedded in concrete shall be permitted to be bent at slope of not more than 1 inch of horizontal displacement to 6 inches of vertical bar length.
19. For foundations minimum concrete cover over reinforcing bars shall be 3 inches.
20. The top of slab shall be a minimum of 4" above finished grade for masonry veneer and a minimum of 6" elsewhere.
21. Footing for monolithic foundations shall be a minimum of 20" thick by 20" wide, with three (3) #5 reinforcing bars, and (1) #5 transverse at 24" o.c.
22. In narrow footing where insufficient width is available to accommodate a standard 90 degree hook and provide the required concrete cover, the hook shall be rotated in the horizontal direction until the required concrete cover is achieved.
23. For concrete bond beams, the minimum concrete cover for reinforcing shall be 1 1/2 inches.
24. Reinforcement bars embedded in grouted masonry cells shall have a minimum clear distance of 1/2 inch between reinforcing bars and any face of a cell.
25. Reinforcing bars used in masonry walls shall have a masonry cover (including grout) or not less than 2 inches.
26. Cleanout openings shall be provided for cells containing spliced reinforcement when the grout pour exceeds 5 feet in height.
27. Where cleanout openings are required, an opening shall be provided in the bottom course of the masonry cell to be filled.
28. Cleanout openings shall have minimum area of 12 square inches and a minimum opening dimension of 3 inches.
29. Masonry protrusions extending 1/2 inch or more into cells or cavities to be grouted shall be removed for grout pours over 5 ft.
30. Spaces to be grouted shall be free of mortar droppings, debris, loose aggregates, and any material deleterious to masonry grout.
31. A soil or waste pipe of a building drain passing under a footing or through a foundation wall shall be provided with a relieving arch, or there shall be built into the masonry wall an iron pipe sleeve two pipe sizes greater than the pipe passing through.
32. The top and bottom of all footings shall be level. The bottom of all footings, except monolithic slab–on–grade interior footings, shall be a minimum of 12" below finished ground line.
33. The outer bar of foundation steel shall be continuous around corners using corner bars or by bending the bar in accordance with notes herein, in both cases, the minimum bar lap shall be 25 inches.
34. Fill shall be termite treated and a "Certificate for Termite Treatment" is required on the permit board pursuant to FBC SEC. 105.10.
35. Footing dowels bars shall be provided for all required vertical wall reinforcement in the following location:
    At all corners,
    At each side of each opening,
    At all other required vertical wall reinforcement
    At all hip girder bearing points.
36. Footing dowel bars at each location shall be same size and quantity as the vertical wall reinforcement above.
37. All footing dowel bars shall have a standard 90 degree hook and shall be embedded a min. of 6" into footings.
38. Concrete slab–on–grade shall be cast in place and shall be 4 inches thick. Concrete shall have a minimum specified compressive strength of not less than 3000 psi at 28 days.
39. The minimum thickness of exterior masonry walls shall be 7 5/8 inches.
40. A reinforced bond beam shall be provided at the top of each exterior wall.
41. Bond beams shall be (2) 8"x8" "U"–Blocks.
42. Bond beam reinforcement shall be two No. 5 bars top and one #5 bottom..
43. Reinforcement shall be located in the top and bottom of 16 inch bond beams.
44. Reinforcement shall be continuous around corners. See structural details.
45. Where more than one bar is required, only one of the bars must be continuous around corners.
46. For vertical reinforcement one No. 5 bar in a grouted cell shall be provided in each corner, including interior corners and corners created by changes in wall direction by offsetting of walls such as at projected bays and inset porches.
47. For vertical reinforcement two No. 5 bars shall be provided on each side of openings.
48. In addition to vertical reinforcement required at corners, at openings, and at hip girder bearing points, vertical reinforcement consisting of one No. 5 bar shall be provided every 32 inches on center maximum. (U.N.O.)
49. All vertical wall reinforcement shall be terminated in the bond beam at the roof level with a standard hook. The hook may be formed by bending the vertical wall reinforcement in accordance with notes herein or by lap splicing to a standard hook. The hook shall extend to the upper most horizontal reinforcement of the bond beam and shall be embedded a minimum of 5 inches into the bond beam,. see detail sheets.
51. Bond beams over all openings shall consist of an 8" "U"–block with (2) #5 continuous above an 8" pre–cast lintel with (1) #5 additional rebar; unless noted otherwise, due to large truss girder bearing and / or uplift loads.
52. Bond beams shall have top and bottom reinforcement continuous over openings.
53. Bond Beams which have additional reinforcement over openings which is in addition to that required over the wall shall extend past the opening a minimum of 8".
54. Columns shall be constructed of standard masonry units.
55. A concrete slab–on–grade used in conjunction with exterior monolithic foundations, shall have 6x6 No. 10 welded wire fabric at mid –height in the slab.
56. Welded wire fabric shall confirm to ASTM A–185 and free of oil and rust. It shall be installed in lengths as long as possible and lapped a minimum of six inches.
57. Provide (1) #5 electrical ground to foundation steel.
58. A 6 mil minimium polyethylene dampproofing vapor barrier shall be provided, per FBC R320.1.4. and R506.2.3.
59. Foundations have been designed for an allowable soil bearing pressure of 2000 PSF, and the existing soil being a granular material, should poor soil conditions be found it is the contractor's responsiblity to notify the engineer prior to commencing.
60. Provide granular fill, clay materials are unacceptable. Existing soil under footing and slabs shall be compacted to 95% of AASHTO T–99.
61. Fill shall be placed and compacted in one foot lifts.
62. All concrete is to mixed, transported, and placed in accordance with the latest ACI specifications and recommendations.
63. A double layer of welded wire fabric shall be provided around the perimeter of the concrete slab a distance of 3 ft. from the edge.
64. Welded wire fabric shall conform to ASTM A–185 and be free of oil and rust. It shall be installed in lengths as long as possible and lapped a minimum of six inches.
65. Isalation joints to be provided in concrete stabs,
    a) between slab on grade and foundation wall,
    b) between stabs and inserts such as pipes,
    c) around steel columns and at spread footings
66. Contraction joints to be formed in a square pattern at not more than 25 ft o.c. in both directions.

CONCRETE

Shall meet all the requirements of ACI 301–84 with Type I or II cement. Minimum 28 day strength – 3000psi unless noted otherwise.
curbs, gutters, walks, exterior slabs, and truck ramp: 4000psi
interior slab at offices and sales area: 3000 psi

No admixtures without approval. Admixtures containing chlorides shall not be used. Concrete shall not be in contact with aluminium. Mechanicaly vibrate all concrete when placed, except slabs on grade need be vibrated only around embedded items. Maximum slump – 4". Do not tamp slabs. Use roller bug, vibrating screed or bull float to finish. See specifications for curing. Cast slabs on grade in alternate sections, unless permanent forms are used. Wait 48 hours between all adjacent concrete castings. Revibrate tops of columns and caissons soon after placing concrete, to close plastic shrinkage cracks.
Minimum strength for removal of forms and shoring shall be 70% of specified strength at 28 days.
Use of fly ash is not permitted for any concrete used in slabs.

MASONRY

Reinforced masonry shall have a minimum compressive strength = 1500 PSI.
Masonry units shall conform to ASTM C90.
Mortar shall conform to ASTM C270, Type S, 1800 PSI.
Grout shall conform to ASTM C476, 2000 PSI.
Mechanically vibrate grout in vertical spaces immediately after pouring and again about 5 minutes later. Maximum grout lift without cleanouts 60". Stay each end of each vertical rebar using single wire and loop type ties. Maximum vertical spacing of ties 8"–0". See Architectural drawings for control joints. Locate at 32 feet maximum o.c. u.n.o., but not less than 2'–0" from a bearing plate or from a jamb of an opening wider than 4'–0", u.n.o.
Backfill against masonry walls is not permitted until sufficient lateral support is provided.
Minimum vertical reinforcing to be # 5 @ 48" o.c.
Provide (2) No. 3 bars in bed joint immediately above and below openings in bearing walls. Extending 24" beyond each jamb, for all openings less than 2'–0" in size. Provide horizontal joint reinforcement are anchored to floors. Place bars at roof and floor lines continuous through control joints. (1) No. 5 at 16" o.c. in all walls u.n.o.
Masonry walls have been designed to span vertically as simple spans from floor to roof and are dependent upon the completed roof structure, metal roof deck, and completion of all masonry walls for stability and for resistance to wind and seismic forces. The contractor is solely responsible for providing all necessary bracing as required for construction loads. For stability, and resistance to wind and seismic forces until the entire structure is complete. The shoring shall not rely on any moment resistance capacity of the footings.

STUCCO

Application of stucco (portland cement plaster) shall be in accordance with ASTM C 926, application of portland cement based plaster. Approximate thickness= 5/8".

STRUCTURAL STEEL

ASTM A–36, except as follows: Pipe steel: ASTM A–53 Grade B, or A–501.
Tube steel: ASTM A–500 Grade B.
Bolts and plain anchors: ASTM A–307. Latest AISC handbooks and codes apply.
Minimum embedment of all bolts in grout or concrete shall be 8" with a 3" hook.
Welded anchors and shear connectors shall be ICOB approved NELSON, KSM or equal.
All steel fabrication shall be by an approved fabricator.
All steel bearing to be on a bond beam, solid block concrete or steel designed for bearing.

WELDING

All construction and testing per American Welding Society codes and recommendations. All welding shall be done by welders holding current valid certificates and having current experience in type of weld called for. Welding rods to be low hydrogen type, E70.
All butt welded splices in material thicker than 5/16" shall be inspected by an independent testing laboratory, to certify all splices as meeting or exceeding strength of material spliced. Two copies of all test reports and a letter of such certification shall be submitted to the architect.
All welding of reinforcing shall conform to the "STRUCTURAL WELDING CODES – REINFORCING STEEL", AWS D1.4–83. Welds indicated may be made in shop or field with approval.

LIGHT GAUGE STUDS

1. All members shall be formed from corrosion–resistant steel, corresponding to the requirements of ASTM A653–94 and shall be zinc coated meeting ASTM A924. Minimum yield strength shall be 33,000 PSI for all 20 gauge and 18 gauge members; and 50,000 PSI for all 16 gauge, and 12 gauge studs. Properties shall be as manufactured by metal stud manufacturers associations per I.C.B.O. No. 4943 or approved equal.
2. Studs shall be a minimum 20 gauge "C" shape, 1–5/8" wide, of the depths and spacing shown on drawings. Tracks shall be 18 GA., with a minimum flange of 1–1/4".
3. Bridging shall be cold rolled channel, minimum 1–1/2" deep with 9/16" flange width. Space bridging at 4"–0" maximum O.C. vertically. Double up studs at all jambs. All connections shall be per manufacturer's recommendations.
4. Splice in heavy gauge framing members, other than runner track shall not be permitted. Anchor runner track to concrete with 0.177 o x 1–1/2" HILTI fastners or equal at 16" o.c. max.

FASTENERS & CONNECTORS

1. Approved connectors, anchors and other fastening devices not included in the Standard Building Code shall be installed in accordance with the manufacturer's recommendations.
2. Where fasteners are not otherwise specified fasteners shall be provided in accordance with Table 2306.1 of the 2007 Edition of the Florida Building Code. Nails, screws, or bolts shall be able to resist the forces in this Code.
3. Metal plates, connectors, screws, bolts and nails exposed directly to the weather or subject to salt corrosion in coastal areas, as determined by the Building Official, shall be stainless steel or hot dipped galvanized after the fastener or connector is fabricated to form a zinc coating not less than 1 oz per sq ft, or hot dipped galvanized with a minimum coating of 1.8 oz per sq ft of steel meeting the requirements of ASTM A 90 Triple Spot Test.

GENERAL

1. Land Investment Services, Inc. have not been retained to provide, nor are they responsible for, the field supervision, inspection, or construction administration of this project.
2. This building/structure has been designed in accordance with the 2007 Edition of the Florida Building Code, Section 1606 for design pressures generated by a three second gust design design wind velocity of 110 mph, (94 mph fastest mile wind velocity). Structural calculations; including gravity loads, as necessary to confirm compliance with the 2007 Edition of the Florida Building Code, have been performed.
3. The owner, his agent, or general contractor is responsible for field supervision, construction administration, review and approval of all shop drawings, verification on–site of all dimensions and elevations, and strict compliance with these construction documents as approved by Marion County, and designed and reviewed by Land Investment Services, Inc.
4. These plans are not intended to be mastered. The repetitive use of these plans for permitting is not approved.
5. All windows, doors, and other such systems, components and cladding shall be designed in accordance with Section 1606 of the 2007 Edition of the Florida Building Code for design pressures generated by a three second gust design wind velocity of 110 mph, (94 mph fastest mile wind velocity), see "Design Parameters" for specific pressures.
6. Contractor shall verify in field all existing conditions shown on drawings.
7. Contractor shall notify the owner in writing prior to construction of any discrepancy between plans and on–site dimensions and elevations.
8. (1) Roof dead load = 30 PSF. Dead load available to resist uplift = 10 PSF
   (2) Roof live load = 20 PSF (reducible)
   (3) Mech– loads : see plans coordinate with contractor.
9. Provide all temporary bracing, shoring, guying or other means to avoid excessive stresses and and to hold structural elements in place during construction. Establish and verify all openings and inserts for mechanical, electrical and plumbing with appropriate trades, drawings and sub–contractors prior to construction.
10. The structural engineer shall not have control and shall not be responsible for, construction means, methods, techniques, sequences or procedures, for safety precaution and programs in connection with the work, for the acts or omissions of the contractor, subcon–tractors or any other persons performing any of the work, or for the failure of any of them to carry out the work in accordance with the contract documents.
11. Unless otherwise noted, minimum connection elsewhere shall be two 5/8" diam. bolts or 1/4" fillet weld 4" long, using 1/4" connection material and detailed to minimize bending in connection.
12. Epoxy anchors shall be 'set' adhesive by Simpson ISBO #ER–5279 or approved equal.
13. Cost of additional field and office work necessitated by request by Contractor for an option or due to errors or ommissions in construction shall be borne by the Contractor. Options are for Contrac–tors convenience. He shall be responsible for all changes necessary if he chooses an option and he shall coordinate all details.
14. Any engineering design provided by others and submitted for review shall bear the seal of an engineer registered in Florida.
15. Unless otherwise noted, details on structural drawings are typical as indicated by cuts, references or titles.
16. Verify all dimensions with architectural drawings.

LIS
ARCHITECTURE
ENGINEERING
LAND SURVEYING
AA 26002040
CA 0006855
LB1057
21430 Palm Beach Blvd.
Ave., Flo. 33920
Phone: (239) 693–9244
facsimile: (239) 693–9828
2572 West State Road 426
Suite 2064, Oviedo, FL 32765
Phone: (321) 244–0402
facsimile: (321) 244–9419

CLIENT NAME: STEPHENS BARRIOS
823 IRMA AVENUE
ORLANDO, FLORIDA, 32803

PROJECT NAME: FAMILY DOLLAR STORE
PLAN # 2011–04 / 104x80
FORT WHITE, FL

SHEET TITLE: Structural Notes

SEAL
ROBERT W. CASE
LICENSE
No. 44643
STATE OF
FLORIDA
PROFESSIONAL ENGINEER
MAR 6, 2012
ROBERT W. CASE
FLORIDA PE #44643

RELEASE	DATE
1	
2	
3	
4	
5	
6	

PROJECT NO.: 2012-001
ISSUE DATE: 02/22/2012
DRAWN: JC CHECKED: BC

S102