DUVAL COUNTY RESIDENTIAL COVER SHEET
STRUCTURAL ENGINEERING

DESIGN SPECIFICATIONS

- DESIGN CODES:
  2017 FLORIDA BUILDING CODE (FBC) – RESIDENTIAL, ASCE 7-10, 2015
  NDS, ACI, ATIC, AWPA, APA, ICC 600-08
- OCCUPANCY: RESIDENTIAL GROUP R-3 (ONE- AND TWO-FAMILY DWELLINGS)
- DESIGN LOADS:

ROOF TRUSS:
LL 20 PSF TOP CHORD
LL 0 PSF BOTTOM CHORD

DL 5 PSF TOP CHORD
DL 7 PSF BOTTOM CHORD

ROOF CONVENTIONAL FRAMING:
LL 20 PSF RAFTERS
LL 20 PSF CEILING JOISTS

DL 10 PSF RAFTERS
DL 10 PSF CEILING JOISTS

DL 30 PSF ATTICS WITH STORAGE
DL 10 PSF ATTICS W/O STORAGE

FLOORS:
LL 40 PSF TOP CHORD
LL 0 PSF BOTTOM CHORD

DL 10 PSF TOP CHORD
DL 5 PSF BOTTOM CHORD

STRUCTURE HEIGHT & NO. OF STORIES

- MAXIMUM HEIGHT OF STRUCTURE (FT) 18.2
- NUMBER OF STORIES 1

TYPE OF CONSTRUCTION

- TYPE V-B
- UNPROTECTED
- UNSPRINKLERED

WIND ZONE INFORMATION

NOTE: THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH, AND MEETS THE REQUIREMENTS OF SECTION 1609 OF THE 2017 EDITION OF THE FLORIDA BUILDING CODE

THIS BUILDING IS NOT LOCATED IN THE WIND BORNE DEBRIS REGION

- BUILDING: ENCLOSED STRUCTURE
- ULTIMATE DESIGN WIND SPEED (MPH – Vult) 130
- NOMINAL DESIGN WIND SPEED (MPH – Vasd) 110
- BUILDING RISK CATEGORY II
- WIND EXPOSURE CATEGORY C
- INTERNAL PRESSURE COEFFICIENT GCpi (+/-) 0.18

COMPONENTS & CLADDING PRESSURES

COMPONENTS & CLADDING PRESSURES (PSF)				
SIZE	INTERIOR ZONES		END ZONES	
	+	-	+	-
0-20 sf	23.5	25.6	23.5	30.8
21-50 sf	22.0	24.1	22.0	27.8
51-100sf	21.0	23.0	21.0	[illegible]
> 100 sf	18.4	20.4	18.4	20.4

DIMENSION OF END ZONE IN FT. 4.0
END ZONE IS LOCATED AT BUILDING CORNERS

1.0 GENERAL NOTES

A. It is the intent of the Engineer of Record that his work be in conformance with all requirements of the authorities having jurisdiction over this type of construction and occupancy. All contractors are responsible for the means and methods of constructing and shall do their work in conformance with all applicable codes and regulations.
B. The contractor shall verify all conditions and dimensions at the job site prior to commencing work.
C. Contractor shall supply, locate, and build into the work all inserts, anchors, angles, plates, openings, sleeves, hangers, slab depressions, and pitches as may be required to attach and accommodate other work.
D. These documents, as instruments of service, are the property of the Engineer of Record and may not be used or reproduced without expressed written consent by the Engineer of Record.
E. All details shall be in accordance with instructions from manufacturer or designer.
F. The owner shall provide contractor with a soil investigation report and analysis. All requirements for site preparation and soil compaction specified in the soil report shall be followed unless additional more stringent requirements are specified. Notify Engineer of Record if foundation conditions encountered differ from soil exploration information made available to the contractor.
G. It is the contractor's sole responsibility to determine erection procedure and sequence to ensure the safety of the building and its component parts during erection.
H. Contractors shall be responsible for all temporary bracing that is required during construction to keep structure safe and plumb until the entire structure is in place. Bracing shown on structural plans is for completed structure only.
I. Design is void after one year from original date.
J. Do not scale. Use dimensions from architectural plan.
K. Submittals for this project are reviewed only for general conformance with the design concept and general compliance with the information given in the Contract Documents. It shall not include review of quantities, dimensions, weights or gauges, fabrication processes, construction methods, coordination of the work with other trades, or construction safety precautions, all of which are the sole responsibility of the Contractor. Review of a specific item shall not indicate acceptance of an assembly of which the item is a component. The Engineer shall not be responsible for any deviations from the Contract Documents not clearly noted by the Contractor.

2.0 MATERIAL SPECIFICATIONS

CAST-IN-PLACE CONCRETE: shall have a minimum design compressive strength (f'c) of 2500 psi at 28 days unless noted otherwise. All footings shall have a minimum design compressive strength of 2500 psi at 28 days. All concrete operations, including but not limited to mix design, mixing, transporting, placing, reinforcing detailing and placing, curing, and testing shall be done in accordance with the requirements and application of ACI 301-05 "Specifications for Structural Concrete for Buildings".
CONCRETE MASONRY UNITS: shall be hollow unit masonry in accordance with ASTM C 90-08 "Hollow Load-Bearing Concrete Masonry Units" and shall have a minimum net area compressive strength of 2000 psi when using Type M or S mortar (ASTM C 270-08). In accordance with ACI 530 "Building Code Requirements and Specification for Masonry Structures", the 2000 psi block in combination with Type M or S mortar provides a design compressive strength (f'm) of 1500 psi.
GROUT: shall be in accordance with ASTM C 476-08 and shall have a maximum coarse aggregate size of 3/8" placed at an 8" to 11" slump and have a minimum specified compressive strength of 2500 psi at 28 days when tested in accordance with ASTM C 1019-09.
REINFORCING STEEL: shall be in accordance with ASTM A615-08 minimum Grade 40, and conforming to ACI 301-05, ACI 315 ("Manual of Concrete Practice"), ACI 318-08 ("Building Code Requirements for Structural Concrete"), and CRSI Manual of Standard Practice, 2009.
STRUCTURAL STEEL: ASTM A36-08 and conform to AISC "Specification for Design, Fabrication, and Erection of Structural Steel for Buildings".
STRUCTURAL PIPE AND STRUCTURAL TUBING: shall be ASTM A500-07 (Grade B).
WELDED WIRE FABRIC (WWF): shall be ASTM A185-07.
ANCHOR BOLTS AND THREADED RODS: shall be in accordance with ASTM A307-07 or ASTM F 1554-07 Grade 36.
WASHERS: shall be in accordance with ASTM F 436-09 Grade 36.
NUTS: shall be in accordance with ASTM A 563 Grade A Hex.
ANCHORING ADHESIVE: shall be one of the following products (DUAL CARTRIDGE INSTALLATION ONLY):
Simpson Strong-Tie Co. Product: Epoxy-Tie SET
Simpson Strong-Tie Co. Product: Acrylic-Tie AT
METAL CONNECTORS: All metal connectors which are exposed to moisture shall be galvanized (ASTM A 153-05), Z-MAX, or stainless steel.

2.23 WOOD
A. All wood members exposed to weather or in contact with masonry, concrete, or soil shall be pressure-treated.
B. All framing anchors and connectors shall be Simpson or equal.
C. All prefabricated structural trusses shall be certified by the truss manufacturer's registered engineer.

2.2324 FASTENINGS
All framing anchors and connectors shall be manufactured by Simpson or equal unless otherwise noted. All metal connections and fabrications shall comply with AISC specifications.
All fasteners shall be common nails UNO.

2.2307.1 SILLS ON CONCRETE
Where sills on concrete are used, typical anchor bolts shall have a minimum diameter of 1/2" w/ 3x3x3/16 minimum washer and a minimum embedment of 7" in concrete. Anchor bolts are required at the following locations:
A minimum of (1) anchor bolt shall be provided within 6 to 12 inches of each end of each plate and a minimum of (2) anchor bolts per plate.
Anchor bolts shall be located within 12" of corners and openings & at maximum spacings of 24" oc.

2.2307.6 SUBFLOORS
Where subflooring is indicated in these plans use 3/4" T&G plywood glued with a construction adhesive and fastened per FBC – Residential Chapter 5.

3.0 CONSTRUCTION SPECIFICATIONS

3.18 FOOTINGS AND FOUNDATIONS
A. Footings and Foundations shall be in accordance with FBC – Residential Chapter 4. This design has been completed in accordance with pertinent standards and accepted engineering design procedures, and is based on the best available information at the time of completion. The design is intended to minimize differential movement resulting from the heaving of expansive soils or settling of subsurface soils. It must be recognized that foundation components will undergo movement. Any subsequent owners shall be appraised of the soil condition and advised to maintain good practices in the future with regard to surface and subsurface drainage, framing of partitions above floor slabs, finish work above floor slabs, etc.
B. Footings shall bear upon undisturbed soil or upon soil compacted to a minimum of 95% of Modified Proctor Maximum Dry Density for a depth of at least (2) feet below footing.
C. Fill under concrete slabs shall be clean, free of debris and other deleterious materials. Fill shall be compacted to a minimum of 95% of Modified Proctor Maximum Dry Density (ASTM D1557-07).
D. Fill shall be treated with termite protection before slab is placed or Borate applied to wood framing above slab.
E. A concrete slab-on-grade used in conjunction with the exterior stemwall foundation, shall have minimum 6x6 W1.4xW1.4 welded wire fabric (WWF) or fiber reinforcement in the slab and the slab shall be keyed into or tied into the foundation.
F. The top of a monolithic slab-on-grade shall be at least 8 inches above finished grade. The slab shall have minimum 6x6 W1.4xW1.4 WWF at mid-height or synthetic fiber reinforcement. A double layer of WWF 3 feet wide shall be provided around the perimeter of the slab for no synthetic fiber reinforcement.
G. Vapor barrier shall consist of minimum 6 mil. polyethylene.
H. Where subsurface soil condition information is not available, foundations have been designed for a 2000 psf soil bearing capacity. Contractor shall report any differing conditions to the Engineer of Record prior to commencing work.

3.19 CONCRETE
A. Concrete and Steel Reinforcement shall be in accordance with FBC-Building Chapter 19.
Minimum concrete cover shall be as follows:
Concrete cast against and permanently exposed to earth 3"
Concrete exposed to earth or weather: #6 – #18 bars 2", #5 bars or smaller 11/2"
Concrete not exposed to weather or earth: primary reinforcement for beams and columns 1 1/2"
B. All continuous reinforcing steel in beams, columns, and footings shall be lapped a minimum of 36 bar diameters or 25", whichever is greater.
C. Horizontal beam and footing bars shall be bent 25" around corners or corner bars with a minimum 25" lap (UNO).

3.21 MASONRY
1. Masonry construction shall be in accordance with FBC-Building Chapter 21 and in accordance with the Specifications for Masonry Structures ACI 530.1-08. ACI limits the grout lift height to 12 ft and requires a 1-hour initial set time between lifts.
2. For masonry construction, provide pre-cast concrete lintels over all openings (UNO). Lintels shall be of sufficient size and reinforcement for the given span loading conditions.

3.2308 VERTICAL FRAMING WOOD
Use 2x studs for all exterior and interior walls U.N.O. in these plans. Space studs @ 16" o.c. at all exterior, interior bearing walls, interior shear walls, and @ 16" o.c. at all interior non-bearing walls.
Use SPF #2 (or better) top plates and PT SPF #2 (or better) sill plates.
3.2308.1 Flexible Finish: Wall sheathing shall be min 7/16", 24/16, Structural 1 APA rated OSB or plywood sheathing. Fastened W/ 8d @ 6" o.c. edge and 6" o.c. field. sheathing may be oriented vertically or horizontally. Flexible finish walls include: wood, cement or vinyl siding, hardi panel & brick. all other wall shall be considered brittle finish.
3.2308.2 Stucco finish,-min. 7/16", 24/16, structural 1 APA rated OSB or plywood sheathing, fastened w/ 8d @ 6" o.c. edge and 6" o.c. field. sheathing may be oriented vertically or horizontally.

3.2308.2.2.1 INTERIOR SHEARWALL SHEATHING
GENERAL:
EDGE NAILING is required at the bottom and side edges of the sheathing.
RATED SHEATHING:
Where interior shearwall indicated, underlay with 7/16" Rated Sheathing fastened with 8d nails. Unless noted as above, space nails @ 6" o.c. edges, and 12" o.c. intermediate.

3.2319 ROOF AND CEILING FRAMING
1. Roof and Ceiling Framing shall be in accordance with FBC – Residential Chapter 8. Prefabricated structural trusses shall comply with NFPA National Design Specifications for Wood Construction, TPI Design Specifications for Metal Plate Connected Wood Trusses, and AITC. All prefabricated wood trusses shall be fastened to their supporting walls or beams with hurricane ties or anchors.
2. Contractor shall coordinate with truss manufacturer to ensure adequate bearing is provided at end reactions of all girder trusses.
3. The contractor shall approve fabrication and installation drawings showing size, shape, and layout.

3.2322 ROOF SHEATHING
Use 7/16" (specific gravity>0.49 (Douglas-Fir, Southern Pine)) Rated Structural Sheathing (or 4-ply 15/32" CDX Tile Roofs) with fastening schedule as follows:
Use 8d ringshank nails @ 6" o.c. edges and 12" o.c. field interior zone; uno.
Use 8d ringshank nails @ 6" o.c. edges and 6" o.c. field perimeter zone within 4 feet of roof edges & either side roof peak;
Use 8d ringshank nails @ 4" o.c. edges and 4" o.c. field at gable ends.

3.2313.4 GABLE ENDWALLS
Provide platform framing in attic or balloon frame wall studs at all gable ends.

REV. #	DESCRIPTION	DWG.	DATE
1			
2			
3			
4			
5			

LUCAS & SCOTT ENGINEERING, INC.
12627 SAN JOSE BLVD., STE. 603
JACKSONVILLE, FLORIDA
(904) 260-2699
FLORIDA CERTIFICATE
OF AUTHORIZATION 9933

COVER SHEET & GENERAL NOTES

RENOVATIONS AT
500 ST JOHNS AV.
GREEN COVE SPRINGS, FLORIDA

DRAWN BY: AOB
DATE: 12/10/2019
SCALE: AS NOTED
DESIGNED BY: DVL
JOB NO. LSE-2631COMM
SHEET No. S1 OF 3