

GENERAL NOTES:

1. ALL CONSTRUCTION AND DESIGN SHALL CONFORM TO THE 2020 FBC (7TH ED)

2.. THE STRUCTURAL DRAWINGS SHALL BE UTILIZED IN CONJUNCTION WITH OTHER CONSULTANTS' DRAWINGS.

3. THE STRUCTURAL DRAWINGS ARE INTENDED FOR THE STRUCTURE TO ACT AS WHOLE ONCE CONSTRUCTION IS COMPLETE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE SAFETY AND STABILITY (I.E, TEMPORARY BRACING IF REQUIRED) DURING CONSTRUCTION AS A RESULT OF CONSTRUCTIONS METHODS AND SEQUENCES.

4. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING STRUCTURES. THE ENGINEER SHALL BE NOTIFIED ON ANY DISCREPANCY BETWEEN THE EXISTING CONDITIONS AND CONSTRUCTION DOCUMENTS.

5. DESIGN CRITERIA

A. CODE: 2017 FBC (6TH ED)

B. LOADS AND DESIGN CRITERIA: THE FOLLOWING LOADS AND CRITERIA WERE USED IN ADDITION TO THE DEAD LOAD OF THE STRUCTURE.

LIVE LOADS:

ROOF

20 PSF

CEILING

10 PSF
- SOIL CRITERIA:

ALLOWABLE SOIL BEARING

2000 PSF

PASSIVE PRESSURE

150 PCF

FRICTION COEFFICIENT

0.35
- WIND CRITERIA:

WIND SPEED:

130 MPH (3-SECOND GUST)

CATEGORY:

II

EXPOSURE

B

INTERNAL PRESSURES:

=/- 0.18

CLADDING AND COMPONENTS

ZONE 1

21.3 / -34.15 PSF

ZONE 2

21.5 / -59.45 PSF

ZONE 3

21.5 / -69.75 PSF

ZONE 4

37.32 / -40.48 PSF

ZONE 5

37.32 / 49.96 PSF

CONCRETE AND REINFORCING STEEL:

1. ALL CONCRETE DESIGNED PER CURRENT EDITION OF AC1 318

2. CONCRETE SHALL HAVE THE FOLLOWING MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS:

A. FOUNDATION WALLS, PIERS, AND FOOTINGS3000 PSI

B. SLAB ON CARE:3000 PSI

C. ALL OTHER CONCRETE3000 PSI

3. ALL CONCRETE SHALL BE NORMAL WEIGHT CONCRETE WITH A NORMAL AIR DENSITY OF 145 PSF.

4. PROVIDE CONSTRUCTION JOINTS WHERE SHOWN, OMIT NONE AND ADD NONE WITHOUT WRITTEN APPROVAL FROM THE ARCHITECT / ENGINEER.SUBMIT DRAWINGS SHOWING ALL PROPOSED CONSTRUCTION JOINT LOCATIONS FOR APPROVAL PRIOR TO PREPARATIONS OF AFFECTED REINFORCEMENT SHOP DRAWINGS

5. MINIMUM ELAPSED TIME BETWEEN ADJACENT CONCRETE PLACEMENTS SHALL BE 48 HOURS

6. CONCRETE MIX DESIGN FOR EACH TYPE AND STRENGTH OF CONCRETE SPECIFIED SHALL BE SUBMITTED FOR ARCHITECT / ENGINEER REVIEW 30 DAYS PRIOR TO WELDED OF CONCRETE

7. ALL REINFORCING STEEL ASTM A615 GRADE 60, ALL WELDED WIRE FABRIC ASTM A185

REINFORCING STEEL:

1. ALL BAR REINFORCEMENT SHALL BE CONFORM TO ASTM 615 GRADE 60.

2. WELD WIRE FABRIC REINFORCEMENT SHALL CONFORM TO ASTM A185

3. CLEARANCE OF MAIN REINFORCEMENT FROM ADJACENT SHALL BE CONFORM TO THE FOLLOWING (UNLESS OTHERWISE SHOWN IN DETAIL).

A. UNFORMED SURFACES IN CONTACT WITH GROUND (FOOTING OR WALL BOTTOM).....3"

B. SLAB ON GRADE2 1/2"

C. FORMED SURFACE IN CONTACT WITH GROUND OR EXPOSED TO WEATHER (WALLS, PIERS).....2"

D. IN ALL CASES, CLEARANCE NOT LESS THAN DIAMETER OF BARS.

NOTE: MAXIMUM DEVIATION FROM THESE REQUIREMENTS SHALL BE + 1/4" FOR SECTIONS 10" OR LESS AND +1/2" FOR SECTIONS OVER 10" THICK.

4. REINFORCEMENT SHALL BE CONTINUOUS THROUGH ALL CONSTRUCTION JOINTS UNLESS OTHERWISE INDICATED ON DRAWS

5. WHERE REINFORCEMENT IS NOT SHOWN ON DRAWINGS, PROVIDE REINFORCEMENT IN ACCORDANCE WITH APPLICABLE TYPICAL DETAILS OR SIMILAR TO THAT SHOWN FOR MOST NEARLY SIMILAR SITUATION, AS DETERMINED BY THE ARCHITECT / ENGINEER. IN NO CASE SHALL REINFORCEMENT BE LESS THAN MINIMUM PERMITTED BY APPLICABLE CODES.

6. ALL WORKMANSHIP AND MATERIAL SHALL BE CONFORMED TO THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" (ACI-315)

7. ALL REINFORCEMENT SHALL BE INSPECTED AND APPROVED BY THE ARCHITECT/ENGINEER OR OWNER TESTING AGENCY BEFORE CONCRETE IS PLACED.

8. WHERE CONTINUOUS BARS ARE CALLED FOR THEY SHALL BE CONTINUOUSLY AROUND CORNERS, LAPPED AT NECESSARY SPLICES AND HOOKED AT CONTINUOUS ENDS.

9. WELDED WIRE FABRIC SHALL BE LAPPED ONE FULL MESH PANEL OR 6" MIN.

10. ALL REINFORCING SPLICES SHALL CONFORM TO THE TABLE(S) PROVIDED IN THE GENERAL NOTES FOR STRENGTH OF CONCRETE BUT IN NO CASE LESS THAN THE REQUIREMENTS OF THE LATEST EDITION OF A318

11. SLABS AND WALLS SHALL NOT BE SLEEVED OR BOXED OUT OR HAVE THEIR REINFORCEMENT INTERRUPTED EXCEPT SPECIFICALLY NOTED ON THE DRAWINGS. PROVIDE ADDITIONAL REINFORCEMENT AROUND OPENINGS AS SHOWN IN THE DETAILS.

12. SUBMIT CHECKED SHOP DRAWINGS TO THE ARCHITECT / ENGINEER FOR REVIEW PRIOR TO FABRICATION OF REINFORCEMENT.

13. BAR SUPPORTS SHALL BE GALVANIZED OR STAINLESS STEEL. BAR SUPPORTS IN CONTACT WITH EXPOSE SURFACE SHALL BE GALVANIZE AND PLASTIC TIPPED.

ADDITION CONCRETE ITEMS:

SLAB AND WALL REINFORCING LAP SPLICE LENGTHS			
LAP SLICE LENGTHS FOR REINFORCING IN 4000 PSI CONCRETE AS FOLLOWS			
BAR SIZE	TENSION SPLICE		DEVELOPMENT LENGTH
	TOP	OTHER	
#3	21"	15"	13"
#4	29"	20"	17"
#5	35"	25"	21"
#6	43"	31"	25"
#7	54"	39"	32"
#8	71"	51"	42"

LAP SPLICE LENGTHS FOR REINFORCING IN 3000 PSI CONCRETE AS FOLLOWS			
BAR SIZE	TENSION SPLICE		DEVELOPMENT LENGTH
	TOP	OTHER	
#3	21"	15"	13"
#4	29"	20"	17"
#5	35"	25"	21"
#6	46"	33"	27"
#7	63"	45"	37"
#8	83"	59"	49"

- NOTES:
1. LAPPED SPLICE LENGTHS BASED ON ASTM A-615, GRADE 60, REBAR

2. REINFORCING BARS CLASSIFIED AS TOP BARS WHEN MORE THAN 12" ON CONCRETE IS CAST BENEATH RESPECTIVE REINFORCING BAR.

3. COMPRESSION SPLICES SHALL PERMISSIBLE ONLY WHERE SPECIFICALLY NOTED ON THE DRAWINGS

4. TENSION SPLICES SHALL BE USED IN ALL BEAMS, SLABS, AND WALLS UNLESS OTHERWISE NOTED.

5. WHEN LAPPING LARGER BARS WITH SMALLER BARS, LAP LENGTH FOR SMALLER BAR SHALL GOVERN RESPECTIVE SPLICE.

6. SPLICE CONTINUOUS TOP REINFORCING BARS AT CENTER OF CLEAR SPAN WITH COMPRESSION SPLICES

7. SPLICE CONTINUOUS REINFORCING BARS AT CENTER OF SUPPORTING ELEMENT WITH COMPRESSION SPLICES.

FLOOR SLABS:

1. FLOOR SLABS SHALL BE ON AT LEAST 4" OF RELATIVELY CLEAN GRANULAR MATERIAL SUCH AS SAND, SAND AND GRAVEL, OR CRUSHED STONE. GRANULAR MATERIAL SHALL HAVE 100% PASSING THE 1 1/2" SIEVE AND A MAXIMUM OF 10% PASSING THE NO. 200 SIEVE.

2. STRUCTURAL FILL SHALL BE PLACED IN THIN LOOSE LIFTS NOT EXCEEDING 12" IN THICKNESS AND COMPACTED WITH A HEAVY ROLLER. EACH LIFT SHALL BE THOROUGHLY COMPACTED WITH THE LABORATORY ROLLER TO PROVIDE DENSITIES TO AT LEAST 95% OF THE PROCTOR MAXIMUM DRY DENSITY. STRUCTURAL FILL SHALL CONSIST OF AN INORGANIC NON-PLASTIC, GRANULAR SOIL CONTAINING LESS THAN 10% MATERIAL PASSING THE 200 MESH SIEVE.

POST-INSTALLED REBAR:

1. POST-INSTALLED REINFORCING BAR CONNECTIONS SHALL BE DESIGNED PER THE ACI BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318). POST-INSTALLED REINFORCING BAR CONNECTIONS SHALL BE CONSIST OF HILTI EPOXY SYSTEMS OR EQUAL

2. THE DESIGN OF STRAIGHT POST-INSTALLED REINFORCING BARS SHALL BE PREFORMED PER THE DEVELOPMENT AND SPLICE REQUIREMENTS OF THE ACI 318. THE POST-INSTALLED REINFORCING BAR SYSTEM IS AN ALTERNATIVE TO CAST-IN-PLACE REINFORCING BARS GOVERNED BY ACI 318 AND IBC CHAPTER 19.

3. THE EPOXY SYSTEM SHALL BE TESTED IN ACCORDANCE WITH THE ICC-ES ACCEPTANCE CRITERIA FOR POST-INSTALLED EPOXY ANCHORS IN CONCRETE ELEMENTS (ACI 308), TABLE 3.8 TECHNICAL DATE SHALL BE PUBLISHED IN AN ICC-ES EVALUATION SERVICE REPORT SHOWING COMPLIANCE WITH IBC.

4. POST-INSTALLED REINFORCING BAR INSTALLATION SHALL BE PERFORMED BY PERSONNEL TRAINED TO INSTALL THE SYSTEM PER THE MANUFACTURED PRINTED INSTALLATION INSTRUCTION (MP1), AS INCLUDED IN THE ANCHOR PACKAGING.

COMPACTION REQUIREMENTS

1. SUBGRADE SOILS AND STRUCTURAL FILL MATERIALS SHALL BE COMPACTED TO THE FOLLOWING PERCENTAGES OF THE ASTM D1557 MAXIMUM DRY DENSITY AT +/- 2% OPTIMUM MOISTURE CONTENT:

MATERIAL	MINIMUM PERCENT COMPACTION
STRUCTURAL FILL,IN THE BUILDING AREA	95
SUBBASE FOR SLAB SUPPORT	95
SUBGRADE BELOW STRUCTURAL FILL	95
MISCELLANEOUS BACKFILL	90

PRE-FABRICATED TRUSSES:

1. DESIGN, FABRICATE, AND INSTALL METAL PLATE CONNECTED TRUSSES MEETING TRUSS PLATE INSTITUTE TPI 1-1995 AND THE MOST CURRENT COPY OF THE AMERICAN FOREST AND PAPER ASSOCIATION "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION".

2. SUBMIT SHOP DRAWINGS TO THE ARCHITECT SHOWING ERECTION PLAN FABRICATED ASSEMBLIES, AND ACCESSORIES. SHOW MEMBER DESIGNINATION SIZES AND CONNECTIONS. SUBMIT DESIGN CALCULATIONS PREPARED BY A LICENSED ENGINEER INDICATING STRENGTHS, STABILITY, AND SERVICEABILITY OF MEMBERS AND CONNECTIONS.

3. PROVIDE KILN-DRIED LUMBER MEETING OR EXCEEDING THE FOLLOWING DESIGN VALUES

Fb = 1,400 PSI

Ft = 925 PSI

Fc = 1,500 PSI

E = 1,600,000

4. BRACE ROOF TRUSSES TO PROVIDE STABILITY DURING AND AFTER CONSTRUCTION.

GENERAL WOOD NOTES:

- DIMENSIONAL LUMBER
1. DIMENSIONAL LUMBER USED AS STRUCTURAL FRAMING (i.e. JOISTS, RAFTERS,HEADERS) SHALL BE SOUTHERN YELLOW PINE NO.2 OR EQUAL.

2. DIMENSIONAL LUMBER USED FOR STUDS WALLS SHALL BE STUD GRADE UNLESS NOTED OTHERWISE. STUDS SHALL HAVE BE SPACES AT 16" MIN WITH A DOUBLE TOP PLATE. SPLICES IN THE DOUBLE TOP WALLS SHALL BE ALTERNATE TOP AND BOTTOM. IN NO CASE SHALL 2x4 BEARING WALLS SUPPORT MORE THAN TWO FLOORS OF FRAMING IN ADDITION TO ROOF AND CEILING

3. ROUGH CUT TIMBER USED AS STRUCTURAL FRAMING SHALL BE AS SPECIFIED IN THE CONSTRUCTION DOCUMENTS

4. ALL LUMBER IN CONTACT WITH THE GROUND, CONCRETE SHALL BE PRESSURED-TREATED. CONTRACTOR MAY SUBMIT FOR APPROVAL A MOISTURE BARRIER IN-LIEU OF THE PRESSURE TREATED WOOD.

5. FASTENERS FOR PRESERVATIVE-TREATED AND FIRE-RETARDANT TREATED WOOD SHALL BE OF HOT-DIPPED ZINC COATED GALVANIZED STEEL OR STAINLESS STEEL AND SHALL FOLLOW CURRENT SIMPSON GUIDELINES BASED ON WEATHER EXPOSURE WHERE STAINLESS STEEL CONNECTORS OR HOT DIPPED CONNECTORS ARE SPECIFIED IN THE DRAWINGS, STAINLESS STEEL OR HOT DIPPED GALVANIZED FASTENERS SHALL BE USED TO MATCH THE CONNECTORS TYPE.

6. ALL NAILS FOR STRUCTURAL WORK SHALL BE COMMON WIRE NAILS UNLESS NOTED OR DETAILED OTHERWISE MEETING ASTM F1667. HOLES SHALL BE PRE-DRILLED WHERE NECESSARY TO PREVENT SPLITTING. NAILS SHALL HAVE THE MINIMUM PROPERTIES SPECIFIED IN THE TABLE BELOW:

NAIL TYPE	SHANK DIAMETER- INCHES	MINIMUM PENETRATION - INCHES
6d	0.113	1.13
8d	0.131	1.31
10d	0.148	1.48
12d	0.148	1.48
16d	0.162	1.63
20d	0.192	1.92

NAILING NOT SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE PER THE NAILING SCHEDULE BELOW:

- A. JOIST SITTING ON SILL OR GIRDER

B. BLOCKING BETWEEN JOIST/RAFTERS

C. RIM BLOCKING BETWEEN JOIST/RAFTERS

D. TOP PLATE TO STUD

E. STUD TO SILL PLATE

F. DOUBLE STUDS

G. DOUBLE TOP STUDS - BETWEEN SPLICE NAILING

H. DOUBLE TOP STUDS - EACH SIDE OF SPLICE PLATE

I. BLOCKING TO TOP PLATE

J. BLOCKING TO FLOOR/ROOF SHEATHING

K. RIM JOIST OR BLK TO TOP PLATE OR SILL PLATE

L. CONTINUOUS (2) AND (3) PIECE HEADERS

M. CEILING JOIST LAPS OVER PARTITIONS

N. RAFTER TO TOP PLATE OR SILL PLATE

O. BUILT-UP CORNER STUDS

P. TONGUE AND GROOVE DECKING

Q. CROSS BRIDGING

R. HORIZONTAL BLOCKING BETWEEN WALL STUDS

S. I-JOISTS SITTING ON TOP PLATE OR BEAM
- (3) 8d TOENAILS, EA. SIDE

(2) 10d TOENAILS EA. SIDE, EA. END

(3)10d TOENAILS EA. END

(2) 16d END NAILS

(2) 16d END NAILS OR (4) 8d TOENAILS

(2) 10d @ 12" O.C.

16d @ 16" O.C. FACE NAILS

(8) 16d

(2) 10d TOENAILS EACH SIDE

(4) 10d NAILS

8d TOENAILS @ 6" O.C.

16d @ 16" O.C. ALONG EACH EDGE

(3) 16d FACE NAILS, MINIMUM

(3) 8d TOENAILS EACH SIDE

16d @ 24" O.C.

(2) 16d AT EACH BEARING

(2) 10d EACH END

(2) 10d TOENAILS EACH END

(2) 10d NAILS THROUGH JOIST FLANGE

NAILING SCHEDULE NOTES:

1. ALL OTHER NAILING REQUIREMENTS NOTE SHOWN ON DRAWINGS OR IN SCHEDULE ABOVE SHALL BE IN ACCORDANCE WITH 2012 FBC.

2. POWER DRIVEN OR PNEUMATIC NAILS OTHER THAN COMMON NAILS MAY BE USED IF DATA IS SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO USE.

3. MINIMUM NAIL LENGTHS SHALL BE SUFFICIENT TO ACHIEVE MINIMUM PENETRATION INTO MAIN MEMBER AS NOTED IN SCHEDULE ON NOTE ABOVE.

WOOD STRUCTURAL PANELS

1. STRUCTURAL WOOD PANELS SHALL CONFORM TO THE REQUIREMENTS ON ONE OF THE FOLLOWING STANDARDS AND PUBLICATIONS:

A. U.S. PRODUCT STANDARD PS-1 FOR CONSTRUCTION AND INDUSTRIAL PLYWOOD

B. U.S. PRODUCT STANDARD PS-2 PERFORMANCE STANDARD FOR WOOD BASED STRUCTURAL USE PANELS

C. APA PRP-108 PERFORMANCE STANDARDS

2. ROOF AND WALL PANELS SHALL BE APA RATED, EXPOSURE 1, 1/2" OR 5/8" (AS NOTED ON DRAWINGS), 5 PLY PLYWOOD WITH A MIN. 32/16 SPAN RATING UNLESS NOTE OTHERWISE ON THE DRAWINGS. SHEATHING SHALL BE EXTERIOR GRADE WHERE EITHER SIDE OF SHEATHING IS PERMANENTLY EXPOSED TO WEATHER.

3. FLOOR SHEATHING SHALL BE TONGUE AND GROOVE APA RATED 5-PLY 3/4" PLYWOOD OR OSB SHEATHING (MIN APA RATED 48/24 SPAN RATING) PROVIDE A-C GRADE PLYWOOD AT ALL DECK SHEATHING LOCATIONS.

4. ALL FLOOR AND ROOF SHEATHING SHALL BE INSTALLED WITH THE FACE GRAIN PERPENDICULAR TO THE SUPPORTS AND A 1/8" GAP AT ALL PANEL EDGES UNLESS RECOMMENDED OTHERWISE BY THE PANEL MANUFACTURER.

5. ALL SHEATHING PANELS SHALL BE INSTALLED WITH END JOINTS STAGGERED UNLESS NOTED OTHERWISE ON THE DRAWINGS.

6. WHERE BLOCKING IS NOT SPECIFICALLY REQUIRED FOR THE ROOF SHEATHING, PLY CLIPS ON OR TONGUE AND GROOVE PLYWOOD SHALL BE USED.

7. SUB-FLOORING SHEATHING SHALL BE UNBLOCKED UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS, SUB-FLOOR SHEATHING SHALL BE GLUED DOWN TO THE SUPPORTING MEMBERS AND GLUED AT THE TONGUE AND GROOVE JOINTS.

8. ALL NAILS SHALL BE COMMON NAILS. ROOF SHEATHING SHALL UTILIZE RING SHANK NAILS. STAINLESS STEEL (TYPE 316) NAILS SHALL BE USED AT PERMANENTLY EXPOSED EXTERIOR AREAS. ALL NAILS THAT ARE NOT EXPOSED TO THE ELEMENTS BUT IN CONTACT WITH PRESERVATIVE TREATED LUMBER SHALL BE MINIMUM HOT DIPPED GALVANIZED MEETING ASTM A153.

SCOPE OF ENGINEERING LIMITED TO WIND LOAD CALCULATIONS, AND RELATED COMPONENTS AND CLADDING.

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY GARY GILL, PE ON THE DATE AND/OR TIME STAMP SHOWN USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED BY A 3RD PARTY CERTIFICATE AUTHORITY ON ANY ELECTRONIC COPY. FAC 61G15-23.004

Digitally signed by Gary Gill
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O'NEAL RESIDENCE - STRUCTURAL

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STRUCTURAL NOTES

PROJECT #: 2334-088	DWG #: S-001	REV #: 1
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