WHAT WE DO IN RESIDENTIAL PLAN REVIEW!

1) Review residential building plans for structural, electrical, mechanical, plumbing and gas code compliance and verify accuracy and completeness of associated submittal documents.
2) Calculate building, electrical, mechanical, plumbing, gas and radon fees.
3) Maintain file and log of appropriate records.
4) Work with permit processors and records management to meet the statutory requirements for public records retention.
5) Work closely with general public, contractors, engineers, etc., to answer questions related to the Florida Building Code and questions about their specific projects.

HOW WE DO RESIDENTIAL PLAN REVIEW!

1) Verify type of application submitted.
    a. Residential
    b. New construction
        - Single Family Detached
        - Duplex
        - Townhouse
    c. Alteration
    d. Addition
    e. Repair
2) Check parcel identification number on all submissions.
3) Verify submission of all required documents.
    a. Two complete sets of plans
    b. Site plan
    c. Soil test
    d. Flood elevation letter
    e. Energy form and BTU/hr load calculations
    f. Windload Analysis form a Florida licensed design professional
    g. Roof framing plan or Truss layout from a truss manufacturer
    h. Product Approval form
    i. Zoning requirements
4) Check construction plans for:
    a. Fire protection of structural members and assemblies
    b. Fire protection of nonstructural building components
    c. Fire protection requirements for general construction
    d. Egress components for life safety
    e. Accessibility standards for individuals with disabilities
    f. Interior environments for light, ventilation, and sanitation.
    g. Roof coverings
    h. Concrete, steel, and masonry construction standards
    i. Glass, glazing, and gypsum plaster construction methods
    j. Requirements for renovation of existing buildings
    k. Wind loading requirements
    l. Site work, demolition safety requirements
    m. Electrical
    n. Mechanical (HVAC) and Fuel Gas
    o. Plumbing
5) Check contractor license.
    a. Verify if allowed to build structure.

SOIL TEST

Check soil test results for:

a. Expansive clay
b. Organic debris
c. High water table
d. Engineer's recommended foundation design
e. Engineer's signature and seal

FLOOD LETTER

Check flood letter:

a. To verify if the parcel is within or outside of a known flood prone area.
b. For required minimum lowest floor elevation.
c. To establish lowest floor elevation based on engineer's recommendations.
d. To establish lowest elevation of equipment (water heater, a/c air handling units, etc.)
e. For engineer's signature, seal and appropriate disclosure information.

ENERGY FORM

Check energy form for:

a. Type of construction.
    1. new construction
    2. addition
b. conditioned floor area
c. overhang length at eves
d. porch overhang length.
e. glass square footage, SHGC, U factors, single or double pane, tinting, or Argon gas options.
f. exterior wall square footage.
g. exterior door square footage.
h. adjacent and knee wall square footage.
i. adjacent door square footage.
j. ductwork length and location.
k. air handler location, mark plan accordingly

Check energy form for the type of system used

a. electric
b. l.p. gas
c. natural gas
d. hydronic

Check energy form for energy efficiency rating.

a. seer
b. eer
c. afue
d. hspf
e. cop

Check energy form for a/c unit energy rating number.

Check energy form for R values.

a. exterior walls
b. adjacent walls
c. ductwork
d. ceiling
e) floor (off grade wood floor system)

Check energy form for energy credits.

a. ceiling fan
b. multizone
c. whole house fan
d. cross ventilation
e. attic radiant barrier
f. programmable thermostat

Check energy form for hot water heater type

a. electric
b. l.p. gas
c. natural gas
d. efficiency rating number

Check energy form to verify correct version computer program used to produce calculations
Check energy form for pass / fail rating

B.T.U. / HR. LOAD CALCULATIONS (MANUAL "J")

Check BTU/hr load calculations for:

a. glass square footage
b. minimum insulation values
c. exposed wall and partition square footage
d. door square footage
e. ceiling square footage
   - sloped
   - flat
f. for floor square footage
g. total sensible B.T.U. load
h. total latent B.T.U. load
i. required unit tonnage and model numbers
   - 15% oversize factor
   - total latent

LAND USE APPROVAL

In review of plans and documents submitted for permitting we:

a. Verify parcel identification number with other application documents
b. Verify zoning districts
c. Check for type of development
   - site built
   - other.
d. Check for environmental permit clearance
e. Check for septic system permit clearance
f. Check for building permit clearance
g. Check for reviewer signature and date of approved
h. Check for recorded subdivision

SITE PLAN

Check site plan for:

a. consistency with approved subdivision file
b. record of perimeter information on back of application
c. property dimensions
d. front, sides and rear setback requirements
e. setback dimensions to vertical construction
f. structures orientation on site

g. fill requirements if fill is allowed outside impervious areas
h. structure infringement upon buffer zones
i. structure infringement into protected areas
j. reviewer signature and date approved
k. location of structure on site to ensure consistency with environmental approval.
    - near wet lands
    - near ponds
    - near streams
    - near drainage easements

FLOOR PLAN

Review floor plan:

a. to verify room dimensions meet minimum housing requirements.
b. for room designations.
c. for means of ingress and egress.
    - egress doors minimum size and location
    - bedroom windows (emergency egress)
d. for location and size of all load carrying beams, verify with truss plan
e. floor joist and floor truss verification.
f. stair construction requirements
g. for required bathroom
h. minimum hallway width
i. travel distances
j. fire walls and or separation distances as appropriate, ad well as location and size of attic access
k. hazardous window locations
l. smoke detectors within and adjacent to each sleeping area
m. carbon monoxide detector where required
n. fireplace type, location and verify with elevation plan for roof clearances
o. knee wall insulation requirement at ceiling height changes
p. porch overhang length and verify with energy form
q. window square footage and verify with energy form
r. required interior load bearing walls and verify with foundation plan
s. location and support of girder trusses
t. spa motor access door
u. equipment location (water heater, a/c air handler)
    - garage
    - attic
    - closet
    - under house
v. for light and ventilation requirements.
w. 25 feet maximum duct length for clothes dryers

ELECTRICAL PLAN

Review electrical plan for:

a. electrical panel location
b. electrical outlet and switch locations
c. ground fault circuit interrupter at required locations
d. arc-fault circuit interrupter
e. lighting types and locations
f. required fan sizes and locations
g. smoke and carbon monoxide detectors where required

ELEVATION PLAN

Check elevation plan for:

a. roof slope
b. type of siding
c. window size and locations (verify with floor plan).
d. porch height from grade and their component parts
e. stairs location and dimensions
f. whether guardrails are required
g. baluster spacing
h. attic and foundation vents.
i. chimney heights in relation to the roofs around it
j. wind loading compliance.
k. verify the eve and porch overhang dimensions recorded on energy form.

FOUNDATION PLAN

Check foundation plan for:

a. type of foundation system
    - monolithic
    - stemwall
    - pier
b. size of footing
c. depth of footing below grade
d. size and placement of reinforcing steel
e. location of interior grade beams
f. size of interior grade beams
g. size of reinforcing steel in grade beams
h. spread footing with stem wall
i. corners poured and reinforced with 1 vertical #5 diameter reinforcing bar.
j. protection of wood floor system
k. lintel with horizontal reinforcing at perimeter
l. pile system
    - composition
    - dimension
    - embedment
    - height
    - type installation
        a. driven
        b. augured

Check foundation plan for floor type.

a. concrete slab on grade
b. 3 ½ inches minimum thickness
c. reinforcing wire size / fiber mesh
d. anchor bolt location and size
e. interior grade beam dimension and locations, with regard to load bearing partitions.
f. step downs at porches and garages (as necessary)
g. vapor barrier

For off grade wood floor we review

- location of spot piers
- distance from center to center, 8' max.
- dimension of footings
- size and placement of reinforcing steel
- girder sizes
- girder spans
- joist sizes
- joist spans
- joist spacing
- approved wood type or protection for wood in contact with masonry
- crawl space ventilation
- crawl space access

COMMON FRAMING PLAN

1) Check second floor framing plan.
   a. joist size
   b. joist spacing
   c. joist spans
   d. truss
2) Check ceiling plan.
   a. joist size
   b. joist spacing
   c. joist spans
3) Check roof framing plan.
   a. rafter sizes
   b. rafter spans
   c. rafter spacing

WALL SECTION

Check wall section for:

a. reinforcing steel location and size.
b. footing depth below grade
c. sole plate dimensions and type of wood used.
d. anchor bolt length and spacing.
e. wall height
f. exterior cladding, vinyl lap siding, etc.
g. solid backing of structural sheathing for brick veneer
h. 1 inch air space
i. wall ties @ 18 inches vertically and 32 inches horizontally
j. perimeter flashing
k. weep holes @ 4 foot centers maximum spacing
l. for double top plates
m. stud spacing.
n. continuous loading path.

o. solid sheathing on two story structures
p. lateral control straps at top and bottom with 6’ on center max. spacing
q. soffit ventilation for attic, calculate quantity
r. truss bracing and gable end bracing requirements
s. sheathing type, thickness, structural or nonstructural
t. verify floor type, wall type and ceiling slope with energy form

WIND ANALYSIS

1) Calculate and verify the following:
   a. determine the total length of building
   b. determine the width of the building
   c. determine the roof overhang
   d. determine the roof pitch
   e. determine the height of exterior walls
   f. calculate mean roof height
   g. determine if building is enclosed or open construction
   h. determine "use factor" of occupancy
   i. determine wind velocity to be used for calculations based on location
2) Perform calculations on the main wind force resisting system and transverse lateral forces
   a. windward wall
   b. leeward wall
      - uplift forces
   c. windward roof
   d. leeward roof
   e. windward overhang
   f. longitudinal lateral forces
   g. windward wall
   h. leeward wall
3) Calculate roof dead loads.
   a. calculate wall dead loads
   b. calculate floor dead loads
4) Calculate roof framing member forces
   a. end zone
   b. interior zone
5) Calculate outward forces on wall framing
   a. end zone
   b. interior zone
6) Analyze roof sheathing as shear diaphragm
   a. determine total length of shear wall
   b. calculate total lateral wind loading on building
   c. calculate total load transferred through diaphragm to shear wall
   d. calculate diaphragm forces per lineal foot of shear wall and compare actual forces to allowable forces
7) Analyze wall studs in interior zone
   a. determine stud spacing
   b. determine exterior sheathing
   c. calculate total outward forces on studs
   d. calculate stud moment
   e. calculate vertical bending
   f. calculate shear stresses
   g. calculate deflection limits
   h. locate and mark interior shear walls if any

8) Analyze wall studs in end zone.
    a. determine stud spacing
    b. determine exterior sheathing
    c. calculate total outward forces on studs
    d. calculate stud moment, vertical bending, shear stresses, tensile stresses and deflection
9) Analyze calculations for uplift on exterior wall components
    a. wind uplift per lineal foot at top of exterior wall
    b. uniform dead load per lineal foot at top of exterior wall.
    c. net uplift per lineal foot at top of exterior wall
    d. uplift forces on fasteners in exterior wall
    e. shear stresses on fasteners in exterior wall.
    f. analyze continuous loading paths
    g. uplift stresses on hurricane clips in interior zone
    h. dead loads in interior zone
    i. analyze difference between dead loads and uplift forces on hurricane clips in interior zone
    j. compare hurricane clip rating with the difference between dead load and uplift forces
    k. uplift on hurricane clips in end zone
    l. calculate dead loads in the end zone
    m. calculate difference between dead loads and uplift forces on hurricane clips in the end zone
    n. compare hurricane clip ratings with the difference between dead load and uplift forces.
    o. analyze connection of wall studs to top plate
    p. analyze connection of wall studs to bottom plate
    q. calculate uplift forces per lineal foot on foundation.
    r. review anchor bolt spacing and analyze uplift forces on each anchor bolt and washer in interior zone
    s. review anchor bolt spacing and analyze uplift forces on each anchor bolt and washer in the end zone

FEE CALCULATIONS

Calculate and record:

a. square footage for building permit fees.
b. plumbing permit fees.
c. electrical permit fees.
d. mechanical permit fees.
e. gas fees.
f. radon fees
g. construction lien law fees

FINAL REVIEW AND APPROVALS

Summary review and approvals:

a. stamp approvals and code requirements on plans.
b. initial and date application and plans.
c. record fees on application
d. notify applicant if additional information is needed
e. record special conditions on application.
f. check for completion of environmental review and approval signature
g. input information into computer tracking system.
h. deliver to contractor licensing review.