



ALABAMA COOPERATIVE EXTENSION SERVICE, AUBURN UNIVERSITY/AUBURN, ALABAMA

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SEA GRANT CONSORTIUM

CHECKLIST
FOR
BUILDING CONSTRUCTION
ON
SHORELINE PROPERTY

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The
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Prospective buyers or current owners of shore property are concerned about the special problems involved near shore area construction. The destruction caused by Hurricane Frederic on September 13, 1979 has created a need for careful evaluation of building construction near the shore. The following checklist are factors which should be considered in constructing or reconstructing buildings in coastal Alabama. Before committing to any major expenditures, a competent professional engineer experienced in shore area design and construction should be retained. He should then be requested to supply satisfactory answers to the following checklist of questions.

A 100 year storm is one which has a 1% chance of occurring annually. The associated 100 year flood for coastal Alabama is considered to range from 7 feet above mean sea level at upper Perdido Bay to 13 feet above mean sea level at Mississippi Sound, with a base elevation at Mobile Bay of 11 feet above mean sea level. These levels were established prior to Hurricane Frederic. Winds of the hurricane were officially recorded as 93 mph at Bates Field in Mobile County; however, winds along the beach areas were reportedly up to 145 mph. Check with local engineers for update on this information.

A. LOCATION CHECKLIST

YES NO

- ___ ___ 1. Local Zoning Regulations. Does the building site plan conform to local zoning regulations?
- ___ ___ 2. Alabama Coastal Area. If the building site is seaward of the 10 feet above mean sea level contact the Alabama Coastal Area Board, Permit Information Center, P. O. Box 755, Daphne, AL 36526.
- ___ ___ 3. Off-beach Site. Is the building site located off of the active beach zone and behind the major vegetated dune line?
- ___ ___ 4. Evacuation Route. Does the location have a suitable evacuation route to a safe inland refuge in case of severe storm tide and high wave conditions? (Check the elevation of low points in the road compared to anticipated storm tide levels at the County Civil Defense Office.)

YES NO

- — 5. Elevated Walkways. If there are dunes located between the building and the beach, have elevated walkways for beach access been provided to prevent damage to the stabilizing vegetation on the dunes?
- — 6. Check all Jurisdictions. Does the proposed location conform to all applicable governmental regulations by all jurisdictions, including Local, State and Federal? (Approval of one agency does not necessarily imply approval by other agencies.)
- — 7. Site Vegetation. Is finished site provided with adequate natural or planted vegetation to protect against soil erosion from wind and surface water runoff?

B. ELEVATION CHECKLIST

YES NO

- — 1. Storm Tide Elevation. Has the elevation of the 100 year storm tide (or flood plain) been determined and compared with the existing ground elevation at this building site? (Call City or County Engineer for information on 100 year storm tide elevation. Existing site elevation can be found by a local surveyor.)
- — 2. Floor Above 100 Year Tide Level. If this location is subject to flooding during the 100 year storm is the lowest habitable floor raised above the top of the highest storm wave cresting on the 100 year storm tide?

C. DESIGN WIND FORCES CHECKLIST

YES NO

- — 1. 100 Year Wind Speed. Has the wind velocity for a 100 year storm been found for this building site? (See map in Sec. 1205 Southern Standard Building Code, or call City or County Engineer.)
- — 2. Frame Design. Is the structural frame designed to withstand at least a 100 year storm wind with an adequate safety factor?
- — 3. Element Design. Is each element of the building designed to withstand both pressure and suction forces associated with at least a 100 year storm wind while remaining attached to the building?

YES NO

- ___ ___ 4. Shape Factor. Has the effect of shape factors and roof slope been accounted for when calculating wind pressure and suction? (See Southern Standard Building Code for more details.)

D. PILE FOUNDATIONS CHECKLIST

YES NO

- ___ ___ 1. Consider Piles. Are piles the best foundation for raising the structure to the proper elevation and preventing any surface water flow from undermining the structure?
- ___ ___ 2. Post-Scour Ground Elevation. If subject to wave scour, has the elevation of stable soil after 100 year storm scour been determined for this site by a qualified consultant?
- ___ ___ 3. Post-Scour Pile Loadings. Have the piles or other foundations been designed to sustain the horizontal and vertical loads associated with at least a 100 year storm after the supporting soil has been scoured down to the 100 year storm scour elevation?
- ___ ___ 4. Pile Spacing. If subject to water flow beneath the structure during the 100 year storm, are the piles or other foundations spaced wide enough apart to provide relatively free flow under the building? (Clearance between piles or other foundations suggested as 8 feet or more where piles are subject to scouring action.)
- ___ ___ 5. Wave Forces. If subject to wave attack during the 100 year storm, have the piles or other foundations been designed to withstand wave forces impacting on them?
- ___ ___ 6. Debris Impact. Does the design of piles or other foundations allow some reserve to allow for the impacting forces of floating debris?
- ___ ___ 7. Corrosion and Insect Resistance. Is the selected type pile or other foundation specially designed, constructed or treated to provide maximum service life with minimum maintenance in a corrosive marine environment with anticipated exposure to moist warm salt air, marine borers, and rot?

E. WOOD FRAME BUILDING CHECKLIST

YES NO

- ___ ___ 1. Tie Studs and Sills to Foundations. Are studs fastened to sill plates and sill plates fastened through supporting members to the foundations well enough to withstand a 100 year storm?
- ___ ___ 2. Tie Rafters and Plates to Studs. Are rafters or trusses fastened to top plates and studs with metal straps or framing connections well enough to withstand a 100 year storm?
- ___ ___ 3. Outside Wall Sheathing. Are studs sheathed on the outside with plywood or other durable sheathing material?
- ___ ___ 4. Tie From Roof to Foundations. Is there a positive sequence of connections fastening all members together from the roof on down through the foundations?
- ___ ___ 5. Secure Cantilevers. Are all cantilevered and other projecting members adequately supported and braced to withstand a 100 year storm?

F. CONCRETE BLOCK BUILDING CHECKLIST

YES NO

- ___ ___ 1. Masonry Wall Reinforcement. Does the concrete block wall contain vertical reinforcement firmly anchored into the tie beam on top and the footing at the bottom?
- ___ ___ 2. Reinforcement of Corners and Openings. Is the vertical reinforcement in the concrete wall placed at all corners, all openings in the wall, and at periodic intervals throughout the length of each wall?
- ___ ___ 3. Tie Beam. Are the concrete block walls topped with a reinforced concrete tie beam extending continuously around the outside of wall of the building?
- ___ ___ 4. Secure Roof to Tie Beams. Are all rafters or trusses firmly fastened to the supporting concrete tie beam?
- ___ ___ 5. Tie From Roof to Foundations. Is there a positive system of ties extending from the roof on down through the foundations to firm anchorage into the earth that is designed to safely withstand a 100 year storm?

G. ROOF, SIDING, SHUTTERS AND TRIM CHECKLIST

YES NO

- ___ ___ 1. Reduce Shingle-Tile Exposure. If the roof is shingle or tile, have the overlaps been increased and the fastening strengthened to account for 100 year storm pressures and suction?
- ___ ___ 2. Secure the Corners. Has particular attention been given to securing roof ridges, edges, eaves, corners, trim, and any other angular or irregular surfaces exposed to the wind?
- ___ ___ 3. Insure Adhesion. If built-up roof is used, are special measures specified to eliminate possible areas of inadequate adhesion or fastening between layers which could lead to subsequent uplift and failure?
- ___ ___ 4. No Flying Gravel. Has gravel surfacing been eliminated to protect against pitting or cracking of finish and glass on nearby structures?
- ___ ___ 5. Secure the Roof Panels. If the roof is of panel construction, has this installation been specially designed to withstand 100 year storm forces at this site?
- ___ ___ 6. Secure the Siding. Has the siding been fastened securely enough to withstand a 100 year storm?
- ___ ___ 7. Reinforce the Corners. Has the fastening between siding and wall been reinforced at the corners of the building to account for the increased suction forces in these areas?
- ___ ___ 8. Shutters. Have hurricane shutters been provided for all windows and other vulnerable openings?
- ___ ___ 9. Fast, Easy Closure. Are the shutters designed for quick, simple closure in time of need?
- ___ ___ 10. Account for Corrosion Losses. Are all the fastenings and hardware used in this building designed to withstand storm loadings after suffering anticipated corrosion losses over the entire service life of the building?
- ___ ___ 11. Secure All Parts. Is this building with all its components adequately secured from roof through foundation and firmly anchored into the ground so as to safely withstand both wind and wave forces associated with at least a 100 year storm?

H. UTILITIES CHECKLIST

YES NO

- ___ ___ 1. Storm Proof the Telephone and Electric. Are telephone and electric lines located underground in waterproof conduit laid in protected areas not subject to erosion?
- ___ ___ 2. Protect the Water and Sewage. Are the water supply and sewage facilities located in protected areas not subject to erosion?

I. DESIGN-CONSTRUCT-INSPECT CHECKLIST

YES NO

- ___ ___ 1. Contractor Qualifications. Is contractor experienced in constructing shore area construction?
- ___ ___ 2. Plans and Specifications. Does contractor have fully detailed plans and specifications? Do plans and specifications bear the seal and signature of a registered professional engineer? Is engineer experienced in type of design specified?
- ___ ___ 3. Inspection. Have provisions been made to have the work inspected by a registered professional engineer?

Adapted from:

Collier, C. A. et al. 1977. Guidelines for beachfront construction with special reference to the coastal construction setback line. 72p. Florida Sea Grant Program Report Number 20.