



**STATE OF ALABAMA
DEPARTMENT OF FINANCE
REAL PROPERTY MANAGEMENT
Division of Construction Management**



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October 21, 2020

TO: PUBLIC K-12 SCHOOL SUPERINTENDENTS, PRIVATE K-12 SCHOOL OWNERS, FACILITY MANAGERS, ARCHITECTS, AND ENGINEERS

FROM: MICKEY ALLEN, ASSISTANT FINANCE DIRECTOR *M.A.*
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FRANK BARNES, DIRECTOR *Frank Barnes*
ALABAMA DIVISION OF CONSTRUCTION MANAGEMENT (DCM)

SUBJECT: UPDATED GUIDANCE ON MANDATORY TORNADO STORM SHELTERS (HURRICANE SHELTERS WHERE APPLICABLE) REQUIRED BY THE 2015 INTERNATIONAL BUILDING CODE IN PUBLIC AND PRIVATE K-12 SCHOOLS

DCM's October 14, 2016 memo concerning storm shelters required by the 2015 International Building Code is superseded by this October 21, 2020 bulletin which includes updated references, terms, and details.

DCM views the adoption of the 2015 International Building Code as being applicable to building construction that occurs subsequent to its adoption and is not intended to address or correct pre-existing building conditions.

The 2015 International Building Code, Section 423.4 requires a storm shelter complying with ICC 500 for all Group E occupancies located in an area with a design wind speed for tornados of 250 MPH and when the Group E occupancy has an occupant load of 50 or more where calculated at 30 square feet per occupant. For storm shelters required by the 2015 International Building Code, Section 423.4 where the Group E occupancy consists of an addition to an existing building, the new addition shall be required to accommodate the occupant load of any space added to the existing building but shall not be required to accommodate the total occupant load of the entire building (existing building and addition). The requirement for storm shelters would not apply to the renovation of a Group E occupancy as long as the existing structural systems including foundations, load bearing walls, building frame, etc. are not substantially modified or removed and replaced. The requirement for storm shelters would apply when an existing space is renovated and there is a change of occupancy to a Group E with an occupancy of 50 or more. In cases where a storm shelter cannot be incorporated into the existing renovated structure, a stand-alone storm shelter shall be provided.

A portable building that is a single, pre-fabricated, stand-alone structure is considered a temporary building structure. Projects that consist of multiple portable buildings that are Group E occupancy of 50 or more are encouraged, but not required to include storm shelters. A modular building is a building that consists of two or more pre-fabricated, modular components joined together at the site to form a building structure. Modular buildings more than two modules are considered permanent structures and must meet the

requirements of the State Building Code including the requirement for storm shelters for Group E occupancies of 50 or more.

For a new Group E occupancy, the minimum occupant load shall be based on the classroom area included in the new addition. The minimum occupant load shall be calculated as previously stated in the memo issued by the Building Commission on July 10, 2010 which states the following (emphasis added):

- 1. Occupant Load (ICC 500, Para. 501.1.1).** Each new public and private school shall include a tornado storm shelter or tornado storm shelters of sufficient size to accommodate the student occupant load plus an additional 10% for faculty and administration. The student occupant load shall be calculated at 1 student per 30 square feet of gross classroom area. Note that the threshold occupant load for tornado storm shelter requirements shall be determined as 30 square feet per occupant plus 10%. Fractions or portions shall be rounded up to whole numbers. *Classroom area must include all rooms designated for general classroom instruction (for example: special education, art, computer lab, science lab, etc.). Auxiliary support areas such as cafeterias, band practice rooms, gymnasiums, vocational shops, etc. do not have to be included as general classroom instruction area.*

The design professional shall be responsible for the final determination of whether or not the proposed Group E structure is located in an area where the shelter design wind speed is 250 MPH as stated in the memo issued by the Building Commission on July 10, 2010. The memo stated the following (emphasis added):

- 2. Tornado Wind Speed Determination (ICC 500, Para. 304.2).** A state map with counties is attached that approximates the shelter design wind speeds as illustrated in Figure 304.2 (1). *The map is provided as a guide and the design professional must use their professional judgement when determining the appropriate design criteria.* The design wind speed must be indicated on the Tornado Storm Shelter Plan and on the required tornado storm shelter signage.

Mandatory Design Professional's Statement (ICC 500, Para. 106.4). See attached DCM Form B-14: Certification of Structural Observations for instructions concerning its inclusion in specifications for the Final Plan Review submittal to DCM. Provide a copy of the completed form to the DCM Inspector at Final Inspection. The original completed form, signed and sealed by the architect or structural engineer of record, must be submitted as an attachment to the Certificate of Substantial Completion.

Mandatory Contractor's Statement (ICC 500, Para. 107.3.3). See attached DCM Form C-17: Contractor's Statement of Responsibility for Construction of Tornado Storm Shelter (Hurricane Shelter Where Applicable) for instructions concerning its inclusion in specifications for the Final Plan Review submittal to DCM. The form must be completed by the Contractor and submitted to the DCM Inspector at the pre-construction conference. A copy of the Quality Assurance Plan prepared by the design professional must be attached to the Contractor's Statement of Responsibility.

The Division of Construction Management and the State Department of Education (SDE) recognize that the safety of all occupants of both new and existing buildings is highly important. School administrators are strongly encouraged to develop plans that provide for the best possible refuge in the event of a tornado or high wind event, including the incorporation of new storm shelters where feasible.

If you have additional questions regarding the ICC 500, please contact DCM's Plan Review Division at 334-242-4082 or planreview@realproperty.alabama.gov.

cc: Perry Taylor, State School Architect, SDE

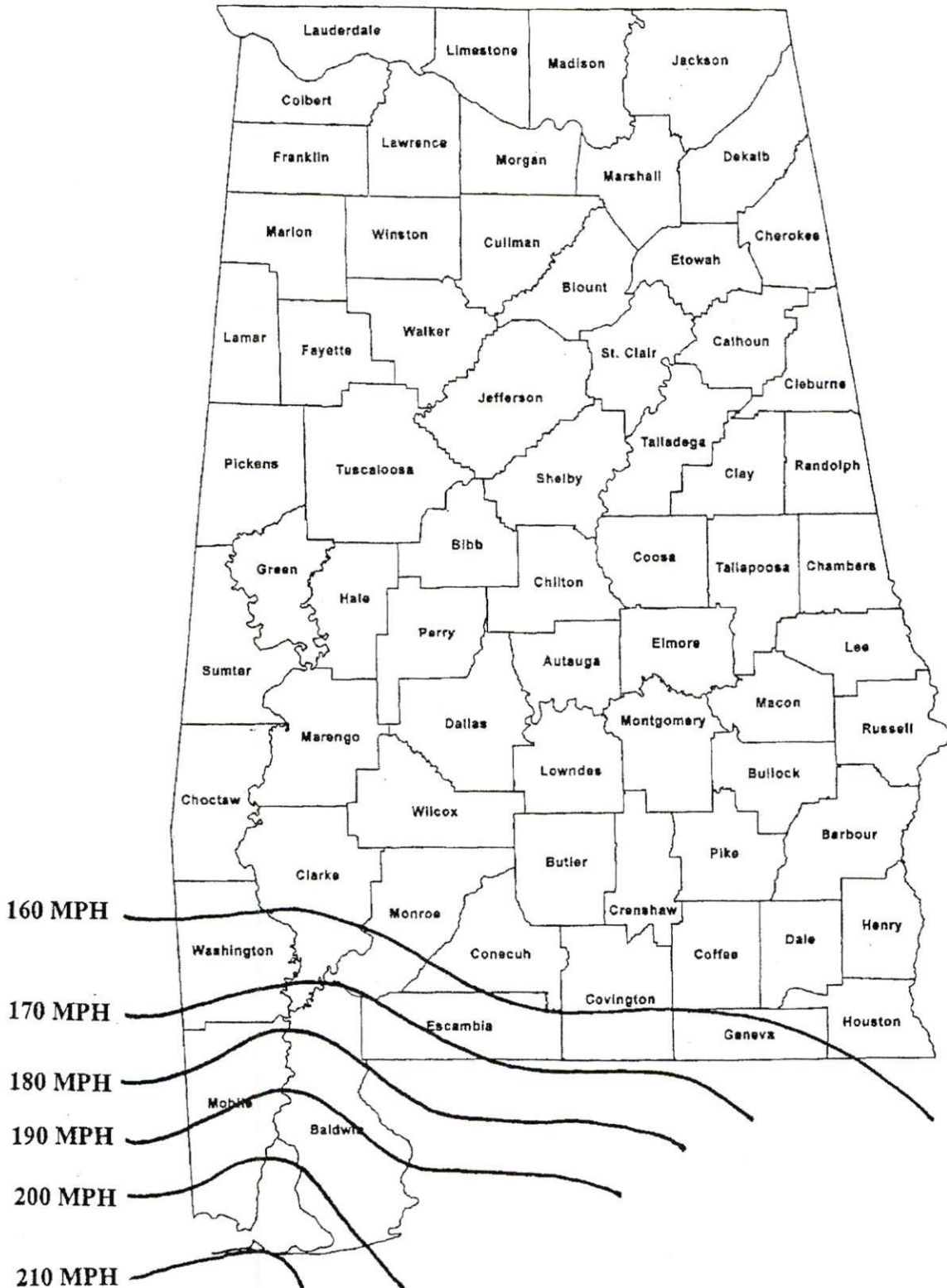
ATTACHMENT A

STATE MAP WITH COUNTIES SHOWING APPROXIMATE TORNADO WIND SPEED ZONES (Refer to ICC 500, Figure 304.2(1) for official map)

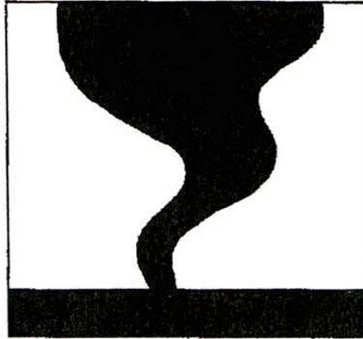


ATTACHMENT B

STATE MAP WITH COUNTIES SHOWING APPROXIMATE HURRICANE WIND SPEED ZONES (Refer to ICC 500, Figure 304.2(2) for official map)



**ATTACHMENT C
DESIGN INFORMATION SHELTER SIGNAGE**



TORNADO STORM SHELTER

___ MPH STORM SHELTER DESIGN WIND SPEED (3-SECOND GUST)

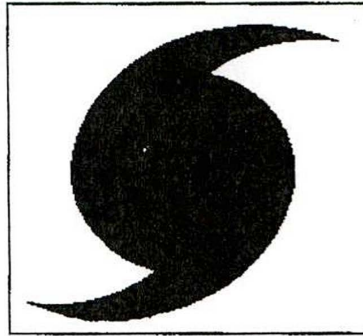
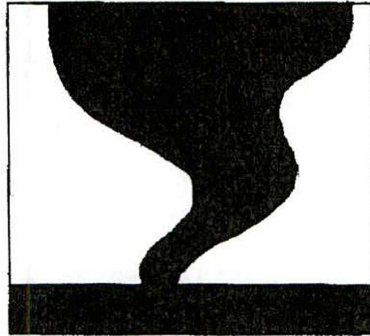
MISSILE IMPACT RESISTANCE:

___ LBS. 2 X 4 @ ___ MPH (HORIZONTAL)

___ LBS. 2 X 4 @ ___ MPH (VERTICAL)

STORM SHELTER MANUFACTURER/BUILDER _____

MAXIMUM OCCUPANT LOAD _____



COMBINATION STORM SHELTER

___ MPH STORM SHELTER DESIGN WIND SPEED (3-SECOND GUST)

MISSILE IMPACT RESISTANCE:

___ LBS. 2 X 4 @ ___ MPH (HORIZONTAL)

___ LBS. 2 X 4 @ ___ MPH (VERTICAL)

STORM SHELTER MANUFACTURER/BUILDER _____

MAXIMUM OCCUPANT LOAD _____

DCM (BC) No. _____

CERTIFICATION OF STRUCTURAL OBSERVATIONS

for

Project Name: _____

Owner Entity: _____

Contractor Company: _____

I _____, do hereby verify that I have personally conducted the visual
Design Professional
observations of the construction of the structural system for conformance to the approved construction documents for the referenced project. The visual observations of the structural systems were personally conducted by me at all significant construction stages and at the completion of the construction of the structural system. To the best of my knowledge, all structural deficiencies have been resolved except as noted below:

Signed and sealed on this date, _____, 20 ____.

Design Professional's Seal:

Architectural / Engineering Firm

Signature of Architect or Structural Engineer of Record

Printed Name

Specifications: This form must be included in the project manual submitted to DCM for Final Plan Review for:

- All new public K-12 schools, awarded after July 1, 2010, with tornado storm shelters as required by Act 2010-746.
- All public K-12 additions and renovations which are required to contain tornado storm shelters by the International Building Code, Section 423.
- All private K-12 new schools, additions and renovations as required by the International Building Code, Section 423.
- All new buildings containing classrooms or dorm rooms on the grounds of all public 2-year or 4-year institutions of higher education, statewide, awarded on or after August 1, 2012, as required by Act 2012-554.

Submittal of Form: Provide the completed form to the DCM Inspector at Final Inspection. The completed form, signed and sealed by the architect or structural engineer of record, must be submitted as an attachment to the Certificate of Substantial Completion for:

- All new buildings constructed on the grounds of new public K-12 schools awarded after July 1, 2010.
- All new buildings containing classrooms or dorm rooms constructed on the grounds of all public 2-year or 4-year institutions of higher education awarded on or after August 1, 2012.

DCM (BC) No. _____

**CONTRACTOR’S STATEMENT OF RESPONSIBILITY FOR
CONSTRUCTION OF TORNADO STORM SHELTER
(HURRICANE SHELTER WHERE APPLICABLE)**

Project Name: _____

Owner Entity: _____

Architectural/Engineering Firm: _____

Contractor Company: _____

I _____, acknowledge that I am responsible to the Owner, the Alabama
General Contractor
Division of Construction Management, the Alabama Community College System or the State Department
of Education as applicable, and the Architect/Engineer for the construction of the main wind-force
resisting system and any other components listed in the **attached Quality Assurance Plan (QAP)**.

I acknowledge that I am aware of the special requirements contained in the QAP.

I certify that control will be exercised to obtain compliance with the construction documents. The
procedures for exercising control shall be as listed below:

Control Procedure	How Reported	Distributed To	Distribution Frequency

(Attach additional pages if needed)

Furthermore, the following persons will be responsible for exercising control in accordance with the QAP.
Any changes to the persons listed below will be coordinated with the Owner a minimum of 3 calendar
days in advance of the change. The Owner shall provide written objections to the changes within 10
calendar days. No response shall be deemed acceptance.

Name of Person	Responsibility for QAP

Signed on this date, _____, 20____.

Contractor Company

By: _____
Signature of Contractor

Name and Title: _____

Specifications: This form must be included in the project manual submitted to DCM for Final Plan Review for:

- All new public K-12 schools, awarded after July 1, 2010, with tornado storm shelters as required by Act 2010-746.
- All public K-12 additions and renovations which are required to contain tornado storm shelters by the International Building Code, Section 423.
- All private K-12 new schools, additions and renovations as required by the International Building Code, Section 423.
- All new buildings containing classrooms or dorm rooms on the grounds of all public 2-year or 4-year institutions of higher education, statewide, awarded on or after August 1, 2012, as required by Act 2012-554.

Submittal of Executed Form: The completed and signed form must be submitted to the DCM Inspector at the pre-construction conference for:

- All new buildings to be constructed on the grounds of new public K-12 schools awarded after July 1, 2010.
- All new buildings containing classrooms or dorm rooms to be constructed on the grounds of all public 2-year or 4-year institutions of higher education awarded on or after August 1, 2012.