Appendix G:

Definitions

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Access Route - For the purposes of HES evaluations the access route is defined as a route along paved roads from the HES building to a major highway or interstate, or a resupply point (i.e., airport, train station, etc.), or to an evacuation point (airport, staging area, etc.).

Base Flood Elevation (BFE) - The elevation for an area, for which there is a one percent chance in any given year that flood levels will equal or exceed it.

Beam - A structural member whose primary function is to carry (or transfer) vertical loads horizontally to load-bearing columns or walls.

Benchmark Elevations - An elevation indicating additional elevation from a base elevation. On a site plan it may indicate an elevation of 30 feet, but it is 30 feet from a standard elevation.

Rigid Frame Bent (or Tudor Arch) - A combination of two structural elements (beam and column) with tapered sections (variable cross-section) that are connected in a manner that permits them to react monolithically within their design parameters. This type of system is common in preengineered long span structures.

Bond Beam - A concrete beam, usually cast-in-place, with steel reinforcement that is designed and constructed to join a wall to floor or roof to facilitate the transfer of all loads and load combinations.

Bottom Chord - Under normal loading conditions, the main tension member of a truss or joist that is positioned at the lowest elevation with respect to the members section.

Bracing - Structural elements installed to provide restraint or support (or both) to other members or structural systems so that the complete assembly forms a stable structure; may consist of knee braces, cables, rods, struts, ties, shores, diaphragms, rigid frames, etc.

Bridging - Consists of cross bracing (wood or metal) or full-depth blocking between joists that is used to stiffen the joists and resist buckling.

Brick Veneer - A facing of brick that is a single wythe in thickness (3" to 4") that is anchored or adhered to a structural backing, but not designed to carry loads other than its own weight.

Building Envelope - The external surface components that together fully enclose a building; such as walls, windows, doors, roof, floor, etc.

Built-up Roofing - A continuous roof covering made up of laminations or plies of bitumen (asphalt or coal-tar pitch) saturated or coated roofing felts, alternated with layers of bitumen as an adhesive, and surfaced with a layer of gravel or slag in a heavy coat of bitumen or finished with a

cap sheet, generally used on flat- or low-pitched roofs.

Cantilever Wall - A wall that is supported/connected only at one end. For example, an exterior wall may be anchored at the base, but not at the roof line.

Cavity Wall - A hollow wall built of masonry units arranged to provide a continuous air space within the wall (with or without insulation) and in which the inner and outer wythes of the wall are tied together.

Cladding - Architectural sheathing materials used as a noncombustible weather barrier and aesthetic Elements that are either directly loaded by wind forces or receive wind loads originating at relatively close locations and that transfer these loads to the main wind force-resisting system.

Clerestory - An upper zone of wall pierced with windows that admit light to the center of a lofty room.

Column - In structures, a relatively tall, slender structural member that transfers axial vertical compression loads to a building's foundation.

Concrete Masonry Unit (CMU) - A block or brick cast of Portland cement and suitable aggregate, with or without admixtures (additives), and intended for laying up with other units, as in normal stone masonry construction.

Critical Facility - A "structure" from which essential services and functions for victim survival, continuation of public safety actions, and disaster recovery are performed or provided. Examples include: hospitals, police stations, fire/rescue stations, potable water liftstations, sewage treatment plant etc.

Curtain Wall - An exterior nonload-bearing wall, typically constructed of glass, metal, or other material, that forms a barrier between the interior of the building and the external environment.

Diaphragm - Structural member(s) usually seen as some type of decking (i.e., roof or floor decking), primarily used for lateral stability of horizontal structural components. Diaphragms are used to transfer lateral forces from walls facing winds to walls/frame members that are oriented perpendicular to the winds, thus providing lateral support.

Drain (roof drain) - Piping or conduit used to channel water runoff from a roof to a desired discharge point. Drains may be found at the roof perimeter or at relatively low spots in the field of a flat roof.

Dry Floodproofing - A floodproofing method that uses a structure's modified exterior walls (in

concert with flood shields, closures, sealants, and membranes), as the water-resistant barrier during a flood event.

Egress - a path or opening for going out, an exit.

Expansion Joint - A joint between adjacent parts of a building, structure, or concrete work that permits relative movement due to temperature changes (or other conditions) without rupture or damage.

Exiting Hurricane - A hurricane leaving land and heading out to sea.

Exterior Insulation and Finish System (EIFS) - A lightweight exterior wall cladding system commonly installed on low and mid-rise commercial and multi-unit residential buildings. EIFS construction typically is composed of sheathing (e.g., gypsum board) attached to structural wall framing (e.g., steel -studs), over which rigid insulation boards are glued or mechanically fastened and a weather membrane applied to the exterior surface.

Felt - A fabric composed of matted, compressed fibers, usually manufactured from the cellulose fiber found in wood, paper, rags, from asbestos or glass fibers.

Fenestration - An opening in the surface of a structure.

Fiberboard - A building material, usually composed of wood fiber or cane or other vegetable fiber, compressed with a binder into a sheet form.

Fire Wall - An interior or exterior wall having sufficiently high fire resistance and structural stability under conditions of fire. Its primary function is to restrict the spread of a fire to adjoining areas or buildings. It usually extends from the lowest floor level to about three feet above the roof and has all openings protected by self-closing fire doors or fire shutters.

Flat roof - Any roof with a slope of approximately one degree (1/4-inch pitch).

Floodproofing - Any combination of structural and non-structural additions, changes, or adjustments to properties and structures that reduce or eliminate flood damage to lands, water and sanitary facilities, structures, and building contents.

Floodshield - Permanent or temporary closures and assemblies that serve as structural barriers to resist all flood-induced loads that act on their surface(s) to include hydrostatic (pressure exerted by nonmoving water), hydrodynamic (pressures exerted by moving water), and impact loads (loads induced from collision by floating debris).

Frame (Structural) - A combination of beams and columns mechanically connected (bolted or welds for steel or precast or monolithic poured concrete) such that the final structure is able to

support all vertical live and dead loads of roof, as well as floors (if multistory), without necessitating the use of load-bearing walls. The frame may or may not have significant lateral-force resistance.

Gable-end Roof System - A ridged roof system that has triangular wall sections at the ends.

Generator - A machine that converts mechanical energy into electrical energy.

Generator PreWiring system - See Prewiring.

Generator Ready - Generic term used to express the modification of a facility's electrical system to simplify and expedite connection with a compatible alternate power supply or generator.

Global Positioning System - A satellite-supported digital plotting used for rapidly determining longitude and latitude at a given point.

Hip (connection) - The external angle formed by the meeting of two sloping sides of a roof. See Hip-Roof System.

Hip-Roof System - Roof system that slopes up toward a ridge from all sides (similar to a pyramid), requiring a hip at each corner.

Host Shelter - A facility that is relatively safe and provides essential support services. Facilities are designated as Host Shelters when they are located in an area that is outside the projected path of an approaching hurricane or severe storm. As local conditions are not expected to present hazards such as surge inundation, rainfall flooding, high winds, or hazardous materials which exceed the building codes of the facilities in use, shelter selection guidelines in ARC 4496 do not have to be considered. The shelter population may include evacuees who flee from the threat of a hurricane or severe storm in their home counties. For planning purposes, the operational period of a Host Shelter is from 24 hours prior to landfall until 72 hours after landfall of a hurricane or severe storm. A total of 20 square feet of usable floor space per person is recommended in the calculation of shelter capacity.

Hurricane Evacuation Shelter (HES) - A building or facility that conforms to the hurricane evacuation guidelines in ARC 4496, and is intended to shelter persons in the path of a major storm or hurricane. The designation does not imply that a facility is capable of affording complete protection or is free from hazards but only that it meets established safety criteria. See also Storm Shelter and Risk Shelter.

Infill Wall - A nonload-bearing wall used to fill the spaces within the plane of a structural frame; provides additional thermal insulation, fire resistance, and in some cases, stiffness (bracing).

Infrastructure - The basic facilities, equipment, and installations necessary for functioning of a system, building, or community.

Inundation - The submersion of land, buildings, and infrastructure by flood waters.

Joint Reinforcement - Wire gauge steel reinforcement laid horizontally between courses of masonry to resist excessive vertical cracking or joint separation during foundation settlement. This reinforcement is typically "Ladder" or "Z-truss" shaped and serves only as a tension member within the wall plane. It does not provide significant flexural strength to loads perpendicular to the wall plane (i.e., wind loads).

Joist - One of a series of parallel beams of timber, reinforced concrete, or steel used to support floor and roof loads, and supported in turn by larger beams, girders, or bearing walls.

Kilowatt (KW) - Unit of electrical power equal to 1,000 watts.

Landfalling Hurricane - A hurricane that is coming to land from the sea.

Leeward Wall - The wall of a building that is on the side of the building opposite the building side that is being directly impacted by the wind. The wall on the side of the building not exposed to the wind or prevailing winds.

Lightweight roofs - Roof systems of relatively light construction, to include wood board, plywood, fiberboard, precast cementitious fiber planks, and metal decking on wood or metal truss/joists. Typically the dead weight of these roof systems will not exceed the basic wind uplift-loading requirements of local building codes (25 psf +/-).

Load-Bearing Wall - A wall that supports any vertical loads of the building or structure in addition to its own weight.

Load Path - The structural element or combination of elements that form a continuous path for the transfer or distribution of loads to the building's foundation.

Long Span - See Open Span.

Main Wind Force Resisting System (MWFRS) - An assemblage of major structural elements designed to provide support (lateral stability, uplift resistance, etc.) for secondary members and cladding. The system typically receives wind loading from more than one direction.

Major Retrofit - A retrofit effort or project that requires major modifications to include demolition to parts or all of a building's structure.

Maximum Surge Elevation - The maximum depth of inundation for an area, as predicted by

the SLOSH modeling method, for a worst-case scenario event -- typically a Category 4 hurricane.

Metal Deck - Structural system of light-gage steel or metal panels, usually 18 to 26 gage, used for roof or floor deck, or as a structural form in which other materials (i.e., concrete or composition roofing) and building live loads are supported.

Miami-Style Windows - Multipane windows that when fully open create 45 degree angles with respect to each window's vertical plane.

Minor Retrofit - A retrofit effort or project that does not require significant demolition. Some examples are shuttering windows, bracing roof trusses, and other minor modifications to a building's existing structure.

Mitigation - Actions taken to prevent or reduce the risk to life, property, social, economic activities, and natural resources from natural or technological hazards.

Moment Resistant - The inherent ability of a structural system (i.e., beam-to-column connection) to resist movement or rotation (bending or racking) within the plane of the frame.

Nonload-Bearing Wall - A wall that supports no vertical loads other than it's own weight.

Open Area - An area generally of flat and open terrain extending for a ½ mile or more.

Open Side - A side of a structure where less than 50 percent of its exterior wall is capable of resisting lateral shear forces.

Open Span - An area in a structure where the clear distance between supporting elements (beams, columns, etc.), in the shortest direction, is 40 feet or more.

Paralleling Hurricane - A hurricane paralleling the coastline without entering or exiting.

Parapet - Low guarding wall at any point of sudden drop, as at the edge of a terrace, roof, battlement, or balcony.

Ponding - The rapid accumulation of water on a flat roof contained by parapets walls with insufficient scuppers/drains.

Partially Reinforced Concrete Masonry - Wall masonry construction that is designed as plain (unreinforced) masonry, except that vertical reinforcement is provided in some portions to provide flexual support. Vertical rebar will be spaced no more than eight feet apart, with vertical bars at wall corners, wall intersections, and on each side of window and door openings. Horizontal reinforcing must be present at roof and floor levels and above and below window or door openings. Masonry construction of this type will conform to the design criteria of NCMA TEK

63 (1975).

Pilaster - The reinforced portion of a wall that may serve as either a vertical beam or a column, or both. In masonry construction, the pilasters may or may not project beyond either face of the wall.

Precast Concrete (PC) - Cement or concrete unit with or without steel reinforcement that is cast in the form of a structural element before being placed in its final position. Precast concrete shapes may include girders and beams, spandrels, planks, "Tees" and "double Tee's," tilt-up walls.

Precast Cement-Fiber Planks (PCF Planks) - A common building material that is manufactured from cement and fiber (cementitious fiber) and cast into a composite panel or plank. Typical uses include roof decking and sound absorption panels on interior wall surfaces.

PreEngineered Metal Building (PEMB) - An easily recognizable prefabricated, standardized type of light steel frame building, which is found in similar form throughout the United States. It consists of two types of steel frame systems -- transverse (short axis) moment-resistant frames, typically rigid frame bents with tapered sections, and longitudinal (long axis) braced frames. This class of building is typically one story or has only a minor mezzanine/partial second story, lightweight cladding, or stud-framed walls.

Prewiring - The modification of a facilities electrical system to simplify and expedite connection with a compatible alternate power supply or generator.

Primary Host Shelter - A designation for a host shelter area, that if utilized as such, will prohibit the normal day-to-day functioning of only the building or area utilized as the shelter and is not the primary function of the remainder of the facility. For example, using a school gymnasium will only prohibit gym classes, with the remainder of the school facility continuing to function normally.

Recovery Shelter - A facility that is relatively safe and provides essential support services. Facilities designated as Recovery Shelters are used after there is no longer a threat of hurricane or severe storm in the area. All Host Shelters and those Risk Shelters that have essential support services may be used as Recovery Shelters. As local conditions are not expected to present hazards such as surge inundation, rainfall flooding, high winds, or hazardous materials which exceed the building codes of the facilities in use, shelter selection guidelines in ARC 4496 do not have to be considered. The shelter population may include evacuees from the local area or evacuees who flee from the threat of hurricane or severe storm in their home counties and are not yet cleared to return to their homes. For planning purposes, the operational period of a Recovery Shelter is from 72 hours after landfall and beyond. A total of 40 square feet of usable floor space per person is recommended in the calculation of shelter capacity.

Refuge - A place or building that serves as an escape from real and immediate danger as a last resort to save one's life.

Reinforced Concrete Walls - Monolithically cast-in-place concrete wall construction with vertical reinforcing steel bars in both the horizontal and vertical directions, with spacing based upon design requirements. Horizontal reinforcing must be present at roof and floor levels and above and below window or door openings. Concrete construction of this type will conform to the design criteria of ACI 318.

Reinforced Concrete Masonry - Masonry wall construction in which steel reinforcement is integrally embedded in a manner that permits the two materials to act together in resisting forces. Masonry of this type shall have vertical reinforcing steel bars spaced no more than four feet apart, with vertical bars at wall corners, wall intersections, and on each side of window and door openings. Horizontal reinforcing must be present at roof and floor levels and above and below window or door openings. Masonry construction of this type will conform to the design criteria of ACI 530 or ASCE 5.

Retrofit - Modifications performed upon an existing structure or infrastructure with the goal of significantly reducing or eliminating potential damage due to a specific hazard.

Risk Shelter - A facility that complies with shelter selection guidelines prescribed in Guidelines for Hurricane Evacuation Shelter Selection (ARC 4496, July 1992). Facilities designated as Risk Shelters lie in the projected path of an approaching hurricane or severe storm and who have been directed to evacuate. The designation does not imply that a facility is capable of affording complete protection or is free from hazards but only that it meets established safety criteria. A total of 20 square feet of usable floor space per person is recommended in the calculation of shelter capacity. See Hurricane Evacuation Shelter and Storm Shelter.

Saffir-Simpson Scale - The current prevalent system of classifying hurricanes based on five categories that relate hurricane strength and, therefore, damage potential, with the central pressure, wind velocity, and storm surge.

Scuppers - An opening (or outlet) in a wall or parapet of a building for draining overflow water from a flat or shallow slope roof.

Secondary Host Shelter - A designation for a host shelter area, that if utilized as such, will prohibit the normal day-to-day functioning of the entire campus/complex and not just the building or area utilized as the shelter. For example, using a school cafeteria or classroom area as a host shelter could result in school closure.

Shear Wall - A wall that resists horizontal forces acting in the plane of the wall, which keeps a structure from sliding or racking, in response to lateral forces. Typically, these walls extend from the roof level to the foundation

Shelter - A predesignated place or building of relative safety that temporarily provides essential support services with the goal of preserving life and reducing human suffering.

Shutters - Permanent or temporary closures or shields and assemblies that serve as structural barrier to resist wind induced loads that act on their surface(s) to include aerodynamic and windborne debris impact loads.

Softspot - A weakpoint in a building's envelope that is vulnerable to wind loads or windborne debris impact.

SLOSH modeling - A modeling methodology that predicts the maximum envelope and depth of coastal and inland storm surge inundation with respect to categories of hurricane.

Storm Shelter - A building or facility that conforms to the hurricane evacuation shelter guidelines as established in ARC 4496 and is intended to be used to shelter persons in the path of a severe storm or hurricane. The designation does not imply that a facility is capable of affording complete protection or is free from hazards but only that it meets established safety criteria. See also Hurricane Evacuation Shelter and Risk Shelter.

Storm Surge - An abnormal rise in water level at the shoreline of a large body of water caused by wind and pressure forces of a storm or hurricane.

T-beam - Reinforced concrete beam, typically precast, or a rolled metal shape having a cross section resembling the letter "T."

Tie Beam (or Collar) - In roof framing, a horizontal beam connecting two opposite rafters at their lower ends to prevent them from spreading.

Tongue-and-Groove (T&G) - A joint made by fitting the edge (tongue) of one board into a matching slot (groove) on another board.

Truss - A combination of members, such beams, bars, and ties, usually arranged in two-dimensional triangular units to form a rigid framework for supporting loads over a long span.

Unreinforced Masonry - Masonry without vertical steel reinforcement or with vertical reinforcements spaced at distances of nine feet on-center or greater.

Velocity Zone (flooding) - A special flood inundation zone where water flow rates are anticipated to exceed two feet per second. Facilities located in velocity zones will be subjected to possible foundation scour (erosion) and high hydrodynamic and debris impact loading.

Veneered Wall - A wall having a facing of masonry units or other weather-resisting, non-combustible materials securely attached to a backing of supporting material but not bonded so as to exert a common reaction under load.

Waterproofing - The application of sealants or use of construction materials with properties that permit them to serve as impermeable barriers to water intrusion.

Windward Wall - The wall of a building on the side from which the wind is blowing. The wall of a building that the wind is blowing directly against.