PIMA COUNTY REGIONAL FLOOD CONTROL DISTRICT
TECHNICAL POLICY

TECHNICAL POLICY TECH-021 **EFFECTIVE DATE: March 3, 2008**

POLICY TITLE: Use of Flood Resistant Materials Below the RFE

PURPOSE: To clarify 16.20.020.C.4 of the Ordinance by providing guidelines on the use of flood resistant materials for those portions of structures below the RFE. This policy is also designed to provide a concise list of materials that are acceptable or not for use below the RFE.

BACKGROUND:

Structures may be subject to significant damage if constructed of materials that are not flood resistant, even when subjected to shallow flooding. Ensuring that structures that are not proposed to be elevated to the Regulatory Flood Elevation (RFE) are able to resist damage due to flooding is one of the basic floodplain management principles.

Pursuant to 44 CFR 60.3(a)(3), the District is required to ensure that all new and substantial improvements shall be constructed with materials resistant to flood damage. Section 16.20.020.C.4 of the Floodplain and Erosion Hazard Management Ordinance (Ordinance) allows the District to require submittal of building material specifications and proposed flood proofing measures of any portion of a structure below the Regulatory Flood Elevation (RFE) in order to determine acceptability. However, neither the CFR nor the Ordinance establishes which materials are determined to be flood resistant and, therefore acceptable for use in the floodplain.

FEMA Technical Bulletin 2-93, *Flood-Resistant Materials Requirements*, provides information and guidance on the use of flood resistant materials and provides comprehensive tables that classify specific materials according to their acceptability at meeting the flood resistant standard. Excerpts from that document are used as the basis for this policy.

POLICY:

1. **Applicability:**
   This policy applies primarily to structures with a lowest floor elevation, including an attached garage, below the RFE; however any structure that extends below the RFE is subject to this policy. For the purpose of this policy, the lowest floor is the floor of the lowest enclosed area, whether the floor is unfinished or finished (i.e. bare ground or cement slab or equivalent).

   Examples: In the case of a structure elevated on a crawl space foundation, all materials used in the foundation up to the level of the RFE must be flood-resistant. In the case of a structure elevated on pilings, the pilings must be flood resistant. Most elevated structures will involve the use of fill pads, masonry stem walls or concrete/masonry piers, all of which qualify as flood-resistant materials.

2. **Submittal requirements for proposed structures elevated at or above the RFE:** Applications for structures that will be elevated at or above the RFE via a fill pad, a stem wall, or concrete/masonry piers do not need to provide any supplemental information. If other materials

are proposed, the applicant shall submit a description of the material and demonstration that the material is flood resistant.

3. **Submittal requirements for proposed structures elevated below the RFE:** Applications for structures that will not be elevated at or above the RFE shall contain detailed specifications regarding all of the materials proposed for use below the RFE, including materials that do not provide structural support. The submittal information shall include, at minimum, the following:

   A. A note on the site plan stating that all construction below the RFE shall be completed using flood resistant materials, and adequately flood-vented, if applicable,
   B. A list of all materials to be used below the RFE, which shall be referenced on the site plan,
   C. If materials are proposed that are not on the list of acceptable materials found in this policy or FEMA Technical Bulletin 2-93, the submittal of supporting information that demonstrates that the materials are adequately flood resistant is required. "Flood resistant material" is defined as any building material capable of withstanding direct contact with floodwaters for at least 72 hours without sustaining damage requiring more than low-cost cosmetic repair (such as painting).
   D. A signed and notarized covenant that states that the structure or area that is not elevated to the RFE shall remain non-habitable unless brought into compliance with the rules and regulations for habitable structures or areas.
      i. If a non-habitable area is constructed below the RFE contrary to the terms and conditions of the permit, these covenants shall be signed and notarized prior to the release of any holds.
   E. Prior to the release of the final inspection, or electrical inspection, the permittee shall demonstrate that the structure was constructed of flood resistant materials in conformance with the permit by submitting either of the following, subject to verification by the District:
      i. A letter from a licensed contractor or registered civil engineer or architect, on company letterhead that includes the contractors license number or engineer's seal, stating the height to which flood resistant materials were used on the structure, as well as a statement that the materials used were those listed on the approved site plan.
      ii. Receipts for the purchase of the flood resistant materials specified in the permit. The receipt must be clear about the identity of the materials purchased.
      iii. If the structure consists solely of masonry or steel construction below the RFE, photographs showing the completed interior and exterior of the structure may be adequate.

4. **Flood Resistant Flooring Materials:** As excerpted from FEMA Technical Bulletin 2-93, Flood-Re*sistant Materials Requirements.*
   A. **Acceptable Flooring Materials** -
      - Cement, latex or bituminous, formed in place
      - Clay tile
      - Concrete, precast, in-situ, or tile
      - Terrazo
      - Wood, naturally decay-resistant, per standards of American Wood Products Association
      - Wood, pressure treated, 0.40 CCA minimum
   B. **Unacceptable Flooring Materials** -There are a number of materials that would seem to be flood resistant that, in fact, are not. The reasons for this may be that they restrict evaporation from the underlying floor, among other reasons. The following materials are NOT acceptable:
      - Asphalt tile
      - Carpeting
      - Ceramic tile

- Chipboard
- Linoleum
- Vinyl (sheets or tile)
- Wood, accept as provided in Section 4.A.

5. Flood Resistant Wall and Ceiling Materials- As excerpted from FEMA Technical Bulletin 2-93, Flood-Re*sistant Materials Requirements.*

A. **Acceptable Flood Resistant Wall and Ceiling Materials -**

- Asbestos cement board (and cement board)
- Brick, face or glazed (not common brick)
- Cast stone (in waterproof mortar)
- Clay tile, structural glazed
- Concrete
- Concrete block
- Doors, metal
- Insulation, foam or closed-cell types
- metals, ferrous
- Paint, polyester-epoxy and other waterproof types
- Particle board
- Plywood, Marine Grade or pressure treated, 0.40 CCA minimum
- Wood, naturally decay-resistant, per standards of American Wood Products Association
- Wood, pressure treated, 0.40 CCA minimum

B. **Unacceptable Wall and Ceiling Materials -** There are a number of materials that would seem to be flood resistant that in fact are not. The reasons for this may be that they absorb or retain water, among other reasons. The following materials are NOT acceptable:

- Brick, common
- Chipboard
- Doors, wood
- Fiberboard, including mineral fiberboard
- Gypsum products (gypsum board, sheet rock, plaster, sheathing panels (including exterior grade)
- Insulation, batt or blanket types, all other types except as provided in 5.A
- Metals, non-ferrous (aluminum, copper, zinc tiles)
- Paperboard
- Particle board
- Plywood, including exterior grade, and all others except as provided in 5.A

APPROVED BY:

Suzanne Shields 3/4/2008

Suzanne Shields
Director

Date

Original Policy Approved:
Date(s) Revised: