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## Building Evaluations for Risk Assessment

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Wednesday, February 16, 2011

Workshop Session III

Time of Session: 3:30-5:00pm

Session Title: Opportunities for Building Mitigation & Floodproofing

Speaker: Stuart Adams, Louisiana State University & Pat Skinner, LSU AgCenter

Room: 256

Head Count: 16

Note Taker: Casey Carpenter- O'Keefe

Notes:

### **Building Evaluations for Risk Assessment**

Stuart Adams, Civil Structural Engineering PhD Student

Unmanned Aerial Vehicle Research- Uses a remote control helicopter with a camera to take photos of campus. Costs apx \$300/day to rent

Using the helicopter you can collect quick data to see response time of infrastructure (pre/post storm or disaster)

Investigate and document building vulnerabilities, identify potential mitigation and shelter in buildings from hurricanes, tornadoes, wind, floods, etc.

Use HAZUS for field data collection and a level 2 analysis.

HAZUS survey collects general building attributes, creates a permanent record and a computer entry. The campus (LSU) is working together to build an "app" for this information.

### **Common Vulnerabilities**

Mostly related to roof. (Equipment, debris, poorly anchored, etc)

Vulnerable roof areas include: skylight, air-conditioning units, drains.

### **Potential Mitigation Measures**

Anchor

Remove Unused Equipment

Roof Upgrade

Use social media and emergency management through Facebook, Twitter, etc. Want to integrate form to server to photo to computer program (through smart phones and application)

### **Hurricane Hazards**

Wind, flood, storm surge

    Create 3D model of buildings

Pre-event Imagery and Post-event Imagery used to enhance potential vulnerabilities

Unmanned Aerial Vehicle used for Inventory, Maintenance, etc

### **Floodproofing Techniques, Pat Skinner, LSU AgCenter**

#### **Flood Protection**

##### **Structural Measures**

    Major Levees

    Dams

##### **Non-Structural Measures**

    On-site flood protection

    Removal (Acquisition/Relocation)

Techniques to minimize damage

##### On-Site flood protection

    Elevate

    Dry Flood Proofing

    Levees

    Walls- permanent and temporary measures, closures for openings, pumps and backflow preventers.

#### **Wet Floodproofing**

Use materials that floodwater won't hurt

Elevate appliances, equipment, utilities

\*Required for areas of a structure below BFE (base flood elevation)

Elevation is best to reduce future flood damage

    Fill (not advocated to go too high)

    Elevated Slab

    Elevated and removed from slab

    Built atop old walls

    Elevating on piers

    Demolish and Reconstruct

#### Elevation Considerations

    When are you required to elevate the home?

    Choosing a foundation (piers, pilings, etc)

    Choosing a level of protection (how high?)

How high? Look at flood of record, height above levee, pre-DFIRM

**Dry Floodproofing**

Usually not over 3 ft

    Certifiable alternative to elevation for non-residential structure

    Sealant, Swinging and Removable panels

    Problems with water leakage? Floodwalls, levees and pumps

**Wet Floodproofing**

Allows water to enter