Friday, March 22, 2013

Workshop Session 2

Time of Session: 10:00-10:45AM

Session Title: The Role of Safe Rooms in Disaster Resistant Universities

Speaker: Ernst W. Kiesling, Texas Tech University

Room: 236

Head Count: 40

Note Taker: Hannah Galloway
10:00 Introduction

10:00 Ernst begins the presentation

10:01

- Ernst has been focused on shelter quality.
- There is good discussion here [at this workshop].
- It is very important to know what the self-image of you students are.

10:02

- Safe Rooms – An overview
  - They [safe rooms] must withstand pressure and debris.
  - Important Design Elements

10:04

- Warning time is short, especially during tornadoes—it is very short.
- The safe room should be accessible without going outdoors.
- Operating Policies are important.
- IMPORTANT: Mobile home parks—We need to develop safe rooms/ shelters there. Mobile homes are very dangerous.

10:07

- Texas Tech University
- Some buildings are massive
- Ed Bates, Tulsa, OK – Design
- Broken Arrow University—Adequate safe space

10:09

- It’s a good model to follow
- You need to tie down the shipping containers being used as shelter.
- They made dorms out of shipping containers
- Athletic Facilities
- Building has underground spaces.
- Check for roof vulnerability.

10:11

- Design Challenges for Safe Rooms
- Wind induced pressure.
- Structural Design
• Debris Impact: Rely on testing
• Debris Launcher at Texas Tech

10:13

• Missile Impact Simulation
• Goal: Successful Performance = Missile shatters

10:15

• Genesis of Wind Research
• Began with Lubbock Tornado in 1970: 26 people killed. 1/3 of the city damaged.
• Studied effects of about 150

10:17

• Inspiration for Above Ground safe rooms

10:19

• School in Xenia, OH
• Before storm vs. After storm pictures

10:20

• Developments in Utilization
• 1997: Jarrel, Texas—Most of people who stayed in their homes were killed.
• What could have been done to save these lives?
• This gave safe rooms public attention (Because of the media coverage.)

10:23

• FEMA 320: IMPORTANT
• Also see FEMA 361

10:24

• Barlett Shelter, Oklahoma City 1999

10:25 NSSA: National Storm Shelter Association

• ^^ An industry association is born.
• Standards Compliance Verification Process
• 1. Produce member pledges...
• 2. Code of Ethics
• 3. Get professional assurance
• 4. Obtain 3rd party approval (FEMA 320)
• 5. Test Shelter
• 6. Put a seal on the shelter

10:28

• Plywood and Steel

10:29

• Moore, OK: Tornado Damage to Elementary School
• Guidelines

10:30

• Impetus for community
• ICC/NSSA 500-2008 Standard
• FEMA revised versions on their policy (361 & 320)
• If FEMA is involved—You must meet their guidelines.

10:33

• Hardened Interior Space
• Jefferson Elementary
• Community Steel Shelters

10:35

• Safe Rooms can meet all demands
• Residential Safe Rooms
• Below the slab safe rooms
• Cut out hole in garage
• Concrete safe rooms above ground
• Steel safe rooms above ground
• Fiberglass safe rooms underground shelters (Issue: They may begin to float)

10:40

• Signs of Progress
• 2015 Building Codes will require safe areas
• It will take time.

10:42

• Informational Sources:
  • www.NSSA.cc
We are going to produce a computer model.

Question and Answer time

- Question: How do you decide where the community shelters are located?
- Answer: They should be accessible. Texas will build 40-60 shelters along the coast. X amount of people for every X radius. 5 sq. feet per person. Texas decided to use dome shaped shelters, and the visual of these shelters make them easily known.

- Question: How do you deal with older, historical buildings?
- Answer: It can be made to fit the standards. IBC will require safe rooms. We need to accommodate fire protection.